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PACT OF ISLANDS

ISLAND SUSTAINABLE ENERGY ACTION PLAN

ISLAND OF SAMSØ

FINAL VERSION

Date 17 November 2011

Executive summary

The Island of Samsø has been working with renewable energy for almost 15 years since 1997 up until now.

The Islanders have created a series of successful projects establishing the island as an internationally renowned renewable energy island.

Since 1997 the Island's total CO2 emissions have been reduced by 140%. With a significant export of renewable energy from wind turbines each citizen on the island has a carbon footprint of minus 2 tonnes CO2 each year.

Now the Island of Samsø has set a new ambitious goal – the Fossil Free Island by 2030.

This Island Sustainable Energy Action Plan encompasses the necessary actions to reach this goal.

The main challenges are lined up in 7 objectives:

1. That fossil fuels are not used on the island
2. That the decentralized and flexible energy system for renewable energy production are maintained and further developed
3. That fuel for transport on Samsø and to / from the island will be based on renewable energy
4. To focus on significant heating savings
5. To work for substantial savings on electricity consumption
6. To seize opportunities as they arise
7. To strengthen and establish partnerships between energy consumers, utilities, distributors and producers.

Samsø has chosen the year 2001 as its baseline.

The CO2 emission of Samsø amounted to 226.000 tons in total in 2001.

Per inhabitant the CO2 emission was 5 ton.

If all measures proposed in the action plan are implemented successfully the CO2 emission per inhabitant in 2020 will be -5 ton a year, making Samsø a major exporter of renewable energy compared to its size.

To make this a reality efficient use of electricity and heat are key issues, as well as energy production by increased wind and solar power generation, production of biogas for transportation, and transition towards electrical vehicles.

The people living on Samsø are united and eager to tackle the new challenges fuelled by the successes of the earlier energy projects.

Samsø Municipality has politically approved the 7 objectives of the ISEAP and is committed to work with Samsø Energy Academy on implementing the objectives.

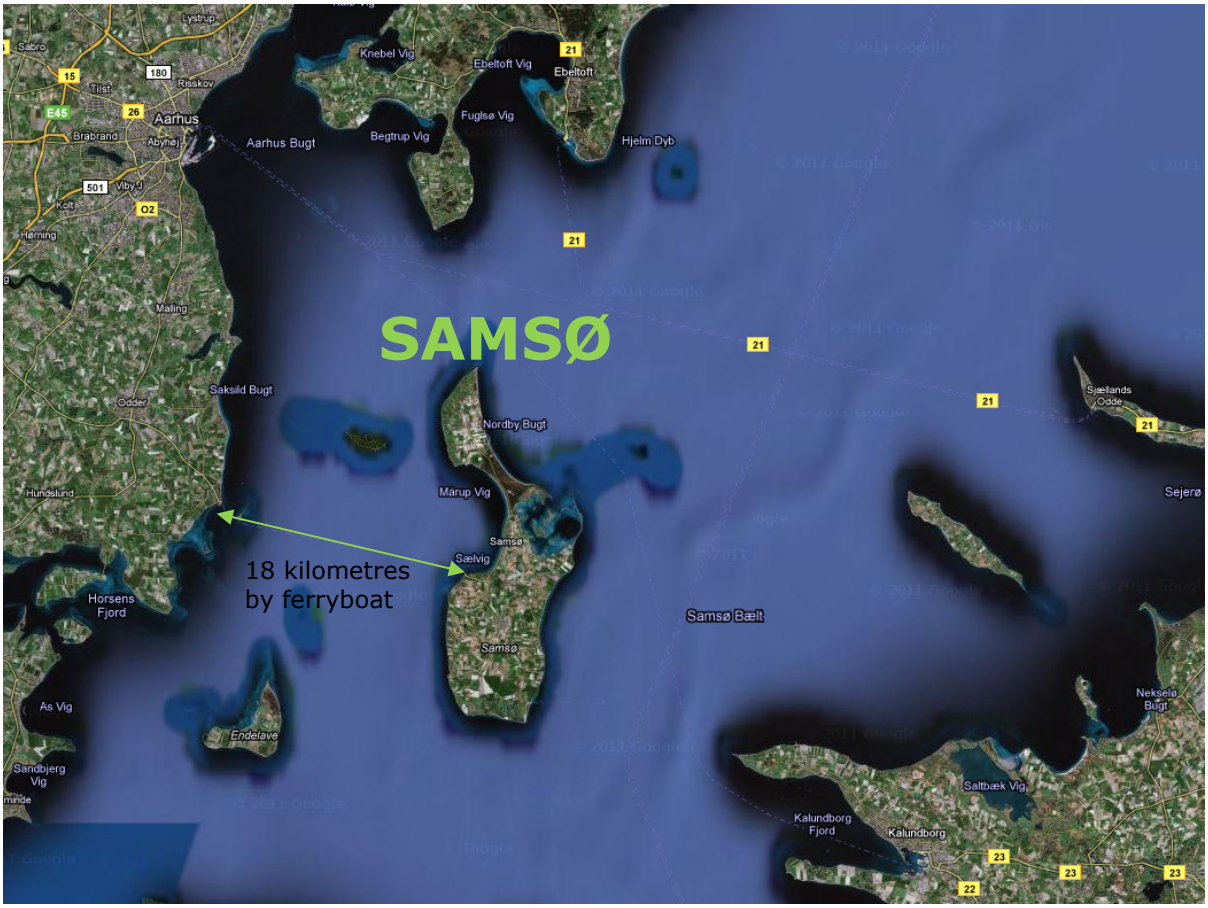
Contents

1. CONTEXT

1.1. Geography and Territory

Samsø is an island of 114 square kilometres. The island is located in the centre of Denmark in-between the larger island Zealand – with the national capital Copenhagen approximately a hundred kilometres away - and the peninsula Jutland, with the second biggest city of Aarhus – approximately forty kilometres away. Samsø is connected to Jutland (1 hour) and Zealand (2 hours) via ferries.

Samsø is connected to the main electricity grid in Jutland via a 110 KV undersea transmission cable. The distance to the mainland is 18 kilometres as the bird flies.



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Land use is mainly farmland, with some areas of forestry. Historically the island has been famous for growing quality potatoes and other vegetables. Approximately a quarter of the Island is protected nature reserves.

1.2. Demography

The population of Samsø has been decreasing for some years. The latest population figure shows 3.885 permanent residents in 2011 (figure 1). There is a slightly decreasing trend in the percentage of children and an increasing trend in the percentage of elderly (figure 2) during the last three years.

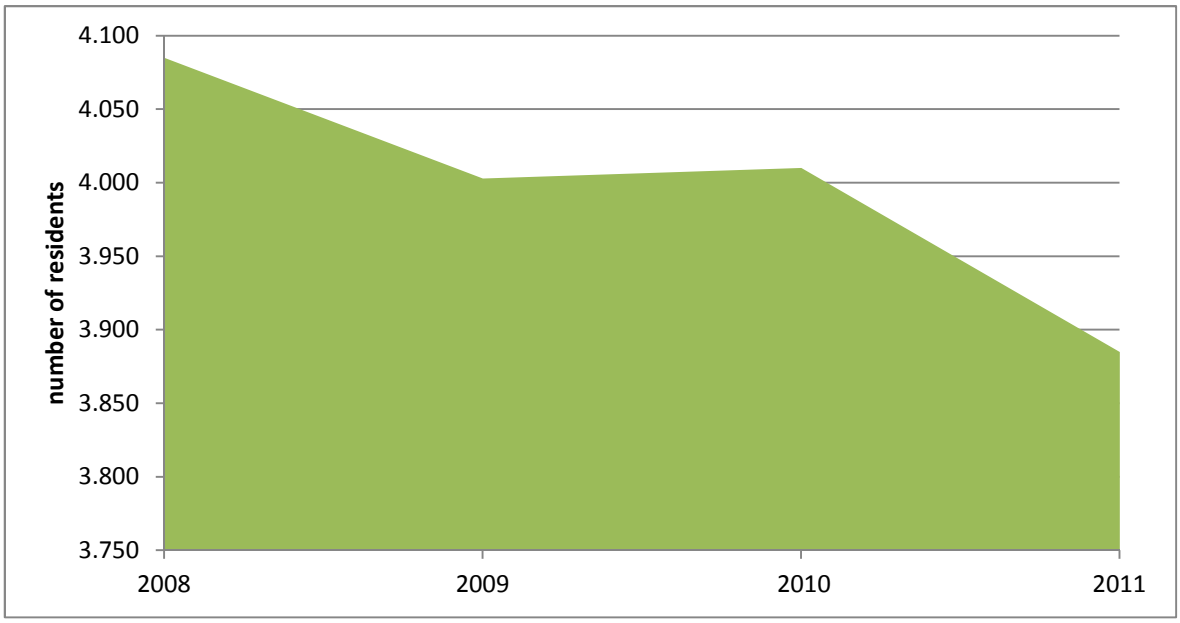

Figure 1. The number of residents of Samsø from 2008-2011

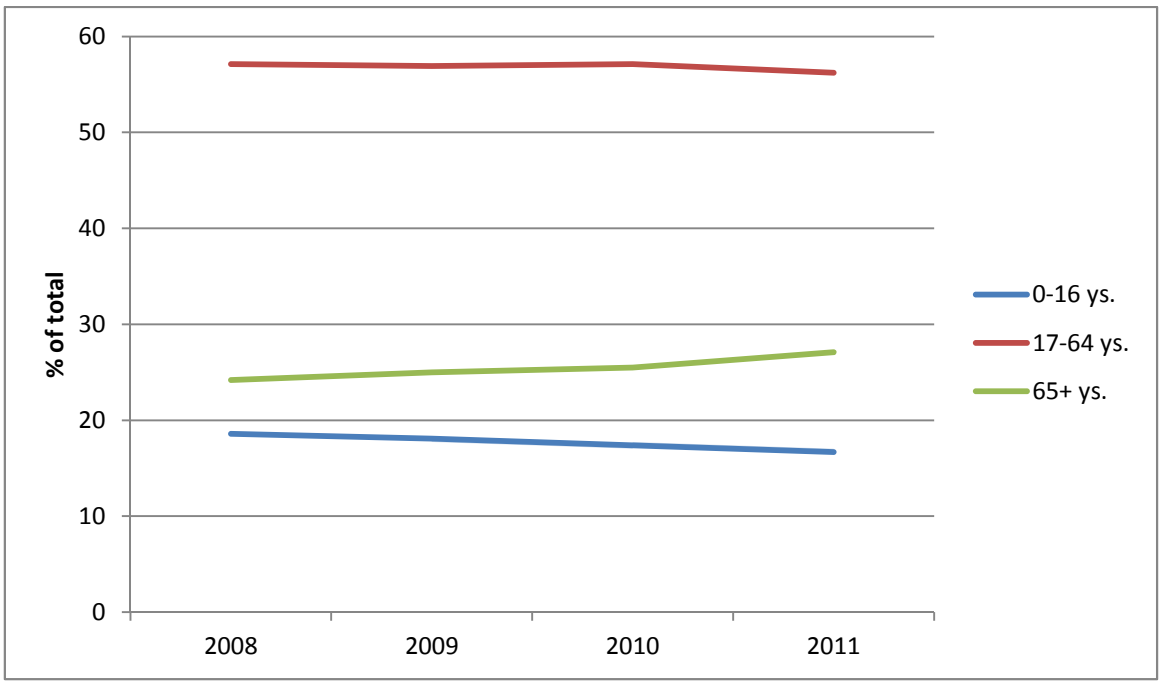

Figure 2. The age structure of the Samsø population (in percentage) from 2008-2011.

1.3. Economy

88,6 % of the working residents of Samsø are employed on the island. Commuting compared to total employment (percent) 2.6.

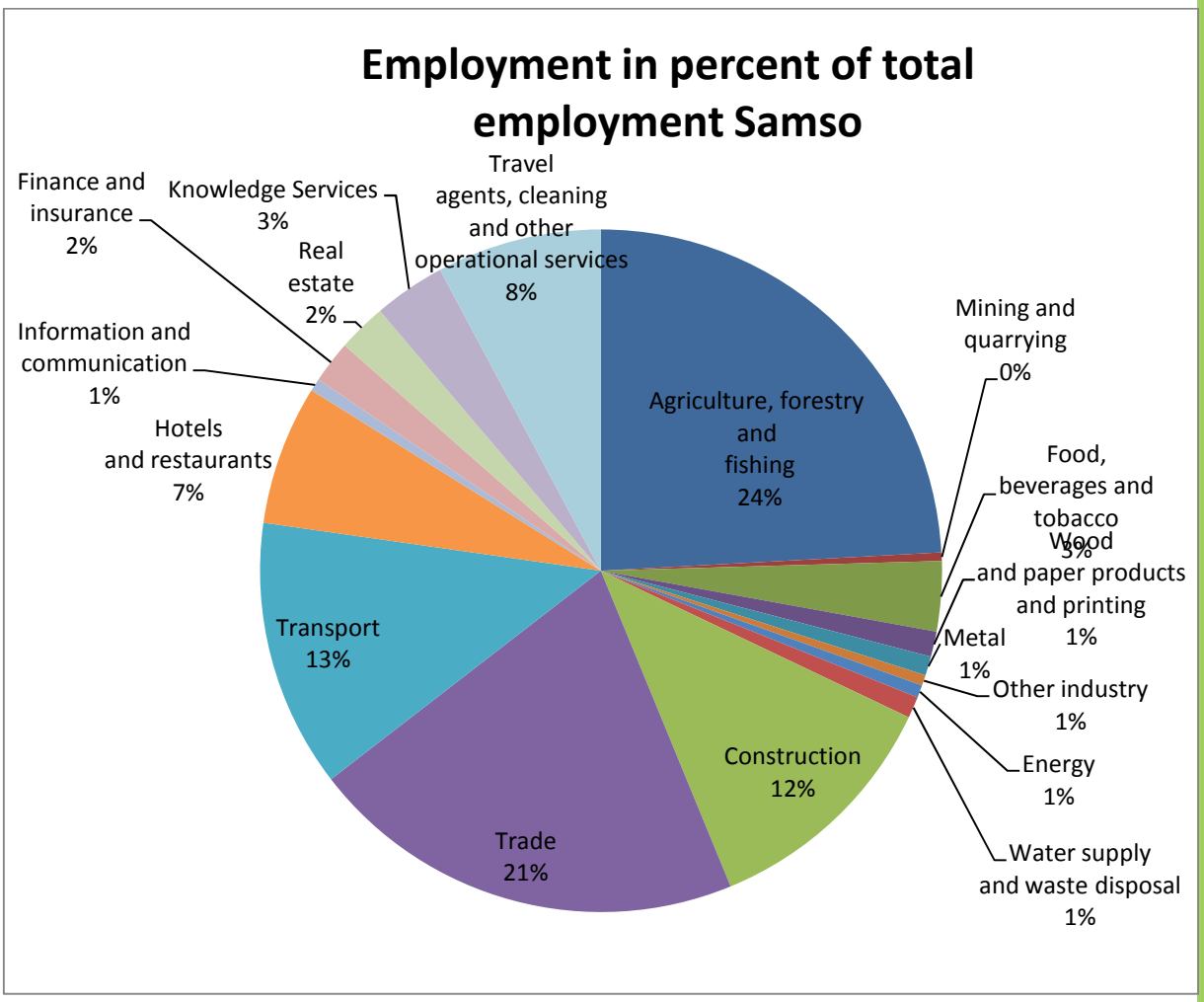

Figure 3. The employment of Samsø divided into sectors (in percentage) in 2009.

As seen above, agriculture, trade, transport and construction have the most employees.

1.4. Political and Administrative Structures

In February 2011 the former Government of Denmark introduced an Energy Strategy 2050 indicating the vision of becoming free of fossil fuels in Denmark by the year 2050. The new Government is aiming at a parliamental aggreement before Christmas. This aggrement will strenghten the incentives to reach the ambious goals set up to switch from coal, oil and gass to renewable energy and simultaneously secure that substantial energy efficiency measures takes place. This policy aggreement will be the basis for initiatives the coming years.

The Ministry of Climate, Energy and Buildings is the national authority in the field of energy. Denmark is divided into five regions consisting of 98 municipalities. The island of Samsø is one municipality in the region of Midtjylland (Mid-Jutland). Each region setsup objectives and goals in the field of energy and environment to be followed up in the region. The single municipalities can decide their own objectives in the field as long as it is within the frame of the regional planning. The municipality of Samsø has decided to work actively on a Master Plan that leads to a fossil free island (see ch. 2).

The Danish gas- and electricity transmission net is owned by the Ministry of Climate, Energy and Buildings through the company Energinet.dk. Energy suppliers can be regional companies or smaller local ones. On Samsø both supplier types are present. Two of the four district heating plants are owned by a regional company (NRGI), one is owned by a local cooperative and the last one is owned by a local investor. Electricity on the island is supplyed by a consumer owned cooperative covering the whole region.

As mentioned above this company – NRGI - owns two district heating plants on Samsø and supplies electricity to the consumer on the Island. The electricity produced on the island is mainly provided by wind energy. The owners of the electricity production sells electricity to the regional company -NRGI. The owners of electricity production is either local investestors og the municipality of Samsø. A minor part of the electricity production – less than 7% - is owned by investors outside the island – some of these being connected to the island ex. by owning holidayhouses on the island.

2. OVERALL STRATEGY

2.1. Current Framework and Vision for the Future

The municipality of Samsø has decided to move from an Island supplied by 100% renewable energy[1] to a fossil free Island by the year 2030. Building on Samsø's past experience as Denmark's Renewable Energy Island – Samsø is developing a new master plan within the ISLE-PACT framework. The master plan sets the objectives to this new ambitious goal and thereby defines the Island's Sustainable Energy Actions that will have to be implemented.

Everybody on the island recognises the fact that the vision will be hard to reach and that a huge effort has to be done by everyone on the island. As anchoring of the activities into the society of Samsø is the key to the success everyone – the public and the private sectors and a large part of the households have to contribute in order to reach the benefits of the vision. The main drivers will be both economic and social.

[1] The island produces a larger amount of renewable energy than the total energy demand of the island –including the ferries. Still there is a use of fossil fuel for transport and decentralized heating.

2.2. Objectives and Targets

THE VISION

THE SHOWCASE	• To extend Samsø's role as a showcase for Danish know-how and experience of incorporating an energy system – without fossil fuels, and at the same time show how energy efficient solutions can be introduced to the society.
ANCHORAGES	• To ensure the continued anchoring in the local community of the actions initiated, and strive for public ownership of the fossil independent island.
OPPORTUNITIES	• To seize the possible opportunities to establish sustainable solutions - usually by using known and proven technologies.
INTERNATIONAL	• To learn from international experience.
RESOURCES	• To use the natural resources of the island in an intelligent way.
SKILLS	• To establish, maintain and develop a flexible way to organize initiatives, so that the targeted work can involve both the professional and human skills that are available to the island.

The Seven Objectives and the Three Milestones
The long-term goal is to develop the island in a sustainable way with respect to the people living on the island and the island's cultural and natural values. Samsø has set up seven objectives in the Master Plan. Fulfilling the seven objectives will lead to independence from fossil fuels.

Three milestones are chosen in order to monitor progress.

THE MILESTONES ARE:

- The 10-year plan for the period 2009-2020 – herein lies the completion – beyond the EU's 2020 goals
- The plan covering the medium term 2020-2030
- The long term scenario up to the year 2050, as is the year of the Danish National Strategy.

During the planning process the above mentioned milestones will be dissolved further into a number of milestones, indicating progress within specific focus areas.

The seven objectives given in the consplidated Master Plan for Samsø are:

OBJECTIVE 1:
FOSSIL INDEPENDENCY
Target 2030

That fossil fuels are not used on the island

This means that coal, oil or gas used for energy and transportation purposes gradually will be phased out towards 2030. The total greenhouse gas emissions of Samsø will in 2030 be limited to an amount of 0.6 to 2.5 tons per person in greenhouse gas equivalents[2].

OBJECTIVE 2:
FLEXIBLE
ENERGY
Target 2020
Target 2030
Target 2050

That the decentralized and flexible energy system for renewable energy production are maintained and further developed

This means partly that existing land- and offshore wind turbines will be replaced stepwise with new and more efficient turbines. An overall strategy for this development towards 2030 is scheduled to be in place in 2015.

Existing district heating systems will be upgraded and tuned to more efficient operations where this is appropriate.

Photovoltaic systems will be established to enable energy consumers to produce their own energy - either on individual basis or in clustered units where this is appropriate.

It also means that local biological energy resources, such as organic waste, manure and various energy crops will be utilized optimally to produce energy and soil fertilizer.

Furthermore it means the replacement of fossil fuels for individual heating. For example, replacing old oil-fired burners with other forms of heating, including heat pumps. Heating using solar power will probably increase in private households.

[2] In the long term scenario - after 2030 – further activities will be launched to decrease greenhouse gas emissions. This will involve further changes in the public as well as the commercial sectors on the island.

OBJECTIVE 3:
THE TRANSPORTATION OF TOMORROW
Target 2020
Target 2030
Target 2050

That fuel for transport on Samsø and to / from the island will be based on renewable energy

This means that 50% of the local fleet of cars in 2020 will be electric cars - and that in the same year 40-50% of the local commercial transport i.e. transport carried out by entrepreneurs, the agricultural sector, taxies, etc. have switched to bio-fuels or alike.

Public transport will as early as possible and at the latest by 2020 be completely free of fossil fuels.

In the longer term - by the year 2030 - 80% of the local fleet of cars will consist of electric cars and in 2050 the entire fleet are EVs - apart from nostalgic heritage cars.

80 % of commercial transport of any kind is in 2030 targeted to run on fossil free propellant. Whether this share can be increased towards 2050 or not is to be assessed by 2030.

Ferries to the island preferably use gas as propellant in 2020.

In 2030, the ferries will only use gas or electricity – energy that is preferably produced on the island.

By 2020 it will be considered how efforts are handled in relation to other motorized transport (motorboats, aircraft etc.).

OBJECTIVE 4:
EFFICIENT HEAT CONSUMPTION
Target 2020
Target 2050

To focus on significant heating savings

This means partly that within the first 10 years, 2020, the energy consumption for heating of our homes will be reduced by 30%. For industry, the energy consumption for heating will be reduced by 5% in 2020. The longer term objective is that the reduction in 2050 is 35% for heating of houses and 10% for commercial activities compared to the consumption in 2009.

It also means that new construction will be established with minimal energy consumption, i.e. the energy consumption for heating is 25% less than the then-current building regulations.

OBJECTIVE 5:
EFFICIENT POWER CONSUMPTION
Target 2030
Target 2050

To work for substantial savings on electricity consumption

This means partly that the electricity use for heating in the homes of the island will not rise throughout the period until 2030 compared to consumption in 2009. The increased use of electricity for heat pumps is estimated to be compensated by savings in the total electricity consumption. Whether the 2009 consumption can be maintained or

not will be analyzed soon.

It also means that the public sector in the period towards 2030 will make electricity savings equivalent to 30% of the 2009-consumption. This may be realized through e.g. the replacement of pumps and electric motors.

It also means that new business buildings are established with electricity consumption being 5% better than the latest building regulations.

OBJECTIVE 6:
SUSTAINABLE ISLAND
INCLUDES
CULTURE
NATURE

To seize opportunities as they arise

It is often the case that we do not spot the opportunities to coordinate ideas and thoughts - and listen to the opportunities - such as the opportunities to jointly ensure sustainable solutions, which include several of the cultural and natural resources of Samsø.

The population of the island actively contributes to launching initiatives where e.g. clean water, waste management and the diversity of flora and fauna are supported simultaneously. Initiatives can be inspired from inside or from around the world and will naturally include elements of job creation.

OBJECTIVE 7:
EXPAND
PARTNERSHIPS

To strengthen and establish partnerships between energy consumers, utilities, distributors and producers.

This means that potential partners who can contribute to the financing of action plans are identified and assembled.

Share solutions for neighbors and local communities are prioritized.

This means that the locals will be active participants and that they will be involved in the well-run partnerships.

This also means that we will work intensely with cooperation forms and that we will "stand on the shoulders" of past experience.

2.3. SEVEN ACTION PLANS

The seven objectives are supported by seven action plans. The organization and financing initiatives of the action plans will play a central role. Action plans will be constructed as "rolling" and digital plans containing the determined milestones expected to be reached. Yearly or sometimes half-yearly benchmarks will be set. The focal point of the long-term action plans are organization and funding initiatives.

The main specific and dynamic actors will be:

1) Energy consumers - both public and private citizens as well as traders and farmers

2) Energy producers and distributors, including the energy supply company NRGi, wind turbine owners, district heating plants, etc.

3) Stakeholder organizations, including professional forum, civic associations and the energy service

3) Local artisans

4) The municipality of Samsø

5) The Ministry of Climate and Energy and other ministries

6) The EU and other countries – Most notably ISLE-PACT

3. ENERGY BALANCE AND EMISSION INVENTORY

Samsø has chosen the year 2001 as base year. 2001 represents the mid-way of our first 10-year-project (1997-2007) that changed the energy supply of Samsø into being a 100% renewable energy island. In 2001 the energy balance showed an annual CO2 emission of 5,31 tons per citizen. The average CO2 emission per citizen in Denmark is 10 tons.

3.1. Final energy demand

The total energy demand of the society of Samsø was 273 TJ in 2001. Figure 5 shows how the demand was divided into hot water, heating, electricity use in different sectors and transport. Cooling is not an issue on this Nordic island.

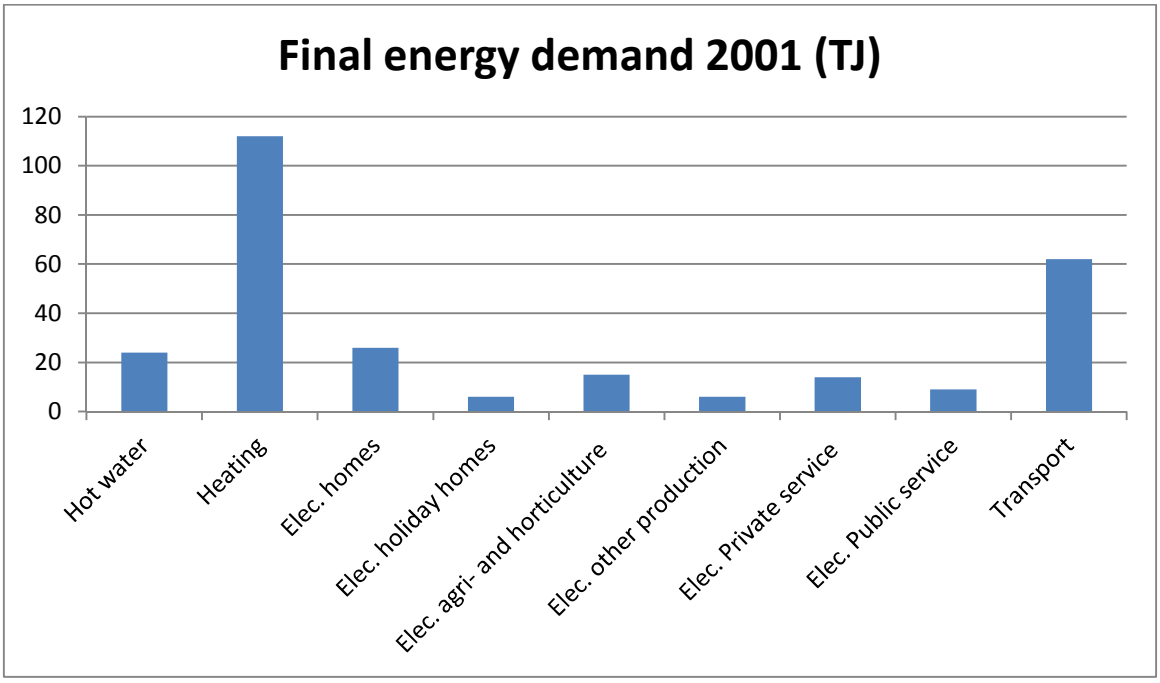

Figure 5. The final energy demand of Samsø in 2001 expressed in TJ. Elec. stands for electricity.

3.2. Secondary energy conversion

The picture of Samsø in 2001 was that we were in the middle of our 10-year project for becoming the Renewable Energy Island of Denmark. In 2001 eleven 1 MW onshore wind turbines were in place. One district heating plant using straw as fuel was supplying 400 houses in Tranebjerg –the biggest town of Samsø. Several inhabitants had already installed heat pumps, biomass burners or solar heating in their homes. Table 1 shows how the different energy sources were consumed for electricity or heating including their efficiency.

	Primary energy consumption (TJ)	**Efficiency (%)**	**Final energy consumption (TJ)**
Electricity, wind	97,6	100	97,6
Electricity, import	3,6	100	3,6
Heat, oil	108	70	75,0
Heat, solar	0,7	100	0,7
Heat, biomass	25,6	60-70	16,6
Heat, district heating, straw	48,9	84	41,1

Table 1. The primary energy consumption, the efficiency of the energy source and the hereby reduced final energy consumption of the residents of Samsø in 2001.

3.3. Primary energy demand

The total primary energy demand of Samsø amounted to 476 TJ in 2001. Figure 6 shows from which energy source the demand came from. On the island of Samsø nearly all the renewable energy sources derive from the island itself. Figure 7 shows the shares of imported fossil fuels compared with the demand covered by local renewables.

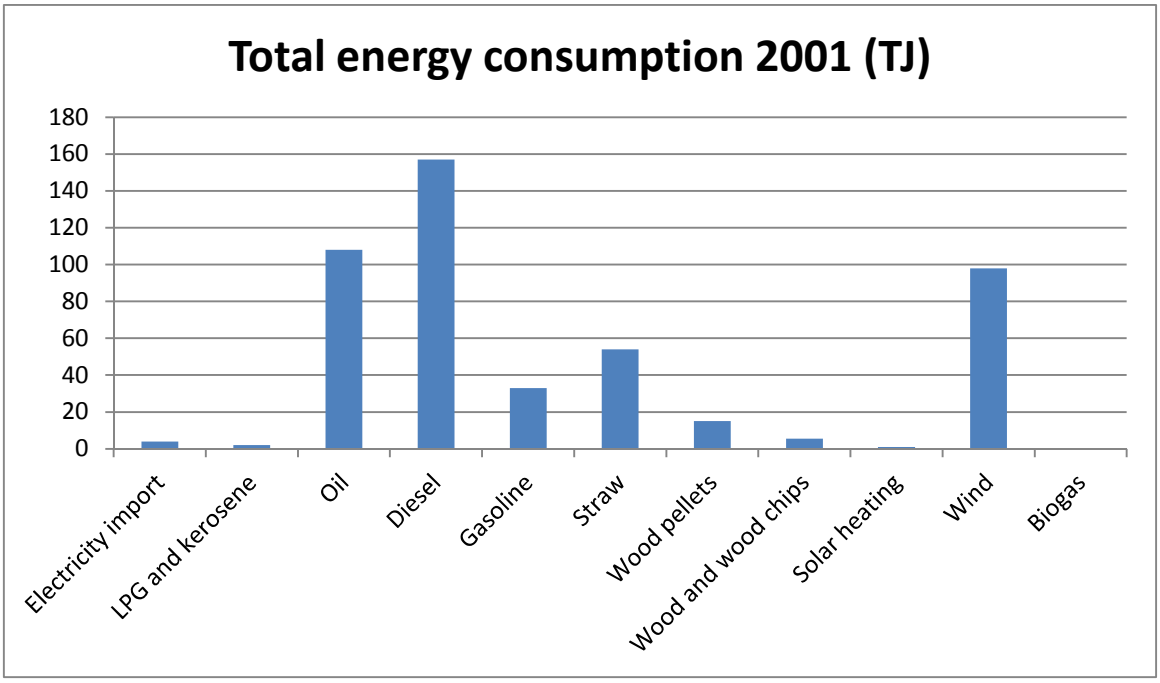

Figure 6. The total fuel consumption on Samsø in 2001 expressed in TJ. Solar heating was represented with 0,7 TJ whereas biogas was non-existing.

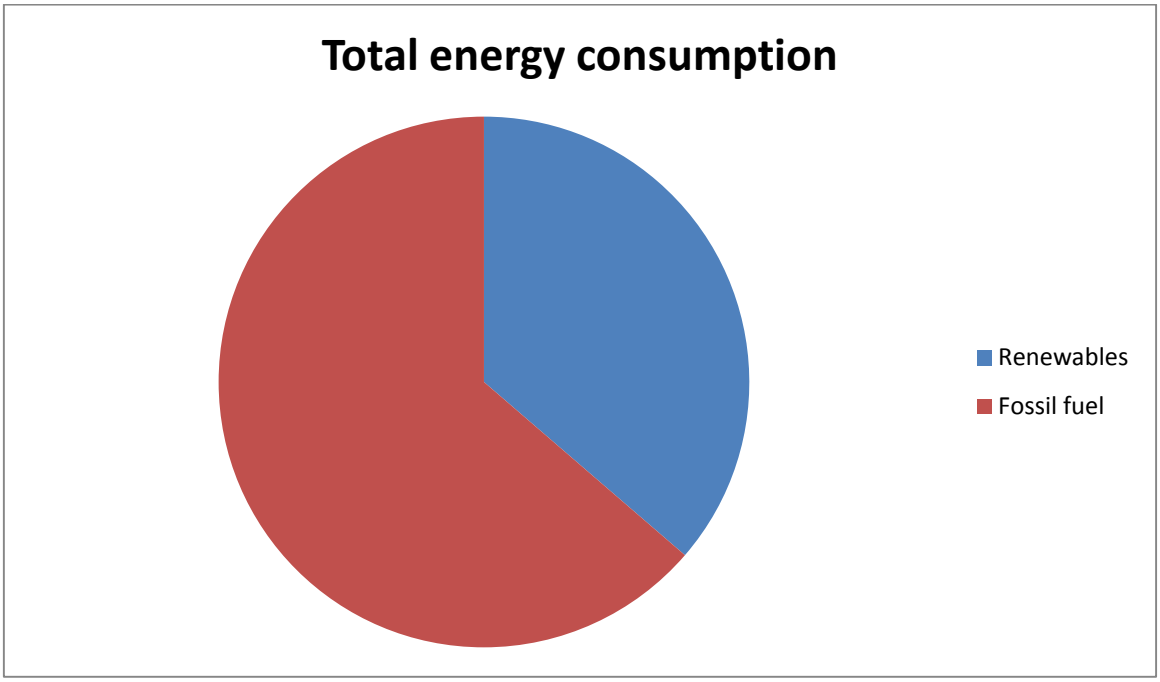

Figure 7. The total energy consumption on Samsø in 2001 shown as imported fossil fuel (red) and local renewable energy (blue).

3.4. Emission of carbon dioxide

The CO2 emission of Samsø amounted to 226.000 tons in total in 2001. Figure 8 shows the emission shares of the different fossil energy sources. Per inhabitant the CO2 emission was 5,31 tons.

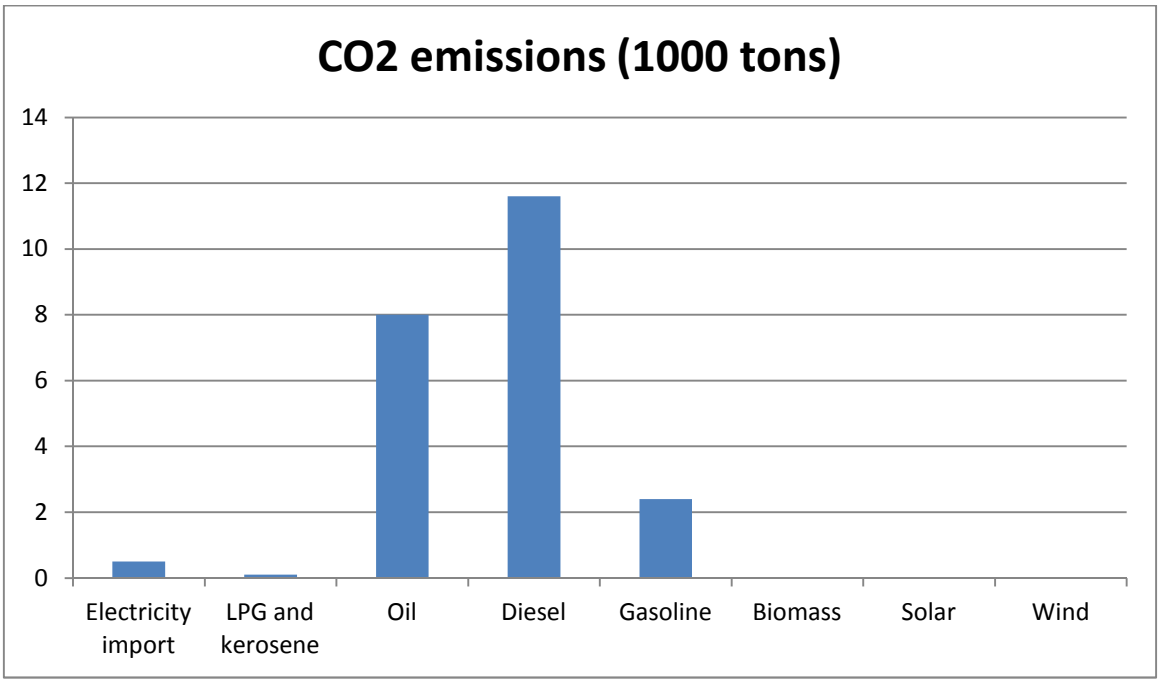

Figure 8 Total CO2 emissions (1000 tons) per energy source in 2001 on Samsø. The renewable energy sources are considered to have no net CO2 emissions.

4. ACTIONS

Since 2001 (the base year of the ISEAP) Samsø has finalised the 10-year-project and has become the Renewable Energy Island of Denmark. Yet we still face the challenge of becoming totally independent of fossil fuels. We are in the planning process of our new Master Plan in the framework of ISLEPACT. The actions outlined here in the ISEAP (table 2) are the actions of the new master plan for Samsø –the fossil free island. The base year for the fossil free island project is 2009.

From 2001 to 2009 several measures have been carried out to increase the ratio of renewable energy sources on Samsø. In 2003 ten 2,3 MW offshore wind turbines were installed. Three new biomass driven district heating plants were built supplying a total of 500 houses with heat. Also the amount of renewable energy sources in single houses has been increasing during the years. Figure 10 shows how the shares of renewable energy sources have increased on Samsø from 2001 to 2009 looking at the total consumption. With the ISEAP and our new Master Plan aiming at being independent of fossil fuels we not only aim at minimizing the use of fossil fuels by 2020 we also aim at a significantly reduction of energy consumption[3]. Our biggest challenge lies in the transport sector as visible in figure 9, since the consumption of diesel and gasoline is still high and has even increased since 2001.

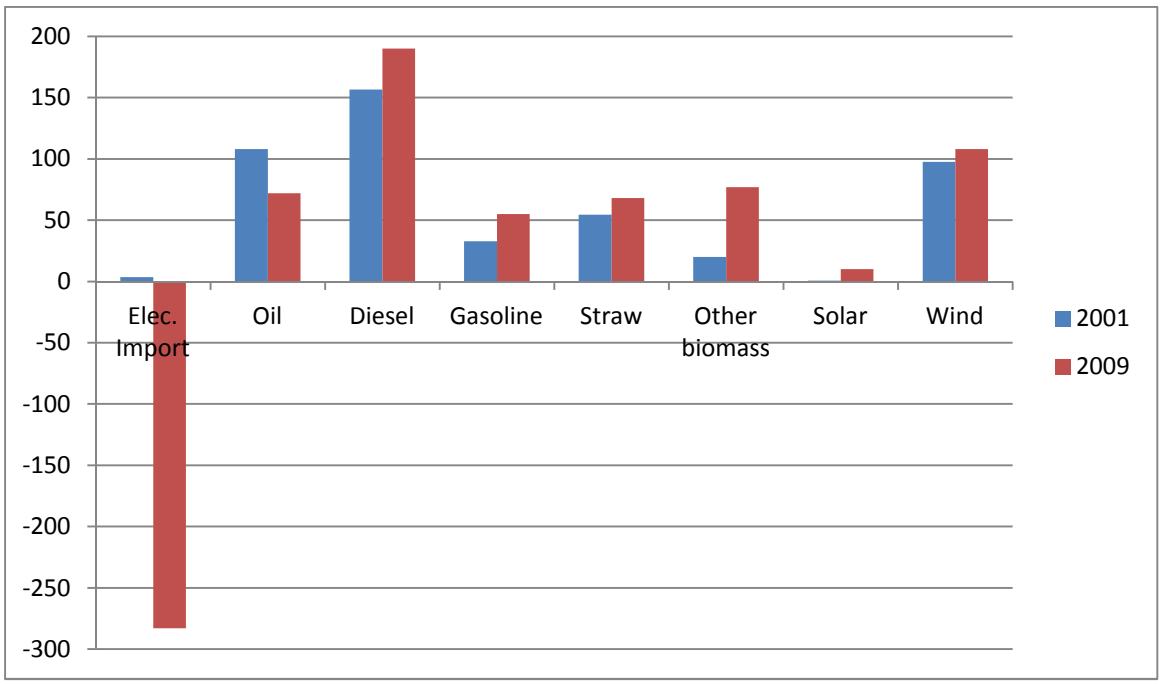

Figure 9. Total energy consumption divided in energy sources (TJ) for 2001 and 2009. The negative electricity import in 2009 is due to an electricity export of 283 TJ.

[3] Please refer to objective 4 and 5 and the actions to be taken to reach the targets

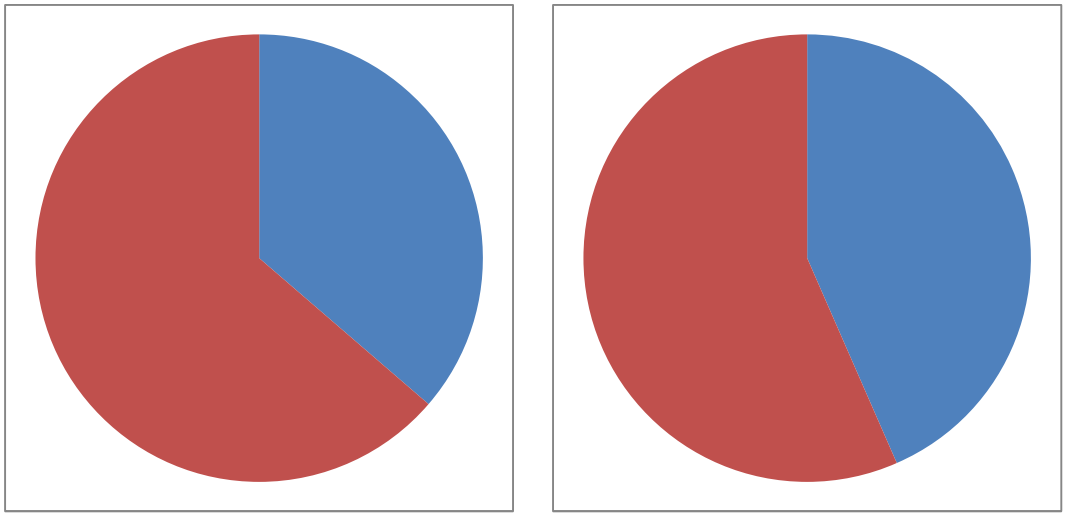

Figure 10. The total energy consumption on Samsø with the red share representing the fossil fuel and the blue share the renewables. The left circle is from 2001, whereas the right circle is from 2009. The significant export of wind energy from the island is not part of this figure.

The CO2 emissions of Samsø went from 22.600 tons or 5,31 tons per capita in 2001 to 23.100 tons or 5,77 tons per capita in 2009. The slight increase in total CO2 emission over the eight years is mainly due to an increased energy consumption in the transport sector (diesel and gasoline in figure 9). The large export of wind energy from the island compensates for the still existing use of fossil fuels in the transport sector. When calculating the excess wind energy production into the total CO2 emission for Samsø the result gives a negative CO2 emission of -9.000 tons or -2,3 tons per capita.

The actions of the ISEAP for Samsø – the master plan for the fossil free island – are outlined in table 2.

Table 2. Overview of the actions of the master plan for Samsø – the fossil free island. Green bars indicate the time period for the planned action. Several additional specific actions will be initiated based on local efforts.

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
OBJECTIVE 1:	FOSSIL INDEPENDENT ISLAND																				
Fossil free Island																					
OBJECTIVE 2:	FLEXIBLE ENERGYSYSTEM																				
Wind Turbines	Expand and/or renew the existing turbines																				
Offshore turbines	Expand and/or renew the existing turbines																				
District heating	Renew existing systems, more solar, expand net																				
Decentral heating	Increased heat pumps and solar captors																				
Solar power	Increased PV solar																				
Biogas	Manure, energy crops and organic waste																				
OBJECTIVE 3:	TRANSPORTATION OF TOMORROW																				
Electric cars	50% of local cars on electricity																				
Public transport	100 % of public busses on renewable energy																				
Ferryboats	100 % of the ferryboats on biogas																				
OBJECTIVE 4:	EFFICIENT HEAT CONSUMPTION																				
District heating	Efficiency gains, more houses connected																				
Individual homes	Heat consumption reduced by 30% (insulation)																				
OBJECTIVE 5:	EFFICIENT POWER CONSUMPTION																				
Smart Meters	To show consumers the direct power consumpt.																				
Pump replacements	Replacement of inefficient electric pumps																				
Visualisation	Visualisation of energy consumption to change behaviour among the locals																				
Smart grid	Differentiation in energy prices																				
Lighting	Savings in street lights, savings in business and public buildings																				
OBJECTIVE 6:	SUSTAINABLE ISLAND - Includes culture and Nature																				
OBJECTIVE 7:	EXPAND PARTNERSHIPS																				
Island partnerships																					
International network																					

4.1. Final energy demand

Actions to increase energy efficiency and the use of renewable energies in the final use will be:

- insulation of houses,
- replacement of inefficient pumps,
- transport choices in favour of electric cars and biogas trucks,
- public transport (bus and ferry) convert to renewable energy,
- heat source choices in favour of district heating where possible, heat pumps and solar captors,
- continuous upgrading of staff installing and servicing energy consuming installations,
- introduction of smart grid and smart meters to differentiate the energy prices and thereby give the incentive to use energy when it is cheap.

4.2. Secondary energy conversion

Actions to increase the energy conversion efficiency and to increase the share of renewable energy sources in the production of electricity and heat:

- the existing district heating systems are to be renewed and supplied with solar captors,
- the existing wind turbines (on land and off shore) are to be renewed and/or replaced with more efficient turbines,
- expansion of PV solar.

4.3. Primary energy demand

Actions to improve primary energy infrastructures aiming to secure energy supply and to make available alternative cleaner energy sources:

- establishment of a biogas plant run on manure, energy crops and organic waste,
- establishment of small scale solar cell farms,
- increase the number of private wind turbines and solar cells,
- expand the net of district heating to more homes,
- heating with oil gradually replaced with heat pumps, solar collectors and biomass,
- the use of fossil fuels is phased out with the goal of Samsø being a fossil free island in 2030.

4.4. Projects to be implemented

The activities above result in the development of a row of projects each. The project objectives are to be implemented on Samsø. The projects will all contribute to the fulfilment of the overall goals of this plan. The work will take place in different partnerships between the involved stakeholders. The projects will be developed when the organisational structure and the funding are in place.

An example: The electricity consumption – although supplied from wind turbines – has to be stabilised if not reduced according to Objective 5. A large contribution to the electricity demand derives from pumps. So an activity will be – as mentioned in the activity list – replacement of inefficient pumps. A project has been developed in partnerships with the Danish pump industry, craftsmen on Samsø, representatives from owners of pumps, the municipality and Samsø Energy Academy. This project will be implemented within the next three years, and monitoring of the effect will be visible for the inhabitants in the local press.

5. ORGANIZATIONAL AND FINANCIAL MECHANISMS

The master plan for sustainable energy for Samsø is quite extensive as we intend to completely phase out the use of fossil fuels on the island. We have already come far, because of the former project of making Samsø 100% self- supplied with renewable energy. Still there is lots of work ahead of us. Our master plan is the sum of several specific actions over a long period of time, which cannot be financed all together by the same means. This chapter aims to give a picture of some of the resources concerning organisational structures and financing that might come in place for the master plan of Samsø.

5.1. Coordination and organisational structures

The Energy Academy of Samsø is coordinating and to a large extent organising the implementation of the master plan on behalf of the municipality of Samsø. The strength of Samsø is the strong local commitment and involvement in the energy projects of the island. We expect the inhabitants to take over some of the organising work to help fulfilling our common goal.

The Master Plan consists of an overall plan that covers several broadly defined actions, which will have to be broken down into specific projects in a rolling process. The single projects will evolve gradually over time.

5.2. Staff capacity

Samsø Energy Academy is now employing 11 staff members. All of which are working towards the common goal of Samsø as a fossil free island with five is working more extensively on this issue. It will be necessary with assistance of external experts from time to time as well as training of the present team.

The Municipality of Samsø has committed itself to ½ a position solely to work on the implementation of the ISEAP – September 2011. This will lead to improved coordination of work with implementation of ISEAP during the next years. Furthermore the income from the municipal owned wind-turbines will be dedicated to future development of the energy systems on the island.

5.3. Involvement of stakeholders

Samsø has a long lasting tradition of involving the local society in decision making. The success of the 10-year project of making Samsø the Renewable Energy Island of Denmark is to a large extend due to the participation of the locals. The good example of the 10-year project will be the background for inviting inhabitants and other stakeholders to discuss, organise, decide on and implement the single actions of the Master Plan.

5.4. Budget

Table 3 gives an estimated budget to implement the master plan, including the actions, coordination, training, monitoring and administrative activities.

Actions	**Tentative overall budget (Euros)**
Onshore wind turbines: expand and/or renew existing turbines	40 mio.
Offshore wind turbines: expand and/or renew existing turbines	200 mio.
District heating: renew existing systems, more solar captors, expand net	7 mio.
Decentral heating: increase share of heat pumps and solar captors	2 mio.
Solar power: PV solar – 40.000 m^2	17 mio.
Biogas to transport use from manure, energy crops and organic waste	7 mio.
Electric cars to replace 50% of the conventional fossil fuel cars	20 mio.
Heavy vehicles to run on biogas	8 mio.
Public transport: buses and ferries on renewable energy sources	5 mio.
Energy efficiency gains in homes and businesses	17 mio.
Replacement of inefficient pumps	1 mio.
Visualisation of energy consumption: smart meters a.o.	0,5 mio.
Smart grid: differentiation of energy prices	1 mio.

Table 3. The estimated budget for the master plan of Samsø – the fossil free island.

5.5. Financing sources and instruments

The master plan covers numerous actions in the underlying projects that will have different possibilities for financing. The ISLE PACT deliverable D7.1.1 Report on Financing Schemes gives a good list of funding possibilities on the national as well as the EU level. For some actions private financing will be relevant both on the individual level as well as on company level.

5.6. Monitoring and follow-up

The Energy Academy of Samsø will continuously monitor the implementation of the master plan and the transition to the fossil free society. We organize an external consultancy to calculate the energy consumption of different energy sources and for different purposes and sector every second year. This gives us the possibility to monitor the transition over a long time span. Apart from that we closely follow the society that we are part of on our small island. For some actions we may monitor the results more directly than others.

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PACT OF ISLANDS

Elaboration:

ENERGI AKADEMIET

Local Authority:

Samsø Kommune

Financial support:

EUROPEAN COMMISSION Directorate-General for Energy

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