

A literature study of renewable energy tax incentives

by

Dola Nortje

24363325

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Study leader:

Mr. T Steyn

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SUMMARY

LITERATURE STUDY OF RENEWABLE ENERGY TAX INCENTIVES

by

Dola Nortje

STUDY LEADER : THEUNS STEYN
DEPARTMENT : TAXATION
DEGREE : MAGISTER COMMERCII (TAXATION)

KEYWORDS: tax incentives, renewable energy, effectiveness of ..., guidelines for ...

The Centre for Resource Solutions (“CRS”) in the USA has performed a study on tax incentives for renewable energy. The CRS has found that tax incentives are effective, powerful and highly flexible instruments to encourage the development of renewable energy. They have further identified various types of tax incentives and various guidelines for effective tax incentives.

The research question was whether the tax incentives and guidelines as identified by the CRS are internationally acceptable and whether South-Africa can consider these tax incentives and guidelines to design and implement a renewable energy tax incentive policy of an international standard in South-Africa.

Chapter 1 contains the background, research question, objectives and methodology of this study.

In Chapter 2 the advantages and disadvantages of each type of tax incentive, as identified by the CRS, were analysed through a literature study of international views on these tax incentives.

In Chapter 3 the guidelines for effective renewable energy tax incentives, as identified by the CRS, were analysed through a literature study of international views on these tax incentives.

Chapter 4 contains the conclusion that the tax incentives and guidelines as identified by the CRS are internationally acceptable and that South-Africa can consider these tax incentives and guidelines to design and implement a renewable energy tax incentive policy of an international standard in South-Africa.

OPSOMMING

LITERATUUR STUDIE VAN BELASTING AANSPORINGS VIR HERNUBARE ENERGIE

deur

Dola Nortje

STUDIE LEIER : THEUNS STEYN
DEPARTEMENT : BELASTING
GRAAD : MAGISTER COMMERCII (TAXATION)

SLEUTELWOORDE: belasting aansporings, hernubare energie, effektiwiteit van ..., riglyne vir ...

Die Centre for Resource Solutions (“CRS”) in Amerika het ‘n studie gedoen op belasting aansporings vir hernubare energie. Die CRS het bevind dat belasting aansporings effektiewe, kragtige en hoogs aanpasbare instrumente is om die ontwikkeling van hernubare energie aan te moedig. Die CRS het verskeie tipe belasting aansporings en verskeie riglyne vir effektiewe belasting aansporings geïdentifiseer.

Die navorsingsvraag was om te bepaal of die tipe belasting aansporings en die riglyne soos deur die CRS geïdentifiseer, internasionaal aanvaarbaar is en of Suid-Afrika hierdie tipe belasting aansporings en riglyne kan oorweeg om ‘n hernubare energie belasting aansporings beleid vir Suid-Afrika te ontwerp en te implementeer wat aan internasionale standaarde sal voldoen.

Hoofstuk 1 bevat die agtergrond, die navorsings vraag, doelwitte and metodologie van die studie.

In Hoofstuk 2 is die voordele en nadele van elke tipe belasting aansporing, soos deur die CRS geïdentifiseer, ontleed deur middel van 'n literatuur studie van internasionale menings oor hierdie belasting aansporings.

In Hoofstuk 3 is die riglyne vir effektiewe belasting aansporings vir hernubare energie, soos deur die CRS geïdentifiseer, ontleed deur middel van 'n literatuur studie van internasionale menings oor hierdie riglyne.

Hoofstuk 4 bevat die gevolgtrekking naamlik dat die belasting aansporings en die riglyne, soos deur die CRS geïdentifiseer, wel internasionaal aanvaarbaar is en dat Suid-Afrika hierdie belasting aansporings en riglyne kan oorweeg om 'n hernubare energie belasting aansporings beleid van internasionale standaard vir Suid-Afrika te ontwerp en te implementeer.

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Chapter 1

Background, research question, objectives and methodology

1 BACKGROUND

“Climate change is the greatest challenge facing humanity at the start of the 21st Century.” This statement was made per the United Nations Development Programme's Human Development Report 2007/2008 (United Nations Development Programme, 2008).

The National Technology Transfer Centre (2000) defines climate change as “... the build-up of man-made gases in the atmosphere that trap the sun's heat, causing changes in weather patterns on a global scale.”

The gases that build-up in the atmosphere are referred to as greenhouse gases (“GHG”). The three main GHG are carbon dioxide (“CO₂”), methane, and nitrous oxide. The continuing build-up of GHG changes the chemical composition of the atmosphere and traps solar heat in the atmosphere. This leads to a gradual shift in the earth's climate which is referred to as climate change or the more familiar term “global warming”. (College of Saint Benedict's / Saint John's University, 2008.)

GHG are vital for life on earth. Without GHG the earth will be approximately 30°C colder, the planet will freeze and be uninhabitable. But, excessive GHG can result in a lethal increase in the earth's temperature. (Russel, 2007.)

According to dr. Janet Yellen (1999), the chairperson of the council of economic advisors in Washington DC, the following consequences of global warming have been identified:

- a rise in sea levels due to the melting of ice;
- greater frequency of severe weather events;
- shifts in agricultural growing conditions due to changing weather patterns;
- threats to human health due to increased range and incidence of diseases;

- changes in availability of freshwater supplies; and
- damage to ecosystems and biodiversity.

GHG build-up in the earth's atmosphere due to natural processes as well as human activity (College of Saint Benedict's / Saint John's University, 2008).

The earth's natural processes continuously release and absorb CO₂ which results in the natural maintenance of the carbon balance. Human activity however interferes with the carbon balance and CO₂ is produced at such a fast rate that the natural processes cannot keep up and this results in an increase in the earth's temperature. (Science Museum of the national academy of sciences, n.d.)

According to the Intergovernmental Panel on Climate Change ("IPCC") global emissions of GHG have increased with 70% since pre-industrial times, as measured from 1970 to 2004 (IPCC, 2007:3).

Humans produce energy mainly to generate electricity, regulate temperature and for transportation purposes. Energy is produced mainly from the conventional burning of fossil fuels, such as coal, oil and natural gas. According to an energy research project done by senior environmental study students at the College of Saint Benedict's / Saint John's University in America, the combustion of fossil fuels results in the emission of significant amounts of GHG. (College of Saint Benedict's / Saint John's University, 2008.)

South-Africa depends almost entirely on domestic coal as our main energy source (South African Department of Environment Affairs and Tourism – State of the Environment, 2007). Therefore, South-Africa is currently adding to the global problem of climate change.

According to Greenpeace, a global organisation with the aim to protect and conserve the environment, renewable energy is the true solution to combat climate change (Greenpeace, 2007:4).

Renewable energy refers to electricity that is generated from renewable energy sources such as the sun (i.e. solar power), wind, water (i.e. hydropower), geothermal and biomass.

These sources are regarded as renewable since they cannot be depleted. (Virginia Municipal League, n.d.)

Worldwide it was decided to take action. The United Nations Environment Programme and the World Meteorological Organisation established the Intergovernmental Panel on Climate Change (“IPCC”) in 1988. The purpose of the IPCC is to assess the risk of climate change caused by humans and to inform the world’s political leaders of their findings. Governments and scientists from all over the world contribute to the work of the IPCC. (IPCC, 2008.) Up to 2007 the IPCC has issued four assessment reports. These scientific reports have had significant influence on the drafting of worldwide climate policies. (Union of Concerned Scientists, 2007.)

The first assessment report was released in 1990. The findings of this report lead to the establishment of the United Nations Framework Convention on Climate Change (“UNFCCC”) in 1992. (Union of Concerned Scientists, 2007.) The objective of this international treaty is to stabilise the concentration of GHG in the atmosphere at a certain level, thereby protecting the climate system against dangerous human interference (United Nations, 1992:4). South-Africa ratified the UNFCCC in 1997 (South African Department of Environmental Affairs and Tourism – Environment and Tourism, 2007).

The second assessment report of the IPCC was released in 1996. This report led to the establishment of the Kyoto Protocol to the United Nations Framework Convention on Climate Change (“Kyoto Protocol”) in 1997. (Union of Concerned Scientists, 2007.) The Kyoto Protocol, an addition to the UNFCCC, is also an international treaty, but more legally binding than the UNFCCC. The Kyoto Protocol came into force on 16 February 2005 whereby developed countries committed to specific reductions of their GHG. (UNFCCC, n.d.a.)

The primary objective of the Kyoto Protocol is to achieve sustainable development (United Nations, 1998:2). Sustainable development is defined by the IPCC (1995:37) as “... development that meets the needs of the present without compromising the ability of the future generations to meet their own needs”. Renewable energy resources are regarded as essential to achieve sustainable development (Researchandmarkets, n.d.:1).

Countries that ratify the Kyoto Protocol commit to increase the development and usage of renewable energy and to improve energy efficiency (South African Department of Environmental Affairs and Tourism – Environment and Tourism, 2007).

According to the Kyoto Protocol's status of ratification, 183 countries have ratified the Kyoto Protocol as on 16 October 2008 (UNFCCC, 2008:8).

The parties to the UNFCCC and the Kyoto Protocol are separated into two general categories based on their level of commitment to the reduction of GHG, being Annex I and non-Annex I countries (UNFCCC, n.d.b).

Annex I countries are developed countries and countries with economies in transition (UNFCCC, n.d.b). According to Article 3.1 of the Kyoto Protocol, Annex I countries are committed to reduce their anthropogenic GHG emissions (i.e., emissions caused by humans) on average by 5% below their 1990 levels, within the first commitment period of 2008 to 2012 (United Nations, 1998:3). Annex I countries further have to report annually their anthropogenic GHG emission inventories in order for UNFCCC to determine whether the country complies with its commitment (United Nations, 1998:3&7). Countries that do not meet their targets can be forced to reduce their levels of industrial production (Tierramerica, n.d.).

Non-Annex I countries are mainly developing countries (UNFCCC, n.d.b). Non-Annex I countries do not have specific GHG emission restrictions during the first commitment period (Global Warming, n.d.). The developing countries are however required to report on an annual basis statistics of their GHG emissions and GHG sinks. Sinks refers to natural processes or human projects that reduce GHG. (Sussman, 2007.)

Non-Annex I countries are motivated to engage in green projects, being projects with the aim to reduce GHG emissions in a country. Green projects earn carbon credits for a country and carbon credits can be bought by Annex I countries. Carbon credits are added to determine whether an Annex I country has met its GHG reduction target. This arrangement leads to developed countries investing in developing countries. The arrangement is referred to as the Clean Development Mechanism. (Global Warming, n.d.)

South-Africa ratified the Kyoto Protocol in 2002. South-Africa is a developing country and therefore forms part of the non-Annex I countries. (South African Department of Environmental Affairs and Tourism – Environment and Tourism, 2007.)

South-Africa took further action. In November 2003 the South African Department of Minerals and Energy issued a White Paper indicating South-Africa's policy on renewable energy. According to this White Paper the South African government indicated its 10 year target to increase the contribution of renewable energy to 10 000 GWh by 2013. ("GWh" is the abbreviation for Gigawatt-hour, an energy unit whereby electricity consumption is measured (South African Department of Minerals and Energy, 2003:-v-).) At this level, renewable energy will contribute to about 4% of the total estimated electricity demand for South-Africa by 2013. (South African Department of Minerals and Energy, 2003:-ix-.)

At the 2008 International Conference on Renewable Energy, held in Washington, Ms BP Sonjica, the South African Minister of Minerals and Energy, said that South-Africa is committed to develop policies on renewable energy on an ongoing basis and to increase South-Africa's renewable energy target to 10% of total energy consumption by 2025 (South African Department of Minerals and Energy, 2008).

In South-Africa there are however three main problems with regards to the development of renewable energy.

The first problem is that a move towards renewable energy and away from fossil fuels might affect South-Africa's economy negatively (South-Africa, 2004:iv). This is due to South-Africa's economy which depends highly on the production, processing, export and consumption of coal. Further, if developed countries take significant action to combat climate change it will potentially reduce their demand for coal and thereby having a negative impact on South-Africa's income from coal exports. (South-Africa, 2004:iv.)

The second problem is that in 2008 renewable energy technologies are still under-developed in South-Africa (South African Department of Minerals and Energy, 2003:27).

The third problem is that many renewable energy technologies are regarded as expensive due to the high initial capital costs involved (South African Department of Minerals and Energy, 2003:27).

In order to kick-start the renewable energy industry in South-Africa, government funding and support are required. The end goal will be for renewable energy technologies to be competitive and for market forces to drive the renewable energy industry without government funding. To reach the end goal, government funding will be phased out and other parties will start to invest in the industry. (South African Department of Minerals and Energy, 2003:27.)

According to the IPCC's Summary for Policymakers there are various national policies and instruments that governments can use to fund or support the country's renewable energy industry (IPCC, 2007:19).

The following are examples of policies, measures and instruments that have been regarded as effective to stimulate the renewable energy industry, thereby combating climate change:

- Government subsidies for renewable energy;
- Reduction in government subsidies for fossil fuels;
- Feed-in tariffs. Feed-in tariffs refer to the regulated, minimum guaranteed price paid by a country's electricity provider to an independent producer of renewable energy for every kilowatt-hour of renewable energy that the independent producer feeds into the country's electricity grid. Normally the feed-in tariff is higher than the price of conventional electricity for the consumer. (Sijm, 2002:6.);
- Government investment in an attractive, energy efficient form of public transport;
- Renewable energy obligations;
- Energy standards for appliances;
- Awareness and education programmes;
- Carbon taxes, which refer to taxes or levies on carbon emissions or on the usage of conventional energy; and
- Tax incentives for the production, consumption, research and development of renewable energy.

(IPCC, 2007:20.)

The Centre for Resource Solutions (“CRS”) in San Francisco is a non-profit organisation with the mission to fight climate change by designing renewable energy, GHG reduction and energy efficiency policies (CRS, 2008). During 2005 the CRS prepared a study on tax incentives that have been implemented worldwide to support the development of renewable energy. The objective of this study was to identify different types of tax incentives and to identify lessons that can be learnt from the countries who have implemented these tax incentives to support renewable energy. (CRS, 2005:3.)

The CRS has found that tax incentives are regarded effective, powerful and highly flexible instruments to stimulate the development of renewable energy industries. Further that there are various types of tax incentives and various lessons that can be learned from other countries who have successfully implemented effective renewable energy tax incentive systems (CRS, 2005:3.) These lessons provide guidelines for countries who want to implement a renewable energy tax incentive system.

2 RESEARCH QUESTION, OBJECTIVES AND METHODOLOGY

2.1 RESEARCH QUESTION

South-Africa has indicated its commitment to develop renewable energy. South-Africa can consider tax policies as an instrument to encourage the development of the local renewable energy industry. The question is whether the tax incentives and the guidelines as identified by the CRS are internationally acceptable and whether South-Africa can consider these tax incentives and guidelines in order to implement tax policies of an international standard.

2.2 RESEARCH OBJECTIVES AND METHODOLOGY

The research question will be addressed through the following research objectives and methodology:

- to analyse the advantages and disadvantages of the types of tax incentives as identified by the CRS through a literature review of international views on these incentives;
- to analyse the guidelines for effective renewable energy tax incentives as identified by the CRS through a literature review of international views on these guidelines.

3 PARTIES THAT WILL BENEFIT FROM THIS STUDY

It is expected that the following parties will benefit from this study:

- South African Treasury Department
The research will identify tax legislation that can potentially be successfully applied in South-Africa to combat climate change and to encourage the development of renewable energy.
- Energy producers and consumers
The research will make the South African energy producer and consumer aware of the significance of climate change and the global attempt to combat climate change.
- Investors and taxpayers
The research will provide investors and taxpayers with information on the renewable energy industry and tax incentives that might be available in South-Africa in the future to encourage the development of renewable energy. Hopefully this research will motivate potential investors to invest in renewable energy in South-Africa as well as in the rest of the world.

Chapter 2

Tax incentives to encourage renewable energy

1 INTRODUCTION

According to the CRS tax incentives are regarded as effective, powerful and highly flexible instruments to encourage the development of renewable energy industries (CRS, 2005:3).

The CRS' view is based on their findings that tax incentives hold the following advantages for the development of renewable energy industries:

- Tax incentives are regarded as flexible tools since it can be implemented to target specific needs. For example, a tax incentive can be applicable to certain selected market sectors or to all market sectors, it can be applicable to selected types of renewable energy technologies or to all renewable energy technologies and tax incentives can be designed to be applicable for a limited period of time. (CRS, 2005:4-6.);
- Tax incentives can be used to create equality between conventional and renewable energy industries. Conventional energy technologies require low capital costs and high fuel costs compared renewable energy technologies that require high capital costs and low or no fuel costs. Conventional energy technologies however deduct the high amount of fuel costs for tax purposes as this is an operating expense. The capital expenditure is normally not tax deductible. This creates an imbalance between the two industries. Tax incentives can be used to bring the two industries more in line and make them more competitive. (CRS, 2005:4-6.);
- Tax incentives can be used to compliment other incentive programmes for renewable energy (CRS, 2005:4-6);
- Tax incentives directly reduce the cost of investment in renewable energy for the producer and the consumer (CRS, 2005:4-6);

- Tax incentives have an immediate impact on an industry (CRS, 2005:6);
- Tax incentives are regarded as easy to understand (CRS, 2005:6); and
- Tax incentives are regarded as easy to administer since the relevant regulatory bodies are normally already in place (CRS, 2005:6&22).

The effectiveness of tax incentives has been confirmed by the World Resources Institute who regards certain tax incentives to drive the development of renewable energy technologies (World Resources Institute, 2008:1).

Tax incentives consist of either tax deductions which reduce the taxable income of a taxpayer compared to tax credits which directly reduce the tax liability of the taxpayer (CRS, 2005:6). The tax credit is therefore much more advantageous than a tax deduction to the taxpayer (Florida Solar Energy Centre, 2007).

Tax incentives are generally not a refund of the cost incurred in respect of renewable energy, it is purely a reduction of the already existing tax liability. If the tax liability is too low for a specific taxpayer or the taxpayer is exempt from tax, the tax incentive will not be as effective. For this reason the CRS has found that it is important to combine tax incentives with other forms of renewable energy incentives to ensure an effective renewable energy incentive system. (CRS, 2005:6.)

The objective of this chapter is to analyse the advantages and disadvantages of the types of tax incentives as identified by the CRS through a literature review of international views on these incentives in order to determine whether these incentives are internationally acceptable.

2 ANALYSIS OF ADVANTAGES AND DISADVANTAGES OF THE TYPES OF TAX INCENTIVES AS IDENTIFIED BY THE CRS

The CRS has identified the following 10 types of tax incentives which have been implemented worldwide to encourage renewable energy industries:

- Investment tax incentives
- Production tax incentives
- Property tax reductions
- Value-added tax reductions
- Excise (Sales) tax reductions
- Import duty reductions
- Accelerated depreciation
- Research, development, demonstration and equipment manufacturing tax incentives
- Tax holidays
- Taxes on conventional fuels

(CRS, 2005:3-4)

These 10 tax incentives have been confirmed by Ms Aneria Bouwer, senior associate at the law firm Bowman Gilfillan, as being incentive measures which make renewable energy technologies more affordable, more available and more efficient. (Bouwer, 2008)

The State Environmental Resource Centre (“SERC”) in the United States of America (“USA”) (2004) regards the investment tax incentives and the production tax incentives as the two main types of incentives to encourage the development of renewable energy.

2.1 INVESTMENT TAX INCENTIVES

2.1.1 Design and use

According to the SERC, investment tax incentives are based on the amount invested in a renewable project (SERC, 2004). The CRS expands this definition by explaining that

investment tax incentives can provide income tax deductions or tax credits to corporations or individuals up to 100% of the capital cost of renewable energy systems (CRS, 2005:6-7).

2.1.2 Advantages and disadvantages

The main advantage of the investment tax incentive is that it reduces the up-front capital investment cost of a renewable energy project (SERC, 2004). The World Resources Institute confirms that an investment tax credit is an economic incentive for the investment in capital-intensive renewable energy projects, for example solar energy systems (World Resources Institute, 2008:1).

Renewable energy projects normally require a high up-front capital investment and in the beginning of such a project a cost reduction is generally most appreciated. (SERC, 2004.)

According to the CRS, investment tax incentives promote the start-up of a renewable energy project, but it does not support the subsequent production of renewable energy which might result in deterioration of production (CRS, 2005:7).

Another point to consider is that the investment tax incentive might result in inflated prices from manufacturers. For example, the manufacturers know that the investors get a tax incentive based on a certain percentage of the item's cost. Based on this knowledge, the manufacturers might increase their prices, thereby offsetting the benefit of the tax incentive. According to SERC maximum limits on the investment tax incentives can be set to discourage inflated prices. (SERC, 2004.)

2.2 PRODUCTION TAX INCENTIVES

2.2.1 Design and use

According to the SERC, production tax incentives are based on the amount of energy produced (SERC, 2004). The CRS expands this definition by explaining that production tax incentives provide income tax deductions or tax credits to producers of renewable

energy in the form of a fixed rate for every kilowatt-hour of electricity generated (CRS, 2005:9).

2.2.2 Advantages and disadvantages

The main advantages of production tax incentives are that it directly reduces the production cost of renewable energy and it supports the effective and long-term generation of renewable energy (CRS, 2005:9).

The production tax incentive rewards performance and the positive effect on the environment (SERC, 2004).

A disadvantage of this tax incentive is the high administrative costs (CRS, 2005:8). Meters and significant paperwork are normally required to keep records of qualifying electricity units produced. The administrative burden makes this tax incentive less attractive to smaller businesses. (SERC, 2004.)

2.3 PROPERTY TAX REDUCTIONS

2.3.1 Design and use

Property tax reductions provide relief by reducing the property taxes on land and fixed assets used for the production of renewable energy. Property taxes can be reduced up to 100%. (CRS, 2005:9.)

2.3.2 Advantages and disadvantages

According to the CRS renewable energy technologies normally require a higher capital investment compared to conventional energy technologies. The property taxes are generally based on the value of the property therefore renewable energy technologies are paying higher property taxes. By reducing the property taxes on renewable energy properties, better tax equality can be created between the renewable energy industry and the conventional energy industry. (CRS, 2005:9.)

According to the American Wind Energy Association property tax reductions or exemptions assist in the reduction of the payback period of an investment in a wind plant. This results that the investment becomes more financially viable to the investor. The American Wind Energy Association regards the up-front investment tax credit as most beneficial to a wind system, but that the property tax reduction definitely adds to the affordability of a wind system. (American Wind Energy Association, n.d.:7.)

According to a case study performed by students of the North Carolina State University on the effectiveness of incentives for renewable energy, property tax reductions are described as complementary to other tax incentives and not as a main driving factor to promote renewable energy development (Gouchoe, Everette and Haynes, 2002:4).

2.4 VALUE-ADDED TAX (“VAT”) REDUCTIONS

2.4.1 Design and use

VAT incentives for renewable energy generally refer to the reduction of VAT payable by the suppliers of renewable energy or renewable energy equipment. This incentive is normally in the form of a reduced VAT rate. (CRS, 2005:10.)

2.4.2 Advantages and disadvantages

According to the CRS the producer of renewable energy is expected to have high output VAT on the sale of energy compared to low input VAT due to low operating costs. (CRS, 2005:10.) Therefore the producer is expected to benefit significantly from a reduced VAT rate.

A VAT reduction also holds a benefit to the customer who will pay a reduced price for the renewable energy or renewable energy equipment (Toan, Lien, Thanh, Bao and Duc, 2006:5)

The effectiveness of a VAT reduction can be influenced negatively if the supplier of renewable energy increases the price of renewable energy to such an extent that the

benefit of the reduced VAT becomes insignificant. (Toan, Lien, Thanh, Bao and Duc, 2006:5)

2.5 EXCISE / SALES TAX REDUCTIONS

2.5.1 Design and use

Excise or sales tax reductions provide for a reduction of excise or sales taxes paid by consumers on the purchase of renewable energy and renewable energy equipment (CRS, 2005:11).

2.5.2 Advantages and disadvantages

The reduction in excise or sales taxes is again a very flexible incentive as the reduction rate can vary from 1% up to 100%. The purchase of renewable energy and renewable energy equipment can even be exempt from excise or sales tax compared to conventional energy still being subject to excise or sales taxes. (CRS, 2005:11.)

The CRS has found that excise or sales tax reductions are most effective when it is linked to technology and performance standards of renewable energy equipment and production (CRS, 2005:11).

According to the CRS a reduction in excise or sales taxes on renewable energy can directly increase the demand for renewable energy (CRS, 2005:11).

According to a case study performed by students of the North Carolina State University on the effectiveness of incentives for renewable energy, sales tax exemptions are regarded to complement or enhance other tax incentives and not as a main driving factor to promote renewable energy development (Gouchoe, Everette and Haynes, 2002:4).

2.6 IMPORT DUTY REDUCTIONS

2.6.1 Design and use

Import duty reductions reduce the import duties on parts and equipment that are imported for local generation of renewable energy and manufacturing of renewable energy equipment (CRS, 2005:12).

2.6.2 Advantages and disadvantages

This incentive is flexible as import duties can be designed to differentiate between various types of renewable energy technologies and also between parts or whole renewable energy systems. The design has to consider the level of local development and manufacturing of the specific type of technology in a country. (CRS, 2005:12.)

According to a study published in 2002 by the United Nations Environment Programme's Collaborating Centre on Energy and Environment in Denmark, it was found that import duty reductions hinder the local renewable energy industry since it makes the importation of these systems more attractive (Painuly & Fenhann, 2002:14).

It was further found that high import duties on renewable energy systems protect the local manufacturers' market. If the local technology is however not of a good standard, this mechanism will have a negative impact on the development of the local renewable energy industry. (Painuly & Fenhann, 2002:14-15.)

The CRS has found that import duty reductions are very useful in a country where the renewable energy industry is still underdeveloped. This is due to the lack of manufacturing facilities and technical knowledge of renewable energy systems. (CRS, 2005:12.)

According to the CRS, import duty reductions are the most common tax incentive for developing renewable energy industries (CRS, 2005:18).

2.7 ACCELERATED DEPRECIATION

2.7.1 Design and use

Depreciation, or wear and tear, refers to the income tax deduction of the capital cost of an asset over the estimated useful life of the asset. Accelerated depreciation of renewable energy assets allows for a tax deduction of the capital cost of these assets over a shorter time period compared to other assets. (CRS, 2005:13.)

Accelerated depreciation tax deductions up to 100% of the capital cost in the first year has been implemented successfully with other tax incentives for wind power development in Netherlands, Denmark and India (Piscitello & Bogach, 1997:5-6).

2.7.2 Advantage and disadvantages

According to the CRS accelerated depreciation increases the net present value of an investment since it brings the benefit of the tax deduction forward. Net present value is very time sensitive and income in the first few years of a project weighs more than income in later years. Accelerated depreciation results in larger tax deductions, therefore larger income, in the early years of a project. (CRS, 2005:13.)

Accelerated depreciation incentives are very effective for high-capital investments such as renewable energy project investments (CRS, 2005:13).

The accelerated depreciation incentive represents an incentive against the capital cost of an investment and therefore attracts investors who are looking for a short term return on their investment. The incentive does not support the subsequent performance of a project. (Piscitello & Bogach, 1997:11.)

2.8 RESEARCH, DEVELOPMENT, DEMONSTRATION (“RDD”) AND EQUIPMENT MANUFACTURING TAX INCENTIVES

2.8.1 Design and use

This type of tax incentive provides a tax deduction or a tax credit for renewable energy RDD projects and for the manufacturing of renewable energy equipment (CRS, 2005:14).

2.8.2 Advantages and disadvantages

According to the CRS the RDD and equipment manufacturing tax incentives encourage the local development of renewable energy technologies. Local development tends to focus on local energy generation potential and it addresses local energy issues. (CRS, 2005:14.)

It was also found that the stimulation of local development of renewable energy increases a country's export potential (CRS, 2005:14).

Tax incentives for RDD and equipment manufacturing are sometimes preferred to government funding as government funding projects are normally subject to strict government oversight. This tax incentive encourages private sector development. (CRS, 2005:14.)

The CRS has found that in a country where the renewable energy industry is undeveloped and the RDD projects are still small, the tax incentive for RDD will not be as effective since the project will not yet be subject to large income taxes payable. In such situations government funding might be more effective than tax incentives to stimulate the RDD projects. (CRS, 2005:14.)

The United Kingdom has introduced corporate research and development tax credits in April 2000 (HM Revenue & Customs, n.d.:1). Since its introduction the number of claims has increased from 1 860 to 6 590 in the 2006/07 financial year (National Statistics, 2008:1).

2.9 TAX HOLIDAYS

2.9.1 Design and use

Tax holidays are normally designed to exempt certain taxpayers of the liability to pay tax for a limited time period. The expectation is that the business will begin to pay taxes once the tax holiday expires. (CRS, 2005:15.)

India has successfully offered an income tax holiday in respect of the first five years of qualifying wind power plants (Piscitello & Bogach, 1997:5).

On 16 December 2008, president Gloria Macapagal-Arroyo of the Philippines has signed a new renewable energy act whereby renewable energy producers can qualify for a seven year income tax holiday where after a 10% instead of the standard 30% income tax rate is applicable (The Official Website of the Republic of the Philippines, 2008).

2.9.2 Advantages and disadvantages

According to the CRS (2005:15) tax holidays increase the net present value of an investment. As explained under the accelerated depreciation tax incentive above, net present value is very time sensitive and income in the first few years of a project weighs more than income in later years. Tax holidays results in larger income in the beginning years of a project.

Tax holidays are very effective incentives for high-capital investments such as renewable energy projects (CRS, 2005:15).

2.10 TAXES ON CONVENTIONAL FUELS

2.10.1 Design and use

Taxes on fossil fuels or GHG emissions are indirect tax incentives for renewable energy as these taxes are not applicable to renewable energy, but it discourage generation and consumption of conventional energy (CRS, 2005:16).

2.10.2 Advantages and disadvantages

It was noted that government's income from taxes on conventional fuels are often used to finance tax incentives for renewable energy. This was the case in Netherlands, Denmark and the United Kingdom where tax incentives for wind power development was financed, together with other finance sources, from taxes levied on carbon emissions and electricity generated from fossil fuels. (Piscitello & Bogach, 1997:5-6.) This results that government does not necessarily lose income to fund renewable energy tax incentives.

Taxes on conventional fuels can be designed to be flexible by implementing tax rates on the level of fossil fuel consumption or the level of GHG emissions (CRS, 2005:16).

A disadvantage of taxes on conventional fuels is mainly the potential negative effect on a country's competitiveness in the global markets (CRS, 2005:16).

3 CONCLUSION

From the above it can be concluded that the 10 tax incentives as identified by the CRS are internationally acceptable, but the design, the use, the advantages and disadvantages of each type of tax incentive has to be considered when a country designs and implements a renewable energy tax incentive system.

The CRS has identified certain guidelines to ensure the implementation of effective renewable energy tax incentives. In the next chapter these guidelines will be analysed in order to determine whether they are internationally acceptable.

Chapter 3

Guidelines for effective renewable energy tax incentives

1 INTRODUCTION

The CRS has found that there are various lessons that can be learned from other countries who have successfully implemented effective renewable energy tax incentive systems (CRS, 2005:3.) These lessons provide guidelines for countries who want to implement a renewable energy tax incentive system.

The objective of this chapter is to analyse the guidelines, as identified by the CRS, through a literature review of international views on these guidelines in order to determine whether these guidelines are internationally acceptable.

2 ANALYSIS OF GUIDELINES AS IDENTIFIED BY THE CRS

According to the CRS' study the following main guidelines for effective tax incentives have been identified:

2.1 TARGET THE LEVEL OF DEVELOPMENT OF THE RENEWABLE ENERGY INDUSTRY IN A COUNTRY

According to the CRS tax incentives must be designed to target specific identified needs based on the level of development of a country's renewable energy technologies and the level of other incentives that are already in place (CRS, 2005:20-21).

In the beginning phases of a renewable energy market, research and development and investment tax incentives are important, together with reduced import duties to encourage the initial development of the industry locally. As local manufacturing of equipment and generation of renewable energy increase, production tax credits become more important to

stimulate the market. Finally when the market matures and is controlled by normal market forces, the tax incentives can be phased out. (CRS, 2005:20-21.)

This was confirmed by the South African Department of Minerals and Energy (2003:27) who found that the ideal is for government funding, in the form of tax incentives, to assist with the start up of renewable energy industries and to be phased out once the market forces control the industry.

According to the SERC (2004) an exit strategy for a renewable energy tax incentive, in other words a plan to terminate the tax incentive, is essential for the effectiveness thereof. The exit strategy should be well planned and well communicated to qualifying taxpayers in order for taxpayers to optimise their business strategies. (SERC, 2004.)

The SERC recommends a schedule of declining tax incentives. They also comment that schedules that are based on the growth of the renewable energy market in a country are more successful than schedules that are based on a time line. (SERC, 2004.)

2.1.1 Summary of guideline

The renewable energy tax incentives have to be designed to support the specific phase of development of the industry.

Further that the exit strategy of a tax incentive has to be well planned and well known by taxpayers in order to ensure that the termination of the tax incentive does not have a negative impact on the industry.

2.2 DESIGN LARGE ENOUGH TAX INCENTIVES TO ENSURE COMPETITIVENESS

The tax incentive has to be large enough to ensure that the renewable technology is competitive. If the technology is not competitive the CRS recommends that other incentive policies should be added to encourage the development of the relevant technology. (CRS, 2005:21.)

Gouchoe, Everette and Haynes (2002:vi-vii) agree that a tax credit has to be large enough to ensure sufficient interest from the relevant investors.

2.2.1 Summary of guideline

The tax incentive has to be large enough to ensure market competitiveness of and sufficient investor interest in the relevant renewable energy technology. If this cannot be achieved, additional incentives have to be added to encourage the relevant renewable energy technology.

2.3 A LARGE ENOUGH TAX LIABILITY IS REQUIRED TO BENEFIT FROM THE TOTAL TAX INCENTIVE

The CRS regards renewable energy tax incentives as most effective when the recipient has a large enough tax liability to use the full tax incentive. For example, the investment tax incentive is not as effective if it is earned in the first year of the project and it cannot be used since the project only generates taxable profits in subsequent years.

According to the CRS the incentive will remain effective if the tax benefit can be transferred to subsequent tax years or if the tax benefit can be transferred to another entity that can benefit from it. (CRS, 2005:21.)

This was confirmed by Farrel's (2008:2) view that a taxpayer has to owe a lot of taxes before he can gain a significant benefit from the renewable energy tax credits.

Due to the nature of tax incentives these incentives are only worth something if a taxpayer has an already existing tax liability (CRS, 2005:6). This can be regarded as a limitation to the effectiveness of tax incentives as an instrument to promote renewable energy.

2.3.1 Summary of guideline

It has to be considered that a tax incentive will only be effective if the taxpayer can benefit from the total tax incentive. If the taxpayer's tax liability is insufficient the tax incentive will not be as effective.

2.4 LIMITED ADMINISTRATIVE BURDEN

According to the CRS the easy administration of tax incentives adds to its effectiveness (CRS, 2005:22).

This was confirmed by Ragwitz and Held (2007:20) who found that difficulties to administer instruments that are aimed to encourage renewable energy have a significant negative impact on the effectiveness of such an instrument.

The CRS has found that the administration of tax incentives for renewable energy is easier to manage than other types of incentive programs since the relevant tax regulatory bodies and systems are normally already in place in a country and are familiar with tax deductions and tax credits. (CRS, 2005:22.)

The CRS (2005:22) recommends the following with regards to the administration of the tax incentive system:

- The system should be flexible to allow for future modifications if required;
- The system should include the involvement of the relevant government energy sector agencies; and
- The system should be able to track the effectiveness of the tax incentives in order to make adequate future additions and changes.

2.4.1 Summary of guideline

The tax incentive system has to be easy and simple to administer.

2.5 TAX EXEMPT PUBLIC SECTOR ORGANISATIONS MUST ALSO BENEFIT FROM RENEWABLE ENERGY TAX INCENTIVES

The CRS advises that a country should design its renewable energy tax incentive system in such a way that tax exempt public sector organisations can also benefit from the renewable energy tax incentives (CRS, 2005:22).

The reason for this being that public sector organisations such as schools, hospitals and government agencies represent a significant percentage of a country's energy consumers (CRS, 2005:22). By involving these organisations the potential for renewable energy market growth is increased.

Tax exempt organisations can benefit from renewable energy tax incentives for example by being able to sell its earned renewable energy tax credit for cash to a tax paying organisation or it can receive a cost reduction when acquiring qualifying renewable energy equipment (CRS, 2005:22).

The tax credit can also be paid in cash to tax exempt organisations. In the USA the federal fuel tax credit, a tax credit for producing, selling, using and purchasing alternative fuel, is available to taxable and tax exempt organisations. Qualifying tax exempt organisations obtain the tax credit through a direct cash payment from the revenue authority. (Clean Cities, 2008.)

In Oregon, a third party ownership arrangement is used whereby a tax exempt entity is the host of a renewable energy system. Such system is owned by a tax paying investor who claims the tax credit and sells the renewable energy to the host. (Energy Trust of Oregon, Inc., n.d.)

2.5.1 Summary of guideline

It is recommended that tax exempt organisations should also benefit from a renewable energy tax incentive system. It appears that there are various ways to design a tax

incentive system in order for tax exempt organisations to participate and benefit from renewable energy tax incentives.

2.6 EDUCATION AND ADVERTISING OF AVAILABLE TAX INCENTIVES ARE REQUIRED FOR ITS SUCCESS

The CRS has found that education on tax incentive programmes adds to the success of renewable energy tax incentives (CRS, 2005:23).

This has been confirmed by Gouchoe, Everette and Haynes (2002:vi) who found that a poor understanding of available types and benefits of renewable incentives is regarded as a significant barrier to the development of renewable energy technologies.

2.6.1 Summary of guideline

Renewable energy tax incentives can only be effective if people are aware of it. Available tax incentives should be advertised to all potential beneficiaries, from individual households in rural areas to international manufacturers and investors, in order to ensure that all parties are aware of the benefits for which they potentially qualify.

2.7 TAX INCENTIVES MUST BE CREDIBLE, PREDICTABLE AND CONSISTENT

According to the CRS renewable energy tax incentives have to be credible, predictable and consistent. They found that the effectiveness of the tax incentive relies on the following:

- Government must commit to the availability of long-term tax incentives;
- The incentives have to remain consistent with no frequent changes to the qualifying measures thereof;
- The incentive program must be fair and it must be enforced on an equal basis to all qualifying parties; and
- Once a taxpayer qualifies for a tax incentive, he must be able to claim the incentive hassle free.

(CRS, 2005:23-24.)

According to the CRS, government's long term commitment to renewable energy supporting policies is the key to the successful development of renewable energy industries. Government's commitment provides confidence to investors to invest in the country's renewable industry. (CRS, 2005:24-25.)

This was confirmed by mr. Bud DeFlaviis, the Director of Government Affairs of the U.S. Fuel Cell Council. According to mr DeFlaviis, the effectiveness of the investment tax credit lies in the long term commitment from government to keep the investment tax credit active. A long term investment tax credit supports the development of the renewable energy market by decreasing costs, increasing production volumes, it provides confidence to build capacity, customers have time to experience the products and developers can in return improve the products. (DeFlaviis, 2008).

In the USA the investment tax credit has been regarded as highly effective to support the renewable energy industry (Sissine, 2006:CRS-4). The investment tax credit has been described as an incentive that "... turned the solar industry from a small, cottage industry into an economic engine for America ..." (SEIA, 2008). The investment tax credits for solar systems and wind energy installations have been implemented in 1978. Since implementation this tax credit has been expanded to include other renewable energy systems and it has been extended on numerous occasions. (Sissine, 2006:CRS-4.)

A production tax credit has been introduced in the USA in 1992. This production tax credit is generally applicable to the first ten years of a renewable energy operation. Since its introduction this tax credit has expired and been re-instated or extended on a number of occasions. (Union of Concerned Scientists, 2008.)

Both the investment tax credit and the production tax credit were due to expire by the end of 2008. The Sustainable Energy Network was one of the parties that requested the senate to extend both these tax credits. In a letter from the Sustainable Energy Network, the long term availability of an incentive was regarded as essential to the development of the renewable energy industry. It was also indicated that the fossil fuel industry is not

affected by the boom-bust cycle of incentives and such cycle puts the renewable energy industry at an unfair competitive disadvantage. (Sustainable Energy Network, 2008:1.)

A specific example is the effect of the boom-bust cycle of the production tax credit in the USA on the development and the competitiveness of the wind energy industry (CRS, 2005:24).

In 2007 Wisner, Bolinger and Barbose (2007:5) performed a study on the impact of the production tax credit on the wind energy market in the USA. It was found that the recurring expiry and short term extensions of the production tax credit have the following negative effects on the wind energy industry:

- It slowed down the development of the wind industry;
- It increased the cost of wind energy;
- It had a negative impact on investors' interest to invest in the local wind manufacturing infrastructure;
- It made it difficult to plan expansions to the energy transmission grid; and
- It discouraged investment in research and development projects which are unlikely to deliver investment returns within one to two years.

Wisner, Bolinger and Barbose's findings were confirmed in 2008 by a study done by the Union of Concerned Scientists. The Union of Concerned Scientists (Union of Concerned Scientists, 2008) has compared the availability of the production tax credit in the USA with the level of energy produced from qualifying wind power plants from 1999 to 2006. They found that the production tax credit is a major driver of wind power development. As the production tax credit expires, the energy produced from wind power reduced dramatically.

In October 2008 the USA has extended the investment tax credit for solar energy, fuel cells and micro turbines for another eight years, which means that this tax credit is available for qualifying system placed in service prior to 31 December 2016 (Database of State Incentives for Renewables and Efficiency ("DSIRE"), 2008). The production tax credit has also been extended for another year. (Union of Concerned Scientists, 2008.)

2.7.1 Summary of guideline

Renewable energy tax incentives have to be credible, predictable and consistent. It appears that this can be achieved through government's long term commitment to the availability of tax incentives.

2.8 TAX INCENTIVES MUST BE SUBJECT TO QUALITY STANDARDS

According to the CRS the incentives should be designed to ensure high quality of renewable energy systems. This can be achieved by making the equipment that qualifies for the tax incentives subject to quality and safety requirements. (CRS, 2005:6-7.)

An example is the federal investment tax credit in the USA that can only be claimed if the qualifying equipment complies with specific energy-efficiency standards (DSIRE, 2008).

Gouchoe, Everette and Haynes (2002:vi-vii) agrees that it is advisable to make renewable energy systems subject to quality standards before it can qualify for a tax incentive.

2.8.1 Summary of guideline

Renewable energy tax incentives should be subject to quality standards.

2.9 COMBINE TAX INCENTIVES WITH OTHER RENEWABLE ENERGY INCENTIVE PROGRAMMES

The CRS has found that tax incentives on its own are not the most effective instrument to encourage the development of renewable energy. Tax incentives are rather regarded as complimentary to other renewable energy incentives. (CRS, 2005:20.)

It was confirmed by Cooper (2008) that it is not effective to use tax incentives on its own as instruments to provide financial support to renewable energy development.

Gouchoe, Everette and Haynes (2002:vi) found that it is unlikely for one financial incentive to be sufficient to ensure that a renewable energy technology enters a market successfully. A set of complementary incentives to support a technology can however have a significant impact on a market.

2.9.1 Summary of guideline

A combination of complimentary policies and incentives are regarded as the most effective strategy to encourage the development of renewable energy technologies. Further that tax incentives on its own are not regarded as effective instruments.

3 CONCLUSION

From the above it can be concluded that the guidelines as identified by the CRS are internationally acceptable. Therefore South-Africa can consider these guidelines to design and implement an effective renewable energy tax incentive system for South-Africa.

Chapter 4

Conclusion

1 INTRODUCTION

In South-Africa as at the end of 2008, there is only one tax incentive which specifically provides relief to producers of renewable energy. Section 12B of the Income Tax Act (58/1962), *inter alia*, allows a deduction for income tax purposes of the cost of machinery, plant, implements, utensils or articles used by taxpayers to:

- produce bio-diesel or bio-ethanol; and
- generate electricity from wind, sunlight, gravitational water forces and biomass.

The cost is deductible over three years, 50% in year 1, 30% in year 2 and 20% in year 3. This incentive represents an accelerated depreciation incentive.

On 20 February 2008 Mr Trevor Manuel, South-Africa's Minister of Finance, presented the 2008 budget speech. In the 2008 budget Mr Manuel introduced an additional tax on electricity from non-renewable sources. This tax is in the form of a levy of 2 cent per every kilowatt-hour of electricity generated. The intention of this levy is to motivate consumers to reduce their consumption of conventional electricity, thereby also addressing the country's electricity shortage. (Manuel, 2008a:23.) This represents a tax on conventional fuels.

Mr Manuel further indicated that tax incentives, emission taxes, tradable permits and changes to vehicle taxes will be investigated for implementation during the 2008/09 tax year in order to support sustainable development in South-Africa (Manuel, 2008a:23).

According to a media statement by Mr Marthinus van Schalkwyk, Minister of Environmental Affairs and Tourism, the South African government has adopted a climate change mitigation strategy during July 2008 which includes regulatory mechanisms as well as economic instruments which include taxes and incentives. Examples of mechanisms and instruments that were mentioned include:

- An increase in the price of carbon in the form of a tax on CO₂ emissions and
- Incentives for renewable energy in the form of feed-in-tariffs.

(Department of Environmental Affairs and Tourism, 2008)

Dr Gerald Wolman, President of the Cape Town Regional Chamber of Commerce and Industry commented on Mr van Schalkwyk's statement and said that South-Africa has already experienced significant price increases in electricity, petrol and diesel which do not appear to reduce carbon emissions. Therefore he predicts that an additional cost in the form of carbon taxes will not achieve desired carbon reductions. According to dr Wolman it would make more sense in South-Africa to implement incentives to promote renewable energy rather than taxes on carbon emissions. (Cape Business News, 2008)

Ms Laurraine Lotter, executive director of Chemical and Allied Industries, commented to the Business Day that the introduction of further taxes would be counter-productive and strongly suggests that other options should be examined (Ensor, 2008).

Ms Aneria Bouwer, a senior associate at the law firm Bowman Gilfillan, commented to the Business Report that there is a broad distinction between tax incentives which intend to reduce tax for users and producers of renewable energy compared to taxes and levies that are intended to penalise users of conventional, non-renewable energy (Bouwer, 2008). The new electricity levy and potential future carbon taxes are penalty taxes which are intended to reduce the usage of conventional energy.

Although South-Africa has limited tax incentives in place as at the end of 2008, South-Africa has indicated its commitment to the development of renewable energy. In Mr Manuel's medium-term budget policy statement presented on 21 October 2008 he confirmed government's commitment to support the development of renewable energy and sustainable development in South-Africa. (Manuel, 2008b:12)

At the 2008 International Conference on Renewable Energy, held in Washington, Ms BP Sonjica, the South African Minister of Minerals and Energy, said that South-Africa is committed to develop policies on renewable energy on an ongoing basis and to increase South-Africa's renewable energy target to 10% of total energy consumption by 2025 (South African Department of Minerals and Energy, 2008).

South-Africa can consider tax incentives to encourage the development of renewable energy. The CRS has performed a study on tax incentives for renewable energy and has found that tax incentives are effective, powerful and flexible instruments to encourage the development of renewable energy industries. Further that there are various types of tax incentives and various guidelines for effective tax incentives.

The research question was whether the tax incentives and the guidelines for effective tax incentives as identified by the CRS are internationally acceptable and whether South-Africa can consider these tax incentives and guidelines to design an implement a renewable energy tax incentive system of an international standard for South-Africa.

2 SUMMARY OF FINDINGS

The following 10 types of tax incentives have been identified by the CRS and analysed for purposes of this study:

- Investment tax incentives
- Production tax incentives
- Property tax reductions
- VAT reductions
- Excise / sales tax reductions
- Import duty reductions
- Accelerated depreciation
- Research, development, demonstration and equipment manufacturing tax incentives
- Tax holidays
- Taxes on conventional fuels

This study concluded that the 10 tax incentives as identified by the CRS are internationally acceptable. The design, the use, the advantages and disadvantages of each type of tax incentive has to be considered when a country designs and implements a renewable energy tax incentive system.

The following 9 guidelines for effective renewable energy tax incentives have been identified by the CRS and analysed for purposes of this study:

- The tax incentives should target the level of development of a country's renewable energy industry. For example, the investment tax incentive and import duty reductions can encourage the start-up of a renewable energy industry. As the market develops, local manufacturing of energy systems and local energy generation develop and production tax incentives become more important. When the market is controlled by normal market forces the tax incentives can be phased out.
- Tax incentives must be large enough to ensure that renewable energy technologies can compete with conventional energy technologies in the market.
- Qualifying taxpayers must have large enough tax liabilities to benefit from the full tax incentive. It is recommended that tax incentives are designed to be flexible in order for taxpayers with no or insufficient tax liabilities to still benefit from the tax incentive. This can be achieved by designing a tax incentive that can be transferred to subsequent tax years or to another taxpayer who has a large enough tax liability.
- The tax incentive system must be simple and easy to administer.
- It is recommended that tax exempt organisations should also benefit from tax incentives.
- Tax incentives have to be well educated and well advertised to all potential beneficiaries to be successful.
- Tax incentives have to be credible, predictable and consistent. This is achieved through government's long term commitment to the availability of tax incentives.
- Renewable energy equipment should comply with quality standards in order to qualify for tax incentives.

- Lastly, tax incentives are not regarded as effective instruments if used on its own, but if tax incentives are combined with other renewable energy incentive programmes it is regarded as the most effective strategy to develop a renewable energy market.

This study concluded that the guidelines for effective renewable energy tax incentives as identified by the CRS are internationally acceptable.

3 FINAL CONCLUSION

This study concludes that the types of tax incentives and the guidelines for effective tax incentives as identified by the CRS are internationally acceptable. Therefore, South-Africa can consider these guidelines to design and implement a renewable energy tax incentive system of an international standard for South-Africa.

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