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SUBSIDIES FOR A STARTING WIND ENERGY CO-OPERATIVE

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Tuulivoima, on uusiutuva energia lähde, joka on kehittynyt tuntuvasti viimeisten vuosikymmenien aikana, vaikka sitä on jo käytetty tuhansien vuosien ajan. Vasta viimeaikoina tuulivoimalle on löytynyt oma paikka energiateollisuudessa, antaen uusiutuvan sähkön lähteen.

Tutkimus tarjoaa tietoa tuulivoimasta, näkemystä Suomen rahoitusjärjestelyistä sekä osuuskunta toimintaan perustuvasta liiketoimintamallista.

Tämä opinnäytetyö vastaa kysymyksiin mm. “miten tuulivoimaa voidaan tuottaa yhteisöllisellä omistajapohjalla?”, “millaisia tukia osuuskuntapohjainen tuulivoima voi saada ennen ja jälkeen perustamisen?”
.
Tämä työ käsittelee tukia sekä hyötyjä osuuskuntapohjaisesti omistetussa tuotetussa tuuli-energiassa. Tulosten saamiseen on luotu oma internet-pohjainen kysely ja tutkimuksessa myös haastateltiin kolmea taloudellista instituuttia Suomessa, jonka perusteella luotiin taloudellinen näkökulma. Yhteenveto on esiteltynä opinnäytetyön lopussa.

Tutkimuksen tuloksena näemme että osakeyhtiö- sekä osuuskunta-pohjaiset liikemallit ovat suosituin tapa perustaa pohja tuulivoimalle Suomessa.

Avainsanat	Tuulivoima, osuuskunta, yritystuet

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ABSTRACT

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Wind power is a renewable energy source that has undergone a complete change since the end of the 1970s although it has been used as a source of energy for thousands of years. With the development of electric power, wind power found a new application in lightning buildings remote from centrally generated power.
The readers of this research will gain knowledgebase in wind energy and the financial scheme in Finland as well as in co-operative business model.

This research will answer questions like how the wind energy co-operative works, what are the subsidies that co-operative wind energy company gain before and after the establishment, and also, extend their knowledge about the business models in Finland.

This thesis converse the problem of what subsidies a co-operative wind energy company can gain in Finland. To achieve this, a web-based questionaire was carried out and members of three different financial institutes in Finland were interviewed to collect information to draw up a financial scheme. A conclusion is presented at the end of the research study.

The results of the study show that a limited company and co-operative business models are the most favourable ones when establishing wind energy business in Finland. The advantages of a limited company are clear with corporate covernance practices while, on the other hand, the co-operative members manage the co-operative together and democratically. Also, the results show the institutes that provide services to assist those who are interested in the co-operative business model and its finances. A co-operative business model attracts the small investors for the reasons stated above. The members manage the co-operative together and democratically.

Keywords Co-operative, Wind Power, Subsidies/ Cooperative

CONTENTS

FIGURES

1 INTRODUCTION

Wind power is a renewable energy source that has undergone a revolution since the end of the 1970s and has been used for thousands of years as a source of energy. Wind energy is technologically mature, enocomically competitive as well as a reasonable and environment friendly energy choice. Today, growing energy demand and the necessity for clean energy generation brings everyone's mind to the concept of renewable energy sources. The wind power industry has continued involvement in designing, manufacture, construction and maintenance of wind turbines.

When it comes to types of companies there are five business types that can be established in Finland:

- Sole proprietor
- General partnership
- Limited partnership
- Limited company
- Co-operative

The reason behind co-operatives and limited companies is that they are the most competative ones compared to the other three because they make it more possible to collect bigger amounts of cash (capital) to the investment than the three other ways of establishing a business in Finland. Also, they have limited liability to the debts of the company. So, when discussing establishing a wind energy business in Finland there are two realistic opportunities of limited company and a co-operative.

This research studies the possibilities of what kind of subsidies a co-operative wind energy can gain when it is founded.

Figure 1. A wind turbine in Hailuoto near the northern city of Oulu. (Helsinginsanomat, 2011).

1.1 Aim and research problem

The aim of the research is to study what kind of subsidies co-operative wind energy can gain in Finland. Other aims are to expand the knowledgebase on wind energy and widen the investigation on the financial scheme in Finland for establishing co-operative wind energy.

The research problem for the thesis is what kind of subsidies a co-operative wind energy company can gain in Finland.

1.2 Research questions

The evaluation of the research problem may arouse further questions. The research questions that will be answered empirically are:

- What are the keys to a successful financial scheme in a cooperative?
- What makes cooperative a successful business type?
- How to establish a business in Finland?
- What makes the co-operative business model supperior in the business world?
- What are the subsidy instruments that a co-operative wind energy can gain in Finland?

1.3 Research benefits

The thesis examines the cooperative wind energy business model and will give the reader a broader view of the establishment of the business, governmental requirements and financial aid. It also aims to draw a picture of the key aspects from the very beginning of setting up a business.

1.4 Structure of the thesis

Chapter 1 gives a detailed picture of the topic to the reader. The reader will easily perceive the research problem and the aim of the research as well as the research benefits. Secondly, the theoretical framework will explain the logical development of wind energy. It continues by explaining different types of wind turbines, the technological areas as well as the economical aspects of wind turbine. Chapter 3 discusses a wide range of topics such as establishing business in Finland, private and public companies, trade name of a limited company, articles of association and subscription of shares. Chapter 4 gives the reader a clear picture of the co-operative business model. General information about subsidies for a starting enterprise are discussed in chapter 5. The outcome of the

empirical framework will be seen in chapter 6. In chapter 7 the reader will get a reasoned judgement of the research.

2 WIND ENERGY

The theoretical framework illustrates the beneficial legacy of wind energy. Firstly, I will gather and provide all the necessary information and broden the view from there. The reader will get a picture of the technical information in the theoretical study.

2.1 Wind turbine

There are more than a few different design concepts for wind turbines. One basic categorization is horizontal Axis Wind Turbines (HAWT) versus Vertical Axis Wind Turbins (VAWT). Horizontal Axis Wind Turbines can have the rotor upwind in order to face the wind or downwind so that the wind will pass the tower and nacelle before it hits the rotor. Today most turbines have an upwind rotor, but there are turbines from prototypes in the MW-class to smaller turbines with a nominal power of 20-150kW, as well as water pumping wind wheels from the 19th centuary. (Wizelius 2007, 73.)

2.1.1 Building a wind farm

Identifying potential sites is an significant first step in building wind farms. At this phase the wind resource is evaluated and other key factors are taken into contemplation. Factors like how the electricity will be conveyed, what are the barriers if any to harvesting the wind and how the site community feels about the projects are studied.

Site research and its phases is when the numbers are collected, and the economic feasibility of the project is calculated. Starting applications for permits, preparing documents for all levels of government, meeting with the community, figuring out contractor costs and more is done. Even archaeological evaluation must be sometimes conducted.

Building the farm phase starts when the project gets its green light. All the details go into final design and construction. The service roads are built, groundwork are

prepared, turbines are shipped to the site and the construction crews install the equipment.

Decreasing costs and other factors will lower the cost of energy generated from wind. Wind energy is built on a technology that improves every year and each improvement helps being down the cost of generating electricity.

	Installed 2009	End 2009	Installed 2010	End 2010
EU Capacity (MW)				
Austria	0	995	16	1,011
Belgium	149	563	350	911
Bulgaria	57	177	198	375
Cyprus	0	0	82	82
Czech Republic	44	192	23	215
Denmark*	334	3,465	327	3,752
Estonia	64	142	7	149
Finland	4	147	52	197
France	1,088	4,574	1,086	5,660
Germany	1,917	25,777	1,493	27,214
Greece	102	1,087	123	1,208
Hungary	74	201	94	295
Ireland	233	1,310	118	1,428
Italy	1,114	4,849	948	5,797
Latvia	2	28	2	31
Lithuania	37	91	63	154
Luxembourg	0	35	7	42
Malta	0	0	0	0
Netherlands	39	2,215	32	2,237
Poland	180	725	382	1,107
Portugal	673	3,535	363	3,898
Romania	3	14	448	462
Slovakia	0	3	0	3
Slovenia	0.02	0,03	0	0,03
Spain	2,459	19,160	1,516	20,676
Sweden	512	1,560	604	2,163
United Kingdom	1,077	4,245	962	5,204
Total EU-27	**10,486**	**75,090**	**9,295**	**84,278**
Total EU-15	**10,025**	**73,516**	**7,997**	**81,406**
Total EU-12	**461**	**1,574**	**1,298**	**2,872**
Of which offshore and near shore	582	2,064	883	2,946

Figure 2. Wind power installed in Europe by end of 2010. (ewea, 2010).

2.1.2 Power curve

A power curve shows how much electrical power a wind turbine will produce at different wind speeds. The curve can be calculated if the efficiency of the different components at different wind speeds is known. However, the curve also has to be verified by measurments when the turbine is online. There are very specific rules for how such measurements should be performed, and independent certification institutes or companies carry them out to verify the power curve. The wind speed is measured by an anemometer at hub height on a measurement mast erected at a suitable distance from the turbine and the power from the turbineis measured simultaneously. During the measurement period all wind speeds, from calm to > 25m/s, have to occur for a specified time. The results from these measurements are entered into a diagram, with wind speed on the x-axis and power on the y-axis. Each measurement results in a dot, and together they form something that is far from an even curve, resembling more a swarm of mosquitoes. (Wizelius 2007, 120.)

2.1.3 Horizontal Axis Turbines

All these types of wind turbines have been built and used in practice. The windmill has played its part, but there are around one million wind wheels used for water pumping in use in different parts of the world. They have a very vigorous design, with quite simple components that are easy to preserve and repair. The advantage with wind wheel compared to a turbine with few slender blades and high rotational speed is that it starts more easily, since the blades cover a much larger share of the swept area. This is an advantage for a water pump, since it takes a lot of power to get it running.

Turbines with a high tip speed ratio were first used as battery charges. Today they are used to produce electric power that is fed into the power grid, though there are still small micro turbines with two to six blades for battery charging. In the 1980s there were many different designs of grid-connected wind turbines, with two or three rotor blades, some with the rotor downwind and others with the rotor upwind. The advantage with a downwind rotor was considered to be that it would

automatically adjust itself to the wind direction. However, with sudden changes in wind direction this did not work. At the beginning of the 21st century turbines with a three-bladed upwind rotor completely dominate the market.(Wizelius 2007, 74)

Figure 3. Rønland, most productive turbines, in Denmark. (Wikipedia: Wind turbine, 2011).

2.1.4 Vertical axis turbines

The advantage with a vertical axis wind turbine is that the generator and gearbox can be installed at ground level, making them easy to service and repair. Both the savonius and the Darrieus turbines are manufactured commercially, but in small models that are used for different niche applications, like battery charging in areas without a power grid. The Finnish engineer and inventor, Georg Savonius, developed a vertical axis with turbine in 1924, now called the Savonius rotor. (Wizelius 2007,74.)

2.1.5 The Wind Turbine Rotor

A wind turbine rotor consists of rotor blades mounted on a hub. Most commercial wind turbines have a three-bladed rotor. There are, however, turbines with two blades, and in fact also turbines with only one single blade. The advantage with fewer blades is that the weight of the rotor and also of many other components of the turbine will decrease. The share of the power in the wind that can be converted will decrease with fewer blades, but from an efficiency point of view the differences are negligible, or at least easy to compensate by increasing the length of the rotor blade a bit.

On three-bladed turbines the connection between hub and blades is rigid. On a turbine with two blades or one single blade, they can be mounted so that they are flexible in the vertical plane. On a so-called teetering hub, the two blades can teeter a few degrees across the hub, which reduces loads on the turbine. As shown in figure 4. (Wizelius 2007, 79.)

Figure 4. The 98 meter diameter, two-bladed NASA/DOE Mod-5B wind turbine was the largest operating wind turbine in the world in the early 1990s. (Wikipedia: Mod-5B, 2011).

2.1.6 Nacelle, Tower and Foundation

The unit mounted on top of a wind turbine tower is called the nacelle, gondola or machine cabin. Inside the nacelle there is the gearbox, a generator and other mechanical and electrical components. Most large grid-connected wind turbines have conical steel towers. Smallers turbines can have a lattice tower or guyed mast. To make turbines firmly rooted in the ground, so that they will not be turned over by strong winds, turbines are mounted on foundations of reinforced concrete. If the bedrock is solid and stable they can be bolted to the rock. (Wizelius 2007, 93.)

2.1.7 Efficiency and performance

How much energy a wind turbine can produce depends on a number of factors: the rotor swept area, the hub height and how efficiency the turbine can convert the kinetic power of the wind. Equally important, of course, is the mean wind speed and the frequency distribution at the site where the wind turbine is installed

Generator efficiency is most efficient when it is running at its nominal power. On wind turbine, most of the time the generator runs on lower power, when the wind speed is lower that the nominal wind speed. The generator is then said to be running on partial load. On a standard generator efficiency will then be reduced. On a large modern wind turbine, the rotor has a rotational speed of 20-30rpm, while the generator will need to rotate at 1515rpm. To increase the speed a gearbox is used. If the turbine rotor runs at 30rpm a gear change of 30:1520 = 1:50.7 will be needed. (Wizelius 2007, 115, 117.)

2.2 Establishing wind power

The total installed wind power capacity in Finland is 197 MW, 130-wind turbine as of December 2010. At the end of 2009 the installed capacity was 147 MW. At the end of 2008 the installed capacity was 143 MW. Wind power production in 2008 was 275 GWh, which is about 0,3 % of the Finnish electricity consumption. (tuulivoimayhdistys, 2011)

2.2.1 Wind Power Policy/Permission inquiry

The municipality takes up a position regaeding planned wind power projects by evaluating applications for building permission. The building committee or similar institutions usually have the task of granting permission. The members of the board of the committee are local politicians that represent the inhabitants of the municipality. The decisions taken have to conform to relevant laws, in this case usually the building law. (Wizelius 2007, 128.)

2.2.2 Neighbours

Impact from noise and rotating shadows from wind turbines can be annoying for neighbours if the turbines are installed too close or in an unsuitable direction in relation to dwellings or holiday cottages. The project developer usually makes estimates of these impacts. (Wizelius 2007, 129.)

2.2.3 The military

Wind turbines can interfere with military installations for radar surveillance, radio communication and so forth. In some areas the air force will have objections to high structures. Since many military installations are secret it is not always a simple matter to know what areas should be avoided for this reason. You cannot simply ask the military where their secret installations are sited. The only feasible method here is by trial and error. (Wizelius 2007, 129.)

2.2.4 Safety

It is up to the local authorities that grant building permissions to decide on safety distances to different kinds of installations, residential areas, etc. A recommended safety distance to a larger road, railway or power line might be the total height of the turbine plus a 50-metre extra safety margin. These kinds of incidents are, however, extremely rare. In arctic regions ice can build up on a turbine and the rotor, but this will most likely drop to the base of the tower. Nevertheless, in areas with extreme weather conditions, hurricanes and severe storms, some wine

turbines have been damaged and even fallen over as it has happened in Denmark, Japan and India. (Wizelius 2007, 130.)

Figure 5. A wind turbine at Greenpark, reading, England producing electricity for around one thousand homes. (Wikipedia: Green park business park, 2011).

2.2.5 Economic Aspect of wind energy

Price of different models and sizes of wind turbines are obtained from price lists or directly from the manufacturers or their agents. During the procurement process prices and conditions can be negotiated if the turbines are manufactured in another country the price will also depend on the exchange rate, which sometimes can change quite fast. The transport of turbines from the factory to the site, mounting, installation and connection to the grid are preformed by personnel from the manufacturer and are usually included in the purchase price. The costs of

mobile cranes and some ancillary transport costs have to be covered by the developer. For wind turbines installed on land, the cost of the turbine amounts to about 80 per cent of the total investment cost.

Also, the cost of the foundations depends on the size, weight of the turbine, length of the road and ground conditions. In most cases it is cheaper to arrange an access road when the soil is hard and dry. Also, to connect the turbine to the electric power grid, it requires a transformer, a cable to the closest grid power line and an electrician to carry out the work. The cost varies on the model and size of the turbine, the distance to the grid and also the grid voltage.

A wind turbine needs regular servicing like any other machine. The service crew will have regular checks of the condition of the wind turbine mostly twice a year and the manufacturer usually set the maintenance dates. Also, the oil has to be checked and probably changed every few years. The service costs for the first two years are often included in the price, except for the oil and other materials. (Wizelius 2007, 242)

3 ESTABLISHING A BUSINESS IN FINLAND

An enterprise idea indicates what the new enterprise intends to produce. The enterprise idea is defined in more detail and gradually shaped into a business idea. The business idea indicates what the enterprise will do and to whom it will sell, how the enterprise will implement these things, and in what market(s) it will operate. The business idea answers the questions What? To Whom? How? (Finnish Enterprise Agencies, 9)

3.1 Business Establishment

Starting up a business in Finland is quite simple, and the state provides assistance in terms of free information and advice, and a variety of start-up funding opportunities. Finland remains in some ways a young country for many reasons, for example, that it has a very low immigration. Finns themselves tend to prefer to work as employees rather than as entrepreneurs. According to a research the country has one of the lowest levels of personal entrepreneurship in Europe.

There are four basic kinds of business formats besides the co-operative model available in Finland:

- Sole proprietor (toiminimi TMI)
- General partnership (avoin yhtiö AY)
- Limited partnership (kommandiittiyhtiö KY)
- Limited company (osakeyhtiö OY)

Advice and assistance on how to set up a business in Finland can be acquired from Helsinki New Business Service (Helsingin Uusyritypalvelu). All information can be found in English on their website as well.(Rupert Haigh 2003, 83)

3.2 Private and public companies

Limited companies are divided into private and public companies. The main difference between those two types of companies is that the securities of a private limited company may not be admitted to the public trade referred to in the securities markets act or a corresponding procedure.

In a limited company, there are no general partners but only shareholders, whose liability for the debts of the company is limited to the value of their shares. Also, a very crucial rule for a private limited company is that it shall have a minimum share capital of 2,500 euros and a public limited company that of 80,000 euros. (Tuulikki Holopainen 2009, 33-34)

3.2.1 Trade name of a limited company

The trade name of a private limited company will always include the words ”osakeyhtiö” in a Swedish trade name ”aktiebolag” or the corresponding abbreviation ”oy” (in a Swedish trade name ”ab”) and the trade name of a public limited company will always include the words ”julkinen osakeyhtiö” (in a Swedish trade name ”publikt aktiebolag”) or the corresponding abbreviation ”oyj” (in a Swedish trade name ”abp”).

A trade name must be registered either in Finnish or in Swedish. Besides, a trade name may be registered in two or several languages if the expressions in the different languages corresponds to each other in their content. The parallel trade names of a limited company shall be included in the Articles of Association and they shall also be notified for entry in the Trade Register. In the legal sense, a limited company shall be deemed established only after it has been entered in the Trade Register. (Tuulikki Holopainen 2009, 34)

3.2.2 A representative under the Entrepreneurship act

A limited company must have a representative who is entitled to receive summons and other notifications on behalf of the company. The representative must be domestically in Finland and entered in the Trade Register. If, however, the company has a member or deputy members of the Board of Directors, a Managing Director, a person authorised to sign for the company, or a holder of procuration who has been notified to the Trade Register, it is not necessary to elect a seperate representative. (Tuulikki Holopainen 2009, 37)

3.2.3 Representation of the limited company

The Board of Directors shall represent the company. It may be provided in the Articles of Association that a Member of the Board of Directors or the Managing Director has the right to represent the company or that the Board of Directors may grant a Member of the Board of Directors, the Managing Director or some other designated person the right to represent the company. Also the Board might withdraw the right thus granted at any time. (Tuulikki Holopainen 2009, 37)

3.2.4 Establishment of a limited company

The establishment of a limited liability company consist of the following stages;

- preparing written Memorandum of association
- The limited liability company is legally created through registration in the Trade Register
- The company is signed up for registration in the Trade Register. The registration should take place within three months from the date when the Memorandum of Association was signed.
- Share subsciption will take place though the signing of the Memorandum of Association
- Paying the share capital to a company's deposit bank in Finland or into the account of a foreign credit institution's branch office or corresponding account abroad.

3.2.5 Memorandum of association

A Memorandum of Association shall be drafted of the founding of a limited company and signed by all the shareholders. By signing the Memorandum of Association, the shareholder subscribes to the number of shares designated by the Memorandum.

The subscription cannot be withdrawn after all the shares have been subscribed to unless otherwise agreed upon.

The term and duties of the management members and the auditors start when the Memorandum of Association is signed.

The Memorandum of Association shall always state:

- The date of the Memorandum
- All the shareholders and the shares subscribed by each
- The period for payment of the share
- The members of the Board of Directors of the company
- The amount payable to the company for the share.

Memorandum of Association shall include or be appended by the Articles of Association. The financial period shall be stipulated either in the Memorandum of Association or in the Articles of Association.

Where necessary, the Memorandum of Association shall also state the Managing Director, the members of the supervisory Board and the auditors of the company.

The Memorandum of Association may appoint the Chairman of the Board of Directors and the Supervisory Board. (Tuulikki Holopainen 2009, 40)

3.2.6 Articles of Association

The Memorandum of Association shall contain or be appended by the Articles of Association. The Limited Companies Act makes very short of Articles of Association possible. In addition to mandatory provisions, numerous legal provisions contain provisions under which the implementation of a certain procedure necessitates that this procedure be referred to in the Articles of Association as well as provisions which will be applicable unless otherwise stipulated in the Articles of Association.

The Articles of Association shall state at least:

- The trade name
- The operating sector

- The municipality of the registered office in Finland

If the company intends to use its trade name in two or more languages, each wording of the trade name has to be included in the Articles of Association. (Tuulikki Holopainen 2009, 41)

3.3 Subscription of shares

The share capital needs not be divided into shares; one share is sufficient.

By signing the Memorandum of Association the shareholder subscribes to the number of shares indicated by the Memorandum.

The subscription price of a share is entered in the share capital unless the Memorandum of Association or the Articles of Association stipulate that it be partly entered in the non-restricted equity fund.

The amount to be paid for shares has to be held and possessed by the company before the basic notification is filed with the Trade Register. The basic notification has to be filed within three months from signing the Memorandum of Association at the threat that the establishment of the company lapses.

A share subscription to be paid in cash shall be paid to an account with a deposit bank in Finland or with a branch of a foreign credit institution authorised to accept deposits or to a corresponding account abroad. (Tuulikki Holopainen 2009, 41, 42)

4 THE CO-OPERATIVE BUSINESS MODEL

A co-operative is an independent association of individuals. The members manage the co-operative together and democratically, and by means of it they realise economic, social and cultural aims. To establish a co-operative at least three people or organisations are needed. The owners of a co-operative are referred to as members, and its capital is referred to as co-operative capital. A co-operative pays the capital back when a member resigns or is removed from the co-operative. The members are liable for the commitments of the co-operative only to the extent of the capital that they have invested in the co-operative, unless they have made commitments on behalf of the co-operative.

4.1 Co-operative organizations

The international Co-operative Alliance (ICA) is an independent, non-governmental association, which unites, represents and serves co-operatives worldwide. It was formed in 1985 and it has 251 member organisations from 93 countries active in all sectors of the economy. It is based on the values of selfhelp, self-responsibility, equity and solidarity.

The role of ICA in development is to endorse and brace co-operatives through the trade of information and harmonization of people and organisations.

The ICA intentionally thrives to assist in development through:

- Strengthening knowledge base
- Capacity building
- Linking donors and organisations

(ICA: Development, 2011).

4.1.1 ICA

ICA priorities and activities focuses on promoting and defending the co-operative indentity, ensuring that the co-operative enterprise is a recognised from of enterprise that is able to compete in the marketplace as shown in figure 6.

- ICA raises awareness about co-operatives.
- ICA ensures that the right policy environment exists to enable co-operatives to grow and prosper.
- ICA provides its members with key information, best practice and contacts.
- ICA provides technical assistance to co-operatives through its development programme.

Figure 6. Example of ICA's values and principles.

(ICA: Principles, 2011).

4.1.2 Pellervo

Pellervo Confederation of Finnish Cooperatives was formed in 1899 with the task to introduce and spread cooperation in Finland. Today Pellervo is a service-providing organisation above all for its members (about 320), but generally Pellervo still has the same aims as when founded although somewhat extended, that is to (Pellervo, 2011):

- Promote and spread cooperation in Finland
- Improve the conditions for cooperative organisations and enterprises
- İnform about the cooperative business model
- To improve collaboration between all cooperatives
- To advocate more teaching on cooperation at all levels in the education system
- To lobby for cooperation towards the government and internationally.

4.2 Establishing a co-operative

In order to establish a co-operative, a memorandum of association is created to which the regulations of the co-operative are appended. The regulations must specify, as a minimum, the name of the co-operative, its domicile, the line of business, the accounting period and the amount of each contribution, the term of payment and the method of payment. The co-operative must alsobe registered with the Finnish Trade Register. This is done using Y1 form and its appendix. Notification of the co-operative must be made within six months of the memorandum of association being signed; otherwise establishment of the co-operative becomes void. There is a charge for registration, and in the year 2011, this was EUR 350. (Finnish Enterprise Agencies 2011, 27)

4.2.1 Trade name of a co-operative

The trade name of a co-operative shall include the words ”osuuskunta” (in a Swedish trade name ”andels”) or the corresponding abberviation ”osk” (in a Swedish trade name ”anl”). A trade name shall be registered either in Finnish or in Swedish. In addition, a trade name may be registered in several languages if the expressions in the different languages correspond to each other in their contents. The parallel trade name of a co-operative shall be included in the rules of a co-operative and they shall also be notified for entry in the Trade Register. In the legal sense, a co-operative shall be deemed legally established only after it has been entered in the Trade Register. (Tuulikki Holopainen 2009, 49, 50)

4.2.2 Management bodies of a co-operative

A co-operative may have a Managing Director if so stipulated or so decided by the Board of Directors. The Managing Director shall be appointed by the Board of Directors of the co-operative or, if so provided for in the rules, by the Supervisory Board of the General Meeting of the co-operative. The Managing Director (and the deputy Managing Director) of a co-operative has to be resident in a country belonging to the European Economic Area. By permission of the National Board of Patents and Registration also a person residing outside the European Economic Area may act as Managing Director (or the Deputy Managing Director) of a co-operative. (Tuulikki Holopainen 2009, 50, 51)

4.2.3 Representative under the Entrepreneur Act

A co-operative must have a representative who is entitled to receive summons and other notifications on behalf of the co-operative. The representative must be domiciled in Finland and if entered in the Trade Register. If, however, the co-operative has a member or deputy member of the Board of Directors, a Managing Director, a person authorised to sign for the co-operative, or a holder of procuration who has been notified to the Trade Register and is a resident in the European Economic Area, it is not necessary to elect a seperate representative. The Board of Directors shall represent the co-operative and sign on its behalf. It

may be stipulated in the Rules that a Member of the Board of the Directors or the Managing Director is entitled to sign on the behalf of the co-operative or that the Board of Directors or the Supervisory Board is entitled to confer this right to a Member of the Board, a Managing Director or some other person. If the co-operative has a Managing Director, he or she shall see to the running management of the co-operative in accordance with the orders and instructions of the board of directors. The Managing Director may undertake measures that are exceptional or extensive in view of the extent and nature of the operations of the co-operative only if so authorised by the Board of Directors or if essential damage to the operations of the co-operative would ensue from waiting for the decision of the board of directors. (Tuulikki Holopainen 2009, 53)

4.2.4 Permit applications

The Managing Director (and the Deputy Managing Director) of a cooperative has to be resident in a country belonging to the European Economic Area. At least one of the ordinary members and one of the deputy members of the Board of Directors (and the Supervisory Board if any) computed seperately of a co-operative has to be resident in the European Economic Area unless the National Board of Patents and Registration grants the company an exemption from this requirement. The Managing Director (and his deputy) of a co-operative has to be resident in a country belonging to the European Economic Area. It is not the nationality of the Managing Director (the Deputy Managing Director) but his permanent residence that is decisive. The residency requirement applies to Finnish citizens as well as to citizens of other countries.

By permission of the National Board of Patents and Registration also a person residing outside the European Economic Area may act as Managing Director (or his deputy) of a co-operative. (Tuulikki Holopainen 2009, 57)

4.2.5 Appendices

The application shall be appended with the following certified copies relating to the co-operative to be founded:

- the Instrument of Incorporation
- the Rules of a Co-operative and
- a copy of the Minutes of the Meeting of the Board of Directors where the Managing Director (and deputy Managing Director, if any) has been elected.

The application shall be accompanied by a certified copy of the passport of the applicant. If a document in a foreign language is appended to the application, also a translation thereof into Finnish or Swedish shall be appended.

An application fee (100 euros) shall be paid for each decided permit. If permits are applied for three members of the Board of Directors of a Co-operative, three fees shall be charged (total of 300 euros). The fee shall be charged after the decision to grant or to deny the permit has been made. The decision is sent to the applicant or his representative C.O.D (cash on delivery). (Tuulikki Holopainen 2009, 59)

4.2.6 Basic notification of the co-operative

It should be noted that a co-operative is constituted only upon entry in the Trade Register, i.e., the co-operative becomes an independent legal person when it is entered in the Trade Register. The registration notice shall be submitted to the Trade Register within six months from the signing of the Instrument of Incorporation. The following information shall be given in the register notification:

- the trade name of the co-operative (and the parallel trade name, if any)
- the date on which the instrument of incorporation was signed
- the purpose of the co-operative
- the address of the co-operative
- the place of the registered office of the co-operative
- the amount of the share price

- personal data of the chairman of the Board as well as of each of its members and deputy members
- the financial period of the co-operative
- the representative: A co-operative must have a representative who is entitled to receive summons and other notifications on behalf of the co-operative. The representative has to be natural person. The representative must be domiciled in Finland and is entered in the Trade Register. If, however, the co-operative has a member or deputy member of the Board of Directors, a Managing Director, a person authorised to sign for the co-operative, or a holder of procuration who has been notified to the Trade Register and is resident in the European Economic Area, it is not necessary to elect a seperate representative. (Tuulikki Holopainen 2009, 60)

4.3 Permits applications

The Managing Director (and deputy Managing Director) of a cooperative has to be resident in a country belonging to the EEA.

At least one of the ordinary members and one of the deputy members of the Board of Directors (and the Supervisory Board, if any) (computed separately) of a co-operative has to be resident in the European Economic Area unless the National Board of patents and Registration grants the company an exeption from this requirement. (Tuulikki Holopainen 2009, 57)

4.3.1 Person residing outside the EEA

At least one of the ordinary members and one of the deputy members (computed separately) of the Board of Directors (and the Supervisory Board, if any) of a co-operative has to be resident in the European Economic Area unless the National Board of patents and Registration grants an exemption from this requirement.

It is not the nationality of a member of the Board of Directors (the Supervisory Board) but his permanent residense that is decisive. The residency requirement

applies to Finnish citizens as well as to citizens of other countries. (Tuulikki Holopainen 2009, 57)

4.3.2 Managing Director outside the EEA

The Managing Director (and his deputy) of a co-operative has to be resident in a country belonging to the EEA. It is not the nationality of the Managing Director (the Deputy Managing Director) but his permanent residence that is decisive. The residency requirement applies to Finnish citizens as well as to citizens of other countries.

By permission of the National Board of Patents and Registration also a person residing outside the EEA may act as Managing Director (or his deputy) of a co-operative. (Tuulikki Holopainen 2009, 57)

4.3.3 Member of the Board of Directors

If a permit is required, the application, free in form, is be submitted to the National Board of Patents and Registration either in Finnish or in Swedish. The application shall state:

- The name, nationality and place of residence of the applicant as well as the state in which the place of residence is located.
- The name of the enterprise to which the permit application applies. In addition to the trade name, also the Business ID shall be stated provided that the enterprise has already acquired it.
- The grounds for the granting of the permit
- The postal address and other possible contact information (e.g. the telephone number) of the applicant or his representative
- The permit applied for (a trade permit of the Managing Director/the Deputy Managing Director / a member or a deputy member of the Board of Directors / a member or a deputy member of the Supervisory Board of a limited company)

If several permits are applied for with regard to one enterprise, it is possible to submit only one application individualizing all the permits applied for and the applicants. The application shall be dated and signed by each applicant or by the person authorized thereto by a power of attorney. If the application is signed by a power of attorney, the application shall be accompanied by the power of attorney. (Tuulikki Holopainen 2009, 58)

5 SUBSIDIES FOR A STARTING ENTERPRISE

This topic deals with funding for a new business start-up, start-up grants and loan financing which are mainly granted by the commercial banks and the special financing company, Finnvera.

5.1 Loans

Normally an entrepreneur needs, in addition to equity, external capital, i.e. loans. The commercial banks and the special financing company, Finnvera, mainly grant loan financing. Interest is paid on a loan, which may be linked to the Euribor reference rate, for instance. In addition, the finance provider must obtain a return for itself, i.e. an interest margin, and a handling fee for the loan. The loan repayment terms vary depending on the finance provider. (Finnish Enterprise Agencies 2011, 20)

5.2 Capital investments

A capital investor (business angel or capital-investment company) invests money in a target business in return for a share of ownership (typically less than 50% of the shares). Capital investors take a significant risk when they make an investment, and, therefore, they expect a significant return from the investment as a compensation. The terms of the investment will be specified in detail in the shareholder agreement. (Finnish Enterprise Agencies 2011, 20)

5.3 Business subsidies

The Centres for Economic Development, Transport and the Environment (ELY centres) can grant subsidies for business ventures and the planning of them, depending on the line of business and the location of the enterprise.

Business subsidies or aid are generally discretionary and require that the business's operations are profitable. There is no need to pay back the subsidy or aid Business aid must be applied for and a decision received before any investment is made. Aid for purchases made is generally only paid in arrears. Support for innovative business ventures can also be obtained from the Foundation for Finnish Inventions and the Finnish Funding Agency for Technology and Innovation. If the business is geared towards developing countries, it is possible to obtain a subsidy with the help of the Finnpartnership business-partnership programme. (Finnish Enterprise Agencies 2011, 20)

5.4 Conditions for granting support

Start-up grants can be granted if the entrepreneur is able to establish profitable business and (s)he has experience as an entrepreneur or has business training. The support must be necessary for the entrepreneur's subsistence. The entrepreneur must work in the business full-time. An application for start-up grants must be accompanied by a business plan and a profitability calculation. Help with preparing these can be obtained from business advisory experts.

The conditions of granting start-up grants are that:

- The applicant has experience as an entrepreneur or the necessary training in entrepreneurship.
- The applicant has, in other respects, sufficient skills for the business operations that (s)he is planning.
- The business is able to operate profitability.
- The applicant is not receiving state support for his/her labour costs.
- The business's operations have not been started before a decision has been made on the granting of support.
- The provision of support will not distort competetion between those offering the same products. (Finnish Enterprise Agencies 2011, 21)

6 THE EMPRICAL STUDY

The empirical part of the study will examine the subsidies of the co-operative wind energy have gained and what kind of governmental subsidies wind energy co-operative can gain once the business has been established. The companies interviewed for the study were Keskusosuuskunta Oulun Seudun Sähkö, Enon Energia Osuuskunta and Ålands Vindenergi Andelslag. The purpose of the interviews was to bring specified characterization of the cooperative wind energy. Interviewing different source of financial aid institutes will help to start a wind energy co-operative

6.1 Research questionnaire

The research was done by sending out questionnaire to co-operative wind energy companies in Finland. A systematic plan was set to obtain these data with a qualitative research method that was decided to be used. The aim is to give the reader a better understanding of the co-operative business model and its requirements. The series following the establishment of the business are subsidies, loans and guarantees.

6.2 6.2 Analysis of the questionaire

The first question in the questionnaire survey relates to the number of co-owners and how the owners benefit from the co-operative. Based on the respondents the minimum members of co-owners is 12, and the highest company has approximately 1300co-owners. And all respondents provide cheaper electrical energy to its members.

One of the respondents is a joint co-operative with 12 local co-operatives as members. As it is stated earlier, the owners benefit from the co-operative in form of cheaper energy.

One final respondent is from Åland and he took a great deal to emphasis owner's benefits. He described how the owners have the possibility to choose what type of benefits they would like to acquire, either cheaper electrical energy or refund in cash.

Question two is about the co-operative production, if it is only heat, electricity or both.

All participants except one do produce electricity. The one that produces both electricity and power is dependent on the way of energy production and the source of energy is hydropower, bioenergy, coal fired power and wind power. As a result, all co-operatives which took part in this research produce heat, electricity or both.

Question three focuses on the key factors of choosing a co-operative business model for the energy production and the complications before starting the company, for example, all members having to be residents in Finland.

One of the participants in the research claims a cooperative is the best business model to attract the small investors. In addition to that its members manage the co-operative themselves and democratically. Also, the profict can be utilized for the development of the co-operative.

Two out of the six respondents claimed that there were no complications at all for establishing the co-operative business model in Finland, while the others had minor challenges. One respondent said he had to convince the investors of why they have gone with the co-operative business model.

The forth question in the survey studies the institutes that provide any assistance for establishing a business. Based on this question I would like to emphasize that Finnvera's financing principles for wind energy companies do not differ the normal financing. It provides loans and guarantees for wind energy companies; however, Finnvera's subsidy may be included in form of a lower loan interest rate. If the company has received other state aid, that

should be taken into account when making financing decisions. In 2010, Finnvera provided EUR 913.7 million in financing for enterprises. Financing was provided for starting small businesses and the volume of venture capital investments was record high. (Finnvera, 2010)

Other financial liabilities comprise other liabilities to credit institutions and customers, as well as debt securities in issue, that are not classified as financial liabilities at fair value through profit or loss.

State subsidies and grants received for the purpose of acquisition of subsidiaries are also classified as other financial liabilities based on the repayment obligation relating to these assets in certain situations.

Pellervo provides different type of services, for example, a step by step guide to setting up a co-operative. Incorporation and legal advice, efficient shareholder management, a handbook for co-operative administrators and education are also provided by the Pellervo Institute.

Pellervo operates as:

- A service organization for Finnish cooperatives
- A forum for cooperative activities
- An organization of expertise for the cooperative activities
- An organization dedicated to development
- A national and international actor and promoter of member's interests

7 CONCLUSIONS

The main objective of this thesis research is to answer the financing principles for co-operative wind energy, subsidy instruments and the institutes that provide such services in Finland.

The core questions of this thesis research were:

1. What kinds of benefits do members of co-operative gain and the number of co-owners?

2. What institutes provide such services?

3. What are the subsidy instruments that co-operative wind energy can gain in Finland?

7.1 Research results

The results of the survey that I have described in the very beginning of the empirical part of the study shows the benefits and the number of co-owners.

The results of question four in the survey tell about the institutes that provide services to help those who are interested in the co-operative business model and the financial aspect that follows. As one of the interviewees has stated on behalf of Finnvera's financing principles that the subsidy can be included in a form of lower loan interest rate.

7.2 Study conclusion

The latest figures related to the total number of installed wind energy capacity in Finland is 197 MW, 130 wind turbines as of December 2010. By the end of may 2011 there were over 6300 MW worth of wind power projects published in Finland, 3000 MW of them are offshore projects.

Cooperative wind energy is continuing to rise and considered the best way to reach the small investors. In addition, an owner's potential benefits from the co-operative include cheaper energy and the ability to choose the type of shares.

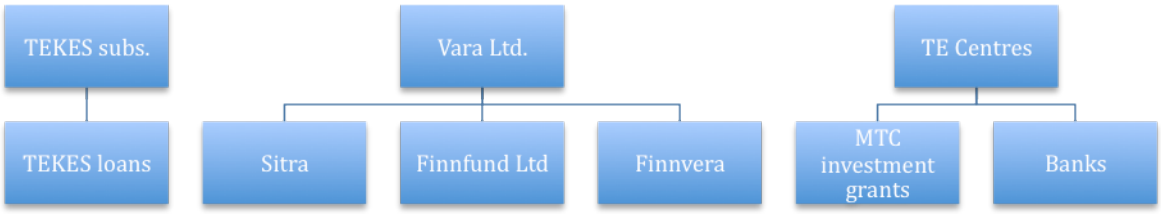

Figure 7. The financing map of Finland.

There are three intitutes according to the research that provides subsidies:

- TEKES subs
- TE Centres
- MTC investment grants

next level of institutes deals with loans and guarantees:

- TEKES loans
- Finnvera Ltd
- Banks

Final stage of the financing scheme:

- Business Angels
- Vera Ltd
- Sitra
- VC investments
- Finnfund Ltd
- Finnish industry investment Ltd.

Figure 7 draws a picture of the institutes that provide subsidies for the ones planning to establish the business. Tekes helps companies to develop business model and strategy, the development of new products and services and the development of processes and organisation.

The following stage deals with loans and guarantees elaborating Finnvera guarantee policy. A Finnvera guarantee is intended as security for all types of financing within a company and can be used to further the internationalisation of a company by granting guarantee for financing the marketing, investments or working capital of the company's subsidiary or associated enterprise abroad.

The final stage of the financing scheme shows six institutes. Sitra, the Finnish innovation fund has the duty to promote stable and balanced development in Finland, the growth of its economy and its international competitiveness and co-operation. Sitra's responsibilities are stipulated in law.

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APPENDIX: ORIGINAL SURVEY

This research is a part of Medvind R&D project, which has as the objective to support wind energy establishments in the region of Ostrobothnia. I would greatly appreciate your participation in this survey. When the research is finalized, I will send the summary of the survey by email to all participants as a thank you.

1. The name of the energy company?
2. The way of energy production?
3. The year of establishment?
4. The number of co-owners?
5. Is youe coop producing heat, electricity or both?
6. How do the owners benefit from the co-operative? Do they get interest (osuuspääoman korko) for their invested capital or do they gain cheaper energy?
7. Why did you choose the co-operative as a business model to your energy production? (compared to Ltd/osakeyhtiö)
8. What do you think are the pros and cons of the co-operative business model in energy production?
9. What benefits do the owners do gain in a co-operative company?
10. Was there any complication before starting the company i.e. all members of the company must be residents in Finland?
11. From where did you get help to establish the coop? (TE-keskus, Pellervo,…)

12. Was it easy to find information about the financial subsidies for the establishment of the co-op?

13. What subsidies did you get for the founding of your business?

14. What subsidies you are getting now when running your business?