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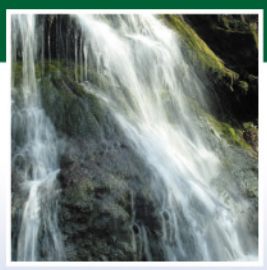

Chapter 12
Business Planning & Finance

TIPPERARY INSTITUTE

NDP NATIONAL DEVELOPMENT PLAN

EUROPEAN UNION STRUCTURAL FUNDS

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12 Business Planning and Finance

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(Some sections prepared from original material developed by Caroline O'Reilly, Cork Institute of Technology)

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12.1 Objectives

Having completed this section of the training course and manual, learners should:

- Understand the structure and composition of a business plan
- Be familiar with project finance principles
- Be familiar with funding sources and preparation of proposals

> ***"Think of these things: Whence you came, where you are going***
> ***And to whom you must account." Benjamin Franklin***

12.2 The Structure and Composition of a Business Plan

12.2.1 Definition of a Business Plan

The business plan is a written document prepared by the entrepreneur that describes all the relevant external and internal elements involved in starting a new venture. The business plan is like a road map for business planning in that it addresses both short and long-term decision-making. In developing the business plan the entrepreneur can determine how much money will be needed from new and existing sources. Always keep in mind that the business plan tells your story to those reading it when you are not present.

Business planning is relevant whether you are manufacturing products or providing services to support renewable energy. Potential readers of a renewable energy business plan include banks (finance), planners (site development), the Electricity Supply Board (customer), Investors (possible business partners), Consultants (development advice), Government or EU Department (funding sources).

The type of person you expect to read the plan will affect the actual content and focus of the business plan. Three perspectives will need to be considered – the marketing perspective considers the venture through the eyes of the customer, the financial projections consider the venture through the eyes of

the investor and the overall soundness of the plan will be of interest to the supplier.

The business plan should be prepared by the entrepreneur. Consultants can provide expertise in preparing the report but the complete document is the responsibility of the founder. A good business plan gives a clear picture of the personality and the quality of the entrepreneur. The plan should be practical, honest, consistent, complete, and realistic and should be based on research and fact.

Investors are primarily interested in the ability of the new venture to pay back the debt and will focus on the ‘four C’s’ of credit:

- The entrepreneur or the team’s credit history (Character)
- Their ability to meet debt and interest payments (Cash flow)
- The tangible assets being secured (Collateral)
- The amount of personal equity that has been invested by the entrepreneur (Equity Contribution)

The process of writing a business plan forces the entrepreneur to bring objectivity to the concept and to role-play through various scenarios that identify potential obstacles to the proposed venture’s success. The process allows the entrepreneur to identify strategies to avoid such obstacles or to terminate a ‘hopeless situation’ while still on paper. Before committing time and energy to preparing a business plan, the entrepreneur should do a quick feasibility study of the business concept. Key questions to ask at this stage are:

- Are there customers? How many and where?
- What are their needs?
- Are there any barriers to success?
- Who are our competitors?
- Can the product be marketed, financed and produced?
- Are the goals and objectives of the business clearly defined?

This process of self-assessment helps the entrepreneur to do market research that will test the idea and assess future trends. The approach is strategic –

- Where are we now?
- Where do we want to go?
- How and when will we get there?
- The business plan helps to define the 'How' that will clarify your goals and establish measures against which to judge performance.

12.2.2 The Business Plan – Required Information

The business plan can be divided into four sections.

- Business goals and the direction of the business.
- Market information including how the target market is defined.
- Operations information including manufacturing operations, materials, labour and overheads.
- Financial information including projected income statements, balance sheets and cash flow statements for the next three years.

Use the Internet as a source of information for starting the new venture. Web sites can provide information on business opportunities as well as on starting and financing your business.

12.2.3 The Business Plan – Contents Outline

A business plan should be comprehensive enough to give a potential investor a complete understanding of the venture. A business plan with a renewable energy focus should contain all of the sections outlined below. The order of sections may vary due to the relative importance of a particular section to the overall business concept.

- Introduction
- Executive Summary
- Market Research
- Ownership, Management and Employment
- Description of Business

- Production/Operational Plan
- Marketing Plan
- Organisational Plan
- Financial Plan
- Assessment of Risk
- Environmental Impact
- Planning
- Energy Results
- Appendix
- Detailed Projections

12.2.4 Introduction Page

The title page includes a brief summary of the business plan's contents and should include the name and address of the company; the name, address and telephone number of the entrepreneur; a paragraph describing the company and the nature of the business; a statement of the confidentiality of the report. It should also set out the basic concept that the entrepreneur is attempting to develop.

12.2.5 Executive Summary

The executive summary should be completed last. Use this section to write three to four pages at most, which highlight the key points in the business plan. Issues that should be addressed include a description of the business concept; data supporting the opportunity for the venture; how the opportunity will be pursued and key financial results that can be achieved. Consider the audience that will be reading the plan and what is important to them.

12.2.6 Market Research

An environment and industrial analysis must be completed to identify trends and changes occurring on a national and international level that may impact the new venture. Examples of environmental factors are politics, the economy, culture, technology, and legal issues. Other environmental factors include the competition, customer needs and trends.

The last part of this section should focus on the specific market and address the following issues. Who is the customer and why will they buy your product? How is the market segmented and what is the target market? How many customers are anticipated and what are they willing to pay? What are the relationships with existing customers?

12.2.7 Ownership, Management and Employment

This section should provide information about the founders of the company and the management team. Include relevant education, work experience and other experience. Identify their job title but include job descriptions in the appendix.

12.2.8 Description of Business

This section should give a detailed description of the company. Include here a mission statement; detailed product/service information; detailed information on the location of the business; detailed history of the venture; details of customers and competitors; alternative locations (use maps) and any legal issues surrounding site location.

12.2.9 Production/Operational Plan

This section should describe the complete manufacturing process, including whether or not the process is to be subcontracted. The plan should describe the physical plant layout and machinery and equipment needed. Some examples of production/operations plan topics include equipment; new capital expenditure required; increased capacity required; efficiency levels; skills and number of staff required; training requirements; quality; raw materials sources and the manufacturing process. This could particularly apply to for example, wood pellet production.

From a renewable energy project perspective, this section will reflect the type of renewable energy being delivered. For example it could address plans for storing excess energy when supply exceeds demand. It could address the renewable energy capacity and whether there is guaranteed electrical power

as from hydropower versus intermittent electrical power as from wind or photovoltaic.

12.2.10 The Marketing Plan

This section will provide an overview of the current state of the market, the projected share of the market and the target markets. It will identify the main competitors and the key competitive advantages. It will include a marketing strategy and how the product will be distributed. Marketing involves making decisions about important issues such as branding, product life cycle, packaging, price, customer service levels, physical distribution, export potential, advertising, sales and requires information about markets. These issues could be particularly relevant for a bio fuel project, but would not be so important for a wind farm project.

12.2.11 The Organisational Plan

This section will describe the venture's form of ownership and whether it is a limited company, a partnership, a sole trader etc. It will include an organisational chart indicating the line of authority. This chart shows the investor who controls the organisation and how members interact. Details of all members of the company at start up should be included

If the business is a Co-op or Limited Company then Articles of Association and Memorandum of Association need to be included. If the business is a partnership a copy of the partnership agreement must be included. If the business is a sole trader then the business name registration forms need to be included.

12.2.12 Finance

Popular wisdom says there are three occasions when you need money – at start up, when you need additional finance for expansion, and all the time in between. Start up finance will most likely be a combination of equity and debt. Sources of finance are either your own or someone else's.

12.2.13 Financial Plan

This section will summarise the projected performance of the venture. The role of the financial plan is to provide the reader with an overview of the financial potential, proposed financial structure and the financial requirements of the project. The financial plan should also provide as accurate a projection as possible for the day-to-day financial management. A financial plan is an essential component of a funding proposal and will include detailed income projections, break-even analysis, profit and loss account, estimated balance sheet and cash flow forecasts. It is important to spell out any assumptions that underpin the projections as well as all proposed sources of funding. Refer to the project finance section for details on financial appraisal tools.

12.2.14 Assessment of Risk

This section focuses on areas of particular threat to the proposed venture. These threats will have been identified through SWOT analysis. Major risks arise for a new venture through competitor reaction; new entrants to the market; internal weaknesses in marketing, management, production or finance and new advances in technology resulting in product/service obsolescence. Risk assessment should identify any of these problems that may occur during start-up. If a factor presents no risk then the assessment should discuss why this is so. Risk assessment should include contingency plans and strategies for all of the above possibilities. This analysis shows that the entrepreneur is sensitive to external and internal changes and is prepared.

12.2.15 The Appendix

This section will include any backup material not included in the text of the document. Possible documents that could be in this section include: letters from customers, distributors or subcontractors; secondary or primary research data; leases and contracts and price lists from suppliers and competitors.

12.2.16 Other Possible Headings

A renewable energy business plan could also include sections addressing environmental impacts, planning issues, energy results, consultations etc.

12.2.17 Final Check

Take time to check spelling, grammar, page numbering, chapter/section numbering, cross-referencing between sections/pages, logical structure, length, type size/style and colour.

Finally, be aware that lack of adequate planning is the single greatest factor contributing to business failure. Lack of planning may result from the following: goals may be unreasonable and/or immeasurable; total commitment to the business was never made; the entrepreneur has insufficient experience and knowledge; customer need was never established; the entrepreneur has no sense of potential threats or weaknesses to business.

"It's always wise to look ahead,
But difficult to look further than you can see." Sir Winston Churchill

12.3 Project Finance

12.3.1 Introduction

Financial appraisal of a potential project is an important skill to develop. The more thorough your own appraisal of your project, the more likely you are to convince a lender or funder to give you money. To produce a cash flow statement for the proposed project you will require information on Initial Costs, including Capital Expenditure, Annual Costs and Debt Payments, Periodic Costs, Savings or Income and Funding Sources. Producing a cash flow statement is vital to allow completion of Financial Appraisal tools such as simple payback, Internal Rate of Return (IRR) and Net Present Value (NPV).

RETScreen International offers renewable energy project analysis tools. It has developed unique decision support software with the contribution of numerous experts from government, industry and academia (www.retscreen.net). The RETScreen Case Study (BIOH01-B) of the Two Schools Biomass Heating

Project in Herefordshire UK will be used to illustrate some of the following costs.

12.3.2 Income and Expenditure

Initial and Capital Expenditure Costs could include the following:

- Feasibility studies
- Development costs (e.g. Power Purchase Agreement (PPA) & planning permissions)
- Engineering costs (e.g. design)
- Development contributions
- Renewable energy equipment
- Balance of plant (e.g. civil works, grid)
- Miscellaneous (including contingencies).

For most renewable energy systems the capital costs are significant and are the most important component in any calculation. In the RETScreen case study, the initial and capital expenditure costs are $185,480.

12.3.3 Annual Costs

Annual Costs can be divided into operation & maintenance (O&M) costs, fuel and electricity costs and debt payments. O&M costs include land lease, insurance, operation, maintenance (parts & labour), community contribution and administrative costs. O&M costs are spread over the length of the project lifetime. In the case study, the project lifetime is 25 years and the annual O&M costs are $3,960 per annum. Fuel and electricity costs for some renewable energy projects can be significant. For bioenergy projects, the cost of fuel can be a major component of the annual costs (e.g. purchase of wood chips) and a bioenergy plant may have a significant electricity demand (e.g. for operation of augers, pumps). In the RETScreen example the fuel / electricity costs are $26,028 per annum.

Debt Payments will reflect your decision as to what percentage of initial costs will be funded by equity and what percentage by debt. Your debt payments will depend on the debt interest rate and the term of the debt. In the

RETScreen biomass heating project the debt / equity ratio is 80% / 20%, the term is 10 years and the debt interest rate is 8% (Table 12.1).

Initial Costs	$185,480
Debt (80%)	$148,384
Equity (20%)	$ 37,096
Debt term	10 years
Debt Interest rate	8%

Table 12.1 Calculating Debt Payments

In Microsoft Excel, the 'PMT' standard spreadsheet function calculates the payment for a loan based on constant payments and a constant interest rate. In this case it is assumed that payments are made annually, at the end of the year and do not include any bank fees. The following Formula 12.1 returns the annual payment on a $148,384 loan at an annual rate of eight percent that you must pay off in ten years:

PMT (0.08, 10, 148,384) = -$22,114

Formula 12.1 Calculating a Loan Payment

Periodic costs are costs that recur on a predictable cycle, for example fire bricks for a wood-fuelled heating system (refractory insulation). In the RETScreen example, the refractory insulation costs are $3,000 and occur every seven years, or 3 times over the life of the project.

12.3.4 Determining Savings Or Income

Savings or Income include both the avoided costs of energy purchase where heat / electricity / fuel are used to self-supply, and income earned from selling heat / electricity / fuel to a third party. In the RETScreen case study, the base case heating system energy demand is 1,464 MWh. The heating system uses 209,727 litres of oil at $0.60 per litre, for a cost of $125,836 per annum. With the switch to biomass, the heating energy delivered meets the demand and saves on the cost of oil. The avoided cost of heat energy is therefore $125,836 / 1,464 MWh = $86 per MWh.

12.3.5 Cash Flow Statement

Using the above income and expenditure, it is possible to produce a cash flow statement that brings all of the above information together. This summarises the figures over the length of the project lifetime, which in the case study is 25 years. The RETScreen case study cash flow (Table 12.2) can be summarised as follows:

Year	0	1	2	3	…..	25
Equity investment	**37,096**					
O&M		3,960	3,960	3,960		3,960
Inflation		79	160	242		2,537
Total O&M		**4,039**	**4,120**	**4,202**	**…..**	**6,497**
Fuel/electricity		26,028	26,028	26,028		26,028
Inflation		521	1,052	1,593		16,674
Total fuel/elec.		**26,549**	**27,080**	**27,621**	**…..**	**42,702**
Debt payments		**22,114**	**22,114**	**22,114**	**…..**	
Periodic costs						
Inflation		0	0	0		0
Total periodic costs		**0**	**0**	**0**		**0**
Total costs	**37,096**	**52,702**	**53,314**	**53,938**	**…..**	**49,198**
Savings	0	125,836	125,836	125,836		125,836
Inflation	0	2,517	5,084	7,702		80,611
Total savings	0	128,353	130,920	133,538		206,447
Income less expenses	**$-37,096**	**$75,651**	**$77,606**	**$79,601**	**…..**	**$157,249**
NPV	**$948,091**					
IRR	**207%**					

Table 12.2 Example of a Cash Flow Calculation

12.3.6 Financial Appraisal Tools (Payback, NPV, IRR)

Financial Appraisal tools such as Payback, Net Present Value (NPV) and Internal Rate of Return (IRR) will facilitate decision making and provide an assessment of whether an investment is worthwhile. Boyle (2004) is a quick

reference for ‘energy economics’ calculations. Appraisals can be done in ‘real’ terms (inflation not included) and in ‘nominal’ terms (inflation included). The RETScreen biomass heating case study is in nominal terms.

Payback Period

Payback period is the simplest appraisal approach. It calculates the number of years to recover the initial cost. The payback period equals initial costs divided by net annual savings, calculated below (Formula 12.2 and Table 12.3).

Payback = Initial Costs / Net Annual Savings

Formula 12.2 Calculating Payback Time

Year	0	1
O&M costs		3,960
Fuel/electricity costs		26,028
Total costs		**29,988**
Savings on cost of oil	0	125,836
Cash flow or Net Annual Savings		**95,848**
Initial Costs	**185,480**	
Simple Payback Time	**185,480 / 95,848**	**1.9 years**

Table 12.3 Calculating Payback Time

Net Present Value

In practice, using Payback as an appraisal tool can be too simplistic as Payback ignores the differences in the value of money over time. These differences in value can be due to a number of factors including inflation, the level of risks in a project and society’s ‘time preference’ for receiving money, goods and services now rather than later.

Net Present Value (NPV) applies an appropriate discount rate to a series of future payments (negative values) and income (positive values) with the starting investment designated in the ‘zero year’. Applying the discount rate converts all costs and benefits to ‘present values’.

In Microsoft Excel the NPV standard spreadsheet function calculates the net present value of a cash flow statement. The NPV formula (Formula 12.3) for the RETScreen biomass heating case study would be written in Excel as:

= Year 0 Net Cash Flow + NPV (Discount Rate, Year 1 to 25 Net Cash flows)

Formula 12.3 Calculating Net Present Value

The NPV for the case study is calculated as $948,091 using a discount rate of 9% and an inflation rate of 2%. This NPV figure should then be compared to that of other investment options to help decide on a particular course of action. Sensitivity analysis is advisable to determine which parameters have the greatest impact on the NPV. The selection of the appropriate discount rate is complex and expert advice should be sought.

Internal Rate of Return

Internal Rate of Return (IRR) is closely related to NPV in that IRR is the discount rate that meets the condition NPV=0. In other words IRR is the discount rate with which the discounted net income of the project is equal to the starting investment. In Microsoft Excel the IRR standard spreadsheet function calculates the internal rate of return of a cash flow statement. Options with higher IRRs are generally better but NPV and other analyses should also be used to supplement the IRR approach. The IRR for the case study is calculated as 207%. The IRR formula (Formula 12.4) for the RETScreen case study can be expressed simply:

= IRR (Year 0 to 25 Net Cash flows)

Formula 12.4 Calculating the Internal Rate of Return

12.3.7 Information Sources/Tools

A spreadsheet package such as Microsoft Excel could be used to produce a cash flow statement ‘from scratch’. Good feasibility software packages such as RETScreen can also be very helpful.

"Good results without good planning come from good luck,
Not good management." David Jaquith, Ega Industries

12.4 Funding Sources

12.4.1 European Funding

The development of renewable energy - particularly energy from wind, water, solar power and biomass - is a central aim of the European Commission's energy policy. The EU Directorate-General for Energy and Transport offers funding opportunities for renewable energy projects through programmes such as INTERREG, Intelligent Energy for Europe and other Framework Programmes.

EU funding applications require a consortium of partners with a minimum of three from three countries. The application process is complex and has long lead-in times. EU funding sources are generally designed for researchers and large-scale developers.

12.4.2 National Funding (Ireland)

In Ireland, The Renewable Energy Division of the Department of Communications, Marine and Natural Resources (DoCMNR) is responsible for implementing measures to increase the penetration of renewable energy in Ireland. €65 million has been allocated over the period 2006 to 2010 to launch several innovative grant schemes relating to bio fuels, combined heat and power, biomass commercial heaters and domestic renewable heat grants.

AER Programme

The development of Ireland's renewable energy resources in electricity generation has been achieved primarily through the administration of competitions under the Alternative Energy Requirement (AER) Programme.

The six competitions held to date have been conducted under a competitive tendering process.

Under the AER scheme, winning bidders were entitled to a 15-year power purchase agreement whereby the ESB buys the electricity output of the winning facility at the bid price. The additional cost of electricity procured under the AER schemes is spread across all electricity consumers. Winning bidders were also entitled to apply for a capital grant under the ERDF Economic Infrastructure Operational Programme 1994-1999. The use of the AER Programme ended in 2006.

ReFIT Programme

The Renewable Energy Feed in Tariff (ReFIT) programme was established in 2005/2006 and took over from the AER programme. It is now the main mechanism for supporting renewable energy electricity projects. It will provide support of €119 million to renewable energy projects over a fifteen year period. ReFIT will support the construction of an initial target of at least 400 megawatts of new renewable energy powered electricity generating plants.

ReFIT aims to more than double the contribution of renewable sources in electricity production from 5.2% in 2004 to 13.2% by 2010 by increasing the total capacity of renewable energy technologies built to 1,450 MWs. This additional capacity will require a capital investment in the region of €440 million by developers and a total investment by consumers in the region of €120 million over the fifteen year life of the support programme.

The reference prices for each category of electricity for the purpose of calculating compensation for suppliers are:

1. Large Scale Wind category (> 5 MW) 5.7 cent/kWh
2. Small Scale Wind category (< 5 MW) 5.9 cent/kWh
3. Biomass Landfill Gas 7.0 cent/kWh
4. Hydro and Other Biomass technologies 7.2 cent/kWh

RD&D Programme

SEI's Renewable Energy Research, Development and Demonstration (RD&D) programme offers support for projects aimed at generating and applying technologies, products, systems, practices and information leading to the increased utilisation of renewable energy. The main focus of the programme is to stimulate deployment of renewable energies that are close to market and to assess and develop technologies which have significant prospects for the future.

House of Tomorrow Programme

SEI's House of Tomorrow programme provides funding to developers for the design and construction of clusters (minimum 10) of superior energy performing housing units. Projects will be considered where the energy performance is at least 40% better than that required by the current Building Regulations TGDL 2002 (new build). Preference will be given to projects incorporating renewable energy features such as solar water heating and/or wood fuelled heating systems.

Greener Homes Scheme

SEI's Greener Homes Scheme provides assistance to homeowners who intend to purchase a new renewable energy heating system for either new or existing homes. The scheme is administered by Sustainable Energy Ireland and aims to increase the use of sustainable energy technologies within Irish homes.

ReHeat Deployment Programme

Launched in March 2007, SEI's Renewable Heat (ReHeat) Deployment Programme provides assistance for the deployment of renewable heating systems in industrial, commercial, public and community premises in Ireland.

Combined Heat and Power (CHP) Deployment Programme

SEI's CHP Deployment Programme will provide grant over the period from 2006-2010 to assist the deployment of small-scale (<1MWe) fossil fired CHP and biomass (anaerobic digestion (AD) and wood residue) CHP systems.

Liquid Biofuels

The Liquid Biofuels II scheme will be rolled out over a five-year period and will provide excise relief on selected biofuel projects in four specific biofuel categories as follows:

- Biofuels blended with diesel and complying with diesel standard EN590, which can be sold at regular diesel pumps.
- Bio-ethanol in a 5% blend with petrol, which can be sold at regular petrol pumps, and bioethanol in blends of up to 85% with petrol, for separate sale and use in flexible fuel vehicles (these vehicles have been granted 50% Vehicle Registration Tax (VRT) relief under the Finance Act 2006).
- Pure Plant oil, which is made from crops such as oil seed rape and used in modified diesel engines as a pure 100% biofuel.
- Biofuels for use in captive fleets. This is an innovative category in which developers can propose a range of biofuels, including high blend biodiesel, for use in dedicated vehicle fleets where it is established that the engines of the vehicles are capable of running on the biofuel or biofuel blend proposed.

Tax Relief

Tax relief is permitted under Section 62 of the Finance Act, 1998 for corporate equity investments in certain renewable energy projects namely hydropower, solar power, wind power and biomass. The relief takes the form of a deduction for tax purposes from a company's profits for an investment in new ordinary shares in a qualifying company. The relief is capped at 50% of all capital expenditure (excluding land), net of grants, on a single project up to €9,523,035 (Euro equivalent of IR£7.5 million). Investment by any one company or group of companies in more than one qualifying energy project is capped at €12,697,380 per annum (Euro equivalent of IR£10 million). The Department of Communications, Marine and Natural Resources certifies qualifying renewable energy projects and thereafter the Revenue Commissioners administer the tax relief.

12.4.3 Regional and Local Funding (Ireland)

Additional funding opportunities for enterprise development at local level may be available through LEADER, County Enterprise Boards and Enterprise Ireland.

12.5 Proposal Writing

It's important not to confuse proposal writing with business/strategic planning. Proposal writing is generally developed around a specific project or idea. Proposals are usually prepared by existing organisations and are targeted at a specific private or public funding source. In contrast, business planning is generally part of a longer-term process and is often related to business start up or expansion.

12.5.1 Before You Write a Proposal…

Here are six key action points to address before you write a proposal.

- Identify your organisation's strengths and weaknesses. This will help you to identify where you can promote your activities and where you might need to source funding for development.
- Identify and develop a project that supports your organisation's core mission. A common problem is that people can start chasing funding which may not be relevant to them and end up doing things that are outside of their actual mission/role. This is a common problem for small organisations.
- Write a short but detailed mini-proposal or project description. Producing a one-page summary with aims, objectives and actions is a key step in the proposal development process. The mini-proposal will also give you something to discuss and debate. Refer to Section 12.10 for a Sample Project Summary Form.
- Research into potential sources of funding. Look at all levels – International, EU, national, local.

- Identify funders that fit your organisations ideas and projects. Not all funders may suit your project/organisations due to ethical, political or practical reasons. Identify those that fit with your mission and project aims and objectives.
- Obtain application guidelines and information. Make sure you get all the information. Small print can be as important as the main text.

12.5.2 The Proposal Lifecycle

The proposal lifecycle follows a predictable format. Preparation should be made according to the guidelines above. A 'Request for Proposals' notice will be received. The proposal will go through various stages of pre-writing, draft production, review, and feedback until final production. The Proposal will then by submitted by the given deadline.

Appropriate time needs to be given to each phase and time also needs to be provided for contingencies.

12.6 Calculators & Case Study

A number of electronic calculators are available, including:

- SEI RE Benefits Calculator
- SEI Total Heating Cost Comparison
- RETScreen Case Study

12.6.1 SEI RE Benefits Calculator

Sustainable Energy Ireland's Renewable Energy Benefits Calculator compares the benefits from employment generated; tax receipts and crude oil savings across a wide range of renewable energy technologies. Start by choosing the technology type that you wish to investigate. Input values for investment costs, capacity installed, duration of the construction and installation period, annual operating hours, average annual load and anticipated lifetime of the project in the grey cells. Finally select the year that construction of the proposed installation would commence.

The first graph shows the full time equivalent employment that would be created by the development of your chosen installation. The second section shows the benefits based on tax receipts for the project that would be generated by the employment created. The third section calculates the savings of crude oil. The calculator is available from the Renewable Energy Information Office section on the www.sei.ie website.

12.6.2 SEI Total Heating Cost Comparison Calculator

This calculator compares the heating cost of different systems using renewable or non-renewable energy sources. For each system, select the types of fuel used and define the investment required, as well as the loan terms. Define the various parameters to calculate the annual fuel cost using your own values or those suggested. Input your values into the grey cells. You can choose how you want the comparison results presented to you by selection one of the diagrams proposed. The calculator is available from the Renewable Energy Information Office section on the www.sei.ie website.

12.6.3 RETScreen Case Study

The RETScreen case study used earlier in this section (see Section 12.3.1) featured the Two Schools Biomass Heating Project in Herefordshire, UK (BIOH01-B). The software and case studies are available from www.retscreen.net.

12.7 Further Information

Local Energy Agencies – Association of Irish Energy Agencies

There are 16 energy management agencies in Ireland including Northern Ireland. These jointly formed the Association of Irish Energy Agencies (AIEA) in November 1998. The overall common aim of the constituent member of the Association is to promote renewable energy, energy efficiency and the rational use of energy, to improve the quality of the environment and to contribute to sustainable development. See their website www.aiea.ie for full details.

There are similar Local Energy Agencies located throughout the EU. Full details can be found at www.managenergy.net.

12.8 Useful Web Sites

12.8.1 Enterprise related websites

- www.revenue.ie - Irish Tax and Customs
- www.entemp.ie - Department of Enterprise, Trade and Employment
- www.enterprise-ireland.com - The Irish State Development Agency
- www.basis.ie - Business access to State Information and Services
- www.startingabusinessinireland.com - Information, Advice and Resources for Entrepreneurs
- www.ilsu.ie - The National Network Unit for the LEADER Programme in Ireland
- www.carlowleader.ie – Carlow LEADER
- www.elren.net – ELREN Project Website

12.8.2 Renewable energy related websites

- www.ec.europa.eu/energy/index_en.html - The EU Commission's Energy Website
- www.managenergy.net – EU Commission Managenergy Initiative
- www.dcmnr.gov.ie - Dept of Communications, Marine and Natural Resources
- www.environ.ie - Dept of The Environment, Heritage and Local Government
- www.epa.ie - Environmental Protection Agency
- www.sei.ie - The National Energy Agency
- www.aiea.ie - The Association of Irish Energy Agencies
- www.irbea.org - The Irish Bioenergy Association
- www.tea.ie - Tipperary Energy Agency
- www.carlowkilkennyenergy.com – Carlow Kilkenny Energy Agency

12.9 References

Boyle, G. (Ed.), 2004. Renewable Energy: Power for a Sustainable Future, 2nd Edition. Oxford University Press and The Open University. Oxford.

Department of Communications, Marine and Natural Resources (2006) Biofuels Scheme II accessed from the DCMNR website on 9th May 2007 http://www.dcmnr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/Biofuels+Scheme+II/ DCMNR Dublin

12.10 Sample Project Summary Form

PROGRAMME NAME					
PROGRAMME ORGANISATION					
1a	Organisation responsible for submitting this proposal				
1b	**Project Title**				
1c	**Key features**				
1d	**Brief summary of project proposal:** **AIM** **<u>OBJECTIVES</u>** **ACTIONS (including costs per action)** **PARTNERS**				
1e	**Project location:**				
1f	**Estimated Costs**				
1h	**Proposed funding source structure** **Other public bodies (identify)** **Funding Programme (state programme)** **Own resources** **Other (identify)** **Programme Organisation** **Total**	**Funding secured (Y/N)**	**(€)**	**%**	
1i	**Level of support requested exclusive of VAT:**				