RESCO Design Tool
Document Version 1.1

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July 2003

Introduction

Welcome to the RESCO Design Tool designed by Future Energy Solutions from AEA Technology, Integrated Energy Solutions and the Tata Energy Research Institute through a project funded by the UK's Department for International Development.

This tool aims to help you design a rural energy service (or supply) company (RESCO) to provide access to energy for people in poor rural communities. It is intended for use at two different levels:

(i) as a detailed check list, eg for entrepreneurs and business people who are confident that they have covered most of the issues, for loan providers and other financiers as an aid to reviewing and assessing business plans of potential RESCOs. At this level, it will not be too time consuming to use, and some users may not need to consider all the groups of questions.

(ii) as a step by step guide for entrepreneurs and others interested in setting up a sustainable operation supplying appropriate, affordable energy to rural communities. At this level, the Design Tool is intended to make the user think very hard, and the journey through from beginning to end is likely to take a substantial amount of time – as setting up such an operation in a sustainable fashion is not a quick job.

What is a RESCO? The term ESCO, meaning energy supply or service company, is often used today, and covers a variety of different organisations. In order to make this tool as constructive as possible, and to reflect the diversity of what is happening on the ground, we have used as wide a definition of "RESCO" as possible. We therefore use the following 6 "RESCO description factors" to describe some of the features of a rural energy supply/service company:

1. **Is the location rural or remote from grid?** A rural or remote from grid location implies that the current market for energy services is so small that it cannot support competition for provision of same-level energy services. In other words, the RESCO will have a natural monopoly over the provision of energy services at its chosen level. However, this position does not mean that there is no competition between the traditional energy services and those provided by the RESCO eg light provided by candles versus lanterns versus electricity; cooking on an open fire versus charcoal versus cookstoves versus LPG.
2. **Does the venture offer energy for a higher level of modern service? Will the customers/recipients experience "energy upliftment"?** For example, the target customers may already have access to wood for heating or cooking fires, or candles for lighting, so offering an improved service would include a more efficient and safer fuel, or a method of providing a better service for longer such as kerosene and electricity
3. **Do users pay for this service? Is there a contractual or commercial relationship?** The users do not necessarily pay the full cost of the service, but must demonstrate some appreciation of the value through payment, though not necessarily in cash. It is likely that the RESCO will bear most, if not all, of the financial risk. There is a need for a contractual or commercial relationship between the RESCO and the users.
4. **Is the RESCO sustainable and self-supporting?** A RESCO cannot be successful if it is not sustainable and operating on at least a semi-commercial basis (ie cost recovery and as much return on capital as possible). The sustainability or ability of the entity to "self-support" will often be dependent on context ie on the natural monopoly, some kind of subsidy or other support mechanism. Again there is also a time implication: for financial viability there is often a requirement for income, and therefore service, in the longer term eg 10 years.
5. **Is the RESCO a discrete entity?** The RESCO must be a discrete entity, even if it is part of a larger company. It is important to be able to define the boundaries and to monitor cash and service flows with any parent entities. This question is implicit in question 4, but worth drawing out specifically; to be sustainable the entity must not be totally dependent on a parent.

6. **Does the RESCO have a (timed) commitment to the community?** The RESCO does not just sell equipment and walk away, although equipment sales may form a (non-core) part of the business, but establishes itself as a long term service provider. Built in to this factor is a recognition of the need to establish a win-win relationship so that the RESCO and customer both get something they value.

This list provides a guide to the kinds of organisations that this work has focused on and which are therefore most likely to benefit from using the RESCO Design Tool. However, our intention is to provide a helpful tool, so ultimately we hope the tool will be of use for organisations which fall only partly within the definition as well. All that matters is whether you, the user, find it valuable.

What you see: The Design Tool takes you through the process of setting up a RESCO step by step. At each step the Design Tool provides you with a number of questions which are important to consider, along with notes and additional questions which are intended to help you think through the implications of the questions and, in some cases, present a number of the options that may be available to you. Each question is phrased so that you can answer yes or no, or you can choose to defer answering the question until later. In general a "yes" answer is appropriate when you have considered the question and are happy with your response. If you want to think about the question later, choose “defer”. Your answers are shown on the Tree structure on the right hand side of the screen (the Decision Tree) and indicate your progress through the Design Tool.

Structure: The questions are grouped into 3 strands which run throughout the Design Tool: Finance & Structure, Market and Product. The “default path” (see below) moves to and fro between the strands, but some users may prefer to focus on one strand at a time, particularly when using the checklist approach. The questions are also divided into 4 Phases, which are blocks of questions addressing (1) Location of the RESCO, (2) product Offering, (3) Delivery Structure, and finally (4) Future Strategy. The Phase refers to the order of questions on the default path.

Navigation: This is a document version of the web-based Tool, and includes the “default path” which the Tool uses to take you through all the questions, in an order based on the 4 Phases. Alternatively you can just read through each strand in order. In both cases you there are lots of references throughout the text to different pages which you can choose to follow at any time.

Your Answers: The Design Tool takes you through the issues involved in setting up a RESCO, and provides some possible answers and examples of how other people have solved problems. However, the Design Tool is intended to be used actively, particularly at the deeper level: you should record your thoughts, ideas, preferred solutions and even additional questions as you go through the Design Tool, so that you build up a “workfile” containing the things you will need to build your business case and contribute to a sustainable RESCO.

It is always important to consider your individual situation as it is impossible for the Design Tool to cover every possible eventuality; if none of the suggested answers to a particular question seem to fit your situation try to use the suggestions to come up with new ideas. There are no universal right answers; the important thing is to consider the issues and your specific situation.

Other Tools: A number of other tools are being (or have been) developed by different organisations around the world. Each one approaches the issues involved in energy enterprise in a slightly different way, providing a set of complimentary tools. For example UNEP, UCCEE and E&Co are supporting the development of the AREED Toolkit for Energy Entrepreneurs, which takes a very business oriented approach. A draft is available at http://www.areed.org/training/toolkit/index.htm. The International Solar Energy Society (ISES) has put together information on different rural energy supply models (http://resum.ises.org/), which provides another alternative route to building your RESCO.

Acknowledgements: The Project Team would like to thank all the people who kindly allowed us to visit their organisations and draw on their wisdom and experience, in the belief that this project can make a serious contribution to meeting the energy needs of poor rural communities. These include Mr Mark Williams of Eskom; Mr Gon Chaudhuri of West Bengal Renewable Energy Development Agency, Mr Raman Banerjee and Dilip Dhar of Rama Krishna Mission, Mr Harish Hande of SELCO, and HD Kote of MYRADA**.** We would also like to acknowledge the inputs from John Malone and Jeremy Doyle of Energy for Sustainable Development.

Availability: The Design Tool and accompanying documents are available from the Energy Voices website (www.etsu.com/energy_voices). Copies can also be obtained from the project partners at the addresses below.

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F1-1: Do you know what your mission is for the RESCO?

All organisations need to understand and define a mission or the objectives they hope to achieve. These can be purely but not necessarily financial. Other objectives may also include environmental or social benefit or even simply publicity. It is important to decide on the mission at an early stage as this will be important for the method of operation.

You need to know what the RESCO's mission is in order to decide on the returns you hope to make. Whilst the RESCO will always need to produce revenue so that it can be sustainable, in certain conditions this may not be its primary mission.

1. Some of the options you could consider include:

- **Significant financial return:** A commercial organisation designed to produce profit and growth.
- **Sustainable financial return:** An organisation seeking to make sufficient financial return to sustain its activities and make enough profit to enable it to keep its position in the marketplace.
- **Environmental return:** An organisation looking for measurable environmental improvement, such as pollution reduction, as its main mission and seeking support to do this from a mixture of sources over and above its customer base. It will still need to be financially sustainable but income may not only come from commercial activities.
- **Social return:** An organisation looking for a measurable social improvement, for example raised living standards, or improved education or health, as its main aim and seeking support to do this from a mixture of sources over and above its customer base. It will still need to be financially sustainable but income may not only come from commercial activities.
- **Publicity or marketing return**: An organisation looking to promote itself on the perceived value of its operation and prepared to accept little or no financial return. It may be funded by a larger organisation where it is not core business but can be used to publicise the larger concern, it may also have a tax benefit for this organisation as these costs can be deducted from pre-tax revenue. The larger organisation could possibly be a government department fulfilling for example its development or other obligations and with funds to invest to achieve this aim.

Note: this is not an exhaustive list and there may be other objectives that you consider important for your RESCO.

Previous: Introduction Next: F1.2

F1-2: Having decided on the return you require from the RESCO, is this enough to make the entity sustainable?

Now you have decided on your organisation's vision, mission and its objectives in general terms and have translated these into the type of returns that you require, the question is whether this is enough to keep you in business over the longer term.

Are you confident about the level of return needed to make the RESCO sustainable?

1. There are various levels of financial and economic sustainability, which you could aim to achieve. For example:

- **Non Sustainable** – prices do not cover the operation and maintenance costs.
- **Operating Sustainability** – where prices cover just the operation and maintenance costs but do not cover the capital costs.
- **Partial sustainability** – where prices cover operating and maintenance costs and a part of capital costs.
- **Conventional sustainability** – covers both capital, operating and maintenance costs.
- **Full economic/financial sustainability** – where prices and therefore income cover all capital, operating, maintenance costs and all other costs such as training, research and set up.

(From a presentation by Andrew Barnett, Adviser to the Shell Foundation)

2. You should aim for the highest possible level of sustainability so that the RESCO will continue to provide the services promised, provide jobs etc. Some of the lower levels of sustainability work well where additional funding is available, such as grants to cover the capital costs

Previous: F1.1 Next: F1.3

F1-3: Have you decided what structure you will use to establish the RESCO?

There are many different possibilities for establishing an organisation varying from private company through to local co-operative.

Are you aware of the options for ownership and structure?

You can get professional advice, for example, from a lawyer, accountant, bank manager etc. Below are a number of possible options; 1-4 are usually intended to be profit making, while 5-7 are non-profit making.

1. Private company set up according to the law of the country in which you intend to operate

Advantages:

- Freedom to operate in your chosen manner (providing it is within the laws of the country);
- Possibility of **limited liability**;
- Freedom to choose and obtain the most advantageous financial arrangements (borrowing, investment, taxation arrangements etc);
- Ability to make and take profit at the best level you can;
- **Third party** perception of your operation may be improved.

Disadvantages:

- May be expensive and complicated to set up, depending on country of operation;
- Regulations and statutory requirements may be difficult and complicated to fulfil, depending on country of operation;
- Company taxation may be higher than for other types of organisation;
- Your access to potential funds may be more limited: you may not be able to access government grants, charitable or NGO funds, Development Aid etc;
- Expenses including **overheads** may be high;
- Possible competition from similar organisations.

2. Acting independently or in partnership with one or more other people

Advantages:

- Freedom to operate in your chosen manner (providing it is within the laws of the country);
- Freedom to choose most advantageous financial arrangements (borrowing, investment, taxation arrangements etc);
- Simple to set up, although partnership will require legal partnership agreement;
- Ability to make and take profit at the best level you can;
- Taxation may be lower than for a company;
- Expenses and overheads may be lower.

Disadvantages:

- Partnerships often break down due to personal disagreements;
- Third parties may be less willing to trust you especially as a **sole trader**;

- Your access to potential funds may be more limited: you may not be able to access government funds/grants, charitable or NGO funds, Development Aid etc;
- Licences to operate may be more difficult to get;
- Return/profit will be shared in partnership;
- Competition from similar people;
- You do not have the protection of limited liabilities ie you have to act as personal guarantor of any loans your RESCO may take out.

3. Joint venture with a technology supplier (but you still have to decide on the type of business you will set up together)

Advantages :

- Priority in the technology supply chain;
- Close contact means it is easier to develop technology to suit changing demand and business development;
- Possibility of driving down costs by creating larger and more secure market;
- You may be able to access the existing infrastructure of partners, reducing costs.

Disadvantages:

- Complicated and possibly restrictive Joint Venture Agreement will be needed to regulate the relationship between the parties;
- Breakdown of such relationships is not uncommon;
- Choice of technology restricted to partner;
- Cost of technology may ultimately prove uneconomic and freedom of choice will almost certainly be reduced in some way;
- Returns/profit margins will be shared;
- Competition from similar organisations in both service and technology field.

4. Government venture

Advantages:

- Entities set up under the umbrella of government activity will often find it easier to acquire necessary licences to operate;
- Finance may be forthcoming at low or no cost;
- Customers may have greater faith in a government activity;
- Lower or minimal returns may be acceptable.

Disadvantages:

- Customers may have little faith in government activities depending on previous experience;
- May suffer from excessive bureaucracy and delay;
- May be difficult to set up if not part of government agency.

5. Non-governmental organisation (NGO)

Advantages:

- Wider access to funding often at a preferential rate;
- Customer perception may be more favourable than for a commercial operation.

Disadvantages:

- May require a complicated set up procedure;
- Customers may prefer a more robust commercial entity;
- Non-profit making status may be required meaning that financial returns will be limited by necessity.

6. Area specific community (or other defined interest group) co-operative

Advantages:

- Target market easily specified;
- Initial takeup may provide encouragement to other customers;
- May be able to tap into an existing financial or other infrastructure;
- Specific funds for community development may be available at lower cost for start up;
- May be able to 'franchise' and move on to another area.

Disadvantages:

- May be self limiting with respect to growth, due to defined area;
- Community group may have different aims and objectives (including views as to size of returns etc);
- Community (or similar) groups can sometimes be excessively bureaucratic.

7. Charity or non-profit making organisation

Advantages:

- Funds often available at low or zero cost (eg development aid);
- May be viewed favourably by customers.

Disadvantages:

- Complicated to set up;
- Activities, including use of any financial returns, are heavily governed by legislation;
- Customers may expect service to be provided at very low or no cost, and therefore be less willing to pay.

Previous: F1.2 Next: F2.1

F2-1: Can you demonstrate a long term commitment to the RESCO?

Many of the ownership options outlined in Question F1.3 will require a long term commitment from you, so you should think about the implications of such a commitment, and how to demonstrate it.

Are you prepared to make a commitment to the community?

1. Offering a service means long term commitment both to your business and the community you hope to serve. If you do not want to be permanently responsible you may wish to consider other options.

2. Options for ownership/commitment in the longer term:

- Employees (see F2.2)
- Contracting out the activity
- Franchising
- Sale to another organisation
- Transfer to a community or similar group

Have you considered the impacts of making such a commitment?

1. In considering your commitment and stake in the above options you will need to think about how the commitment affects other aspects of the RESCO, including:

- Your required return
- The expense of each option
- How the RESCO will be set up and run
- Your personal legal and financial obligations eg standing surety for loans
- Ownership: who owns the business, who owns the equipment etc

Previous: F1.3 Next: F2.2

F2-2: Have you decided what the long term future of the RESCO will be?

If you have decided that you do not you want a personal long term commitment (See F2-1) to the organisation you have created you will need to be fully aware of your intentions at the outset as it will affect the decisions you make as to ownership and structure at start up.

There are a number of options you should consider.

1. Employees

- You may employ people to carry out the day to day running of the organisation but with you still have overall control and responsibility.
- If you are satisfied that you will be able to find trustworthy and reliable staff to run the organisation your commitment may be reduced.
- If your staff are not trustworthy and reliable your commitment may be greater and more troublesome in the long term than if you had taken full control at the start.

2. Sub-contractors

- Sub-contractors engaged on the basis of a legally binding agreement may be able to take on most of the work in running the organisation but you will need to be satisfied that they have the ability and capacity to do this without your continual involvement.
- Failure to perform by sub-contractors may result in expensive and time consuming legal arguments during which the organisation will still need to function if it is to be successful.

3. Franchising - or 'partial sale'

- Franchising may be defined as the transfer of the organisation for a sum of money to a third party. The new owner will take on full responsibility but will continue to receive the benefit of your name and other supporting activities for the payment of a regular fee and possibly a percentage of their profits.
- Franchising may offer you the opportunity to concentrate your activities on setting up organisations in other areas whilst retaining an interest in and income from the existing organisation.
- It can be difficult to franchise new organisations without sufficient track record.
- The concept of franchising may be new to the area in which you operate.
- The new 'owner' may require significant support at the outset and may still fail causing your organisation to get a bad name.
- You may not be able arrange for the third party to be fully responsible for the financial obligations of the organisation.
- However, if properly set up, a franchise can allow you to retain control over standards of performance of your franchisees.

4. Sale to another organisation

- The other organisation could be a competitor in a similar area or a newcomer to the concept. It may also be a government owned or private utility.
- Outright sale may bring you a profit or only the removal of financial or physical obligations.
- A successful sale may be difficult to achieve if the organisation relies heavily on your leadership.
- Sale will give you freedom to do other activities.

5. Transfer to a community or similar group

- You will be less likely to take any 'profit' from such a transfer, however this option will give empowerment to the community.
- You will need to be satisfied that the group who will take on the running of the organisation has sufficient capacity and infrastructure.
- You will need to be satisfied that there is a committed community leader, trusted and respected by the community.
- Any loans taken will need to be taken on by the community and this may affect your choice of funding at the beginning.
- You may need to spend time on training the relevant community members in basic business skills and you may have to plan for a handover period, where you work closely with the community to ensure that all processes are in place.
- If you intend to replicate your organisation elsewhere you will need to be sure that the original one will function successfully as an 'advertisement' or example.

Previous: F2.1 Next: M1.4

F3-1: Do you know what funds may be available to your customers?

If you intend to sell equipment to your customers and they are not in the position to pay for this all at once you will need to consider whether credit or other funding options will be available to them.

Do your potential customers have access to commercial bank credit agreements?

1. If they do are you confident that they will be able to make the payments? You may be asked to guarantee their payments which will put pressure on you to ensure that they pay. You also need sufficient sanctions in your agreement with them if they do not so that you are not 'out of pocket' as a result of any non-payment. See the Case Studies for different examples of how this was dealt with.

2. Your customers are likely to need a credit history or some form of guarantee/collateral to be able to deal with commercial banks. Are they able to supply these?

Are your customers eligible for grants (non-repayable funds)?

1. Grants may be available for equipment purchase or service provision. For example from local/national government, NGOs, development schemes. Local governments are most likely to have information on availability of schemes in the area and eligibility criteria.

2. However, there may be costs to the RESCO (eg staff time or administration) and the grant may not be easy for the customer to access - due to bureaucracy, need for proof of eligibility etc.

3. It is important to be aware whether grants are paid to the RESCO or individual customers.

Do your potential customers have access to other funds, particularly with low interest?

1. Examples include: community loan schemes, family loans, NGO, local or national government loan schemes.

2. Will payments come via the customer or the loan body? Does this mean extra admin or bureaucracy and therefore higher costs to the RESCO and/or delays in receiving payments?

3. How is the RESCO affected if the loan is not repaid?

4. If customers have no credit history or collateral you may want to discuss terms with the local bank or credit scheme, and may need to offer a guarantee of some sort. This would increase the risk for your business, but may increase your customers ability to buy, so should be considered very carefully. For example, you may need to cover your risk by including sanctions such as repossession of equipment after non-payment.

In all cases are you happy that funds will be forthcoming?

1. Do you or your customer have experience of such funding sources?

2. If something goes wrong will customers still be able and willing to purchase? If not you may have to find alternative funding or change your product in order to continue to cover your costs?

3. As your risk increases you need to be sure you can get your money back eg by having larger deposits, sanctions, or loan rather than sell equipment.

If no other source of loan, credit or funds is available you could consider supplying credit as part of the product.

1. For example monthly payments of 3 or 5 years etc. You need to take this into account when doing your financial calculations to see if the RESCO is viable. You will need to take a larger loan/raise more funding to allow you to do this.

2. You need to make sure that repayment schedules match people's ability to pay eg monthly payments with a break at annual times of low income, or weekly payments, or ability for individuals to match payments with their income. Remember this flexibility is likely to raise your costs eg due to more frequent collection or effectively extending loan periods.

3. You could effectively provide credit by channelling funding from larger sources. Eg NGOs, aid loans tend to be too large for individuals. Don't forget to take account of admin and bureaucracy costs. For example the Muramati SACCO in Kenya is a credit organistion which also sells SHS (see SHS in Kenya, case study summary 1).

4. Alternatively you could provide the equipment on permanent loan. See the Fee For Service Case Study. This means that you need to be confident about collecting payments.

5. In any case, to reduce your risks you need sanctions, such as equipment removal if payments are not received for a certain length of time.

Previous: P3.2 Next: P4.4

F4-1: If you have not already identified or secured funding do you know what type of funds may be available to you?

Initial investigations into the availability of funds should be made at an early stage and when assessing what is available you should bear in mind the likely constitution of your organisation. When you know more about funding possibilities you may need to reconsider the constitution.

What funding is available?

1. Research the availability of funding carefully - at the initial stage do not write off any source as unsuitable.

2. Try to understand from the outset what each potential funding or investor organisation requires before it will lend or otherwise become financially involved with any venture.

3. Try to find out whether the organisation has leant to or invested in similar ventures to yours in the past.

4. Contact and try to visit personally all possible lenders and investors.

5. Whilst you cannot know the answer to every question ensure that you have as much information as possible when you visit a potential lender and/or investor, preferably in the form of a business plan.

6. Sources of funding include:

- commercial, investment and development banks
- enterprise development organisations such as E&Co (www.energyhouse.com) and AREED (www.areed.org)
- national and international development agencies
- local and national governments
- support organisations such as Winrock (www.winrock.org) often have information on investors and subsidies which are available.

Previous: P4.4 Next: F4.2

F4-2: Have you identified the type of funding for your RESCO?

Although you will not yet know how much money you will need to start your organisation you should take an initial look at the likely funding options that may be available to you.

Options and implications of different funding sources.

1. **Equity finance** - this represents the investment in the organisation which will usually come from you as the owner but may come from others who wish to have a stake in any project eg equipment manufacturers, project sponsors etc. Those providing investment funds take larger risks but if the project is successful they will get greater rewards. You may be able to count a grant as equity finance but whatever your source of equity finance, it is unlikely that you will be able to secure a commercial loan without showing a reasonable level of equity.

2. **Commercial loan or debt finance** from a bank or other commercial organisation for example. Common features of such a loan include:

- Interest payable at the prevailing rate for a specified repayment period;
- Security may, be required for example your personal guarantee or a charge over your organisation's assets;
- May only be available to fully commercial organisations;
- You will need to have a completed business plan in place to convince the funding institution that you have thought about all aspects of the business.

3. **'Soft loan'** from development banks or other similar organisations for example. Such a loan may also be available from commercial banks under special schemes. Common features include:

- Interest may be payable at a lower rate, on different terms or sometimes not at all in certain circumstances;
- Additional security is less likely to be required;
- More specific or stringent requirements may relate to the use of the money;
- May be available to a wider spectrum of organisations, for example, fully commercial as well as community led or NGO activities.

4. **Bonds** are fairly specialised financial instruments which companies, governments or other organisations may 'sell' in order to raise funds. They are usually sold in public bond markets but increasingly some are sold directly to institutional investors under a system known as 'private placement'. Bonds are generally long term obligations with fixed interest rates that may also, in certain circumstances, offer the investor an additional percentage by way profit share in return for accepting an initial lower than normal interest rate. They can be quite flexible instruments if used correctly.

5. **Grant** common features include:

- Will not normally be repayable;
- Likely to have very specific requirements as to the use of the money;
- Fully commercial organisations may find it harder to fulfil the requirements to obtain a grant;
- Can sometimes be used to form part of required equity finance.

6. **Subsidies** may be available from government and may be linked to certain technologies. You need to find out exactly what the terms and conditions of any subsidies are. Local or national government offices may be the best place to find out.

Previous: F4.1 Next: P5.5

F5-1: Does your target customer understand and accept how your price is arrived at?

For customers to happily pay the price asked they must be satisfied that the product or service gives value for money. Different customers make different value judgements and you must be aware of these and be able to justify your pricing system.

What does your customer currently pay for energy? Will you be cheaper or more expensive?

1. Remember that sometimes people view some fuel as free eg wood because they place little or no value on the time spent gathering it.

2. If your prices are much more expensive than current options your customers may not be able to afford your service.

3. If your prices are much lower than current options, and you do not explain why, your customers may be suspicious and not willing to trust your service.

4. It may be preferable to pitch your service at a similar price to the current situation - adjusting your offer to do so.

5. Extensive market research (see M4) will help you with setting your prices in your chosen operating area but the most important thing is not to under estimate your costs and remember your mission in respect of your desired return. Remember that there are also some indirect costs associated with current expenditure on energy, such as transport costs to take the gas bottle into the nearest town for refilling.

Previous: P6.1 Next: F5.2

F5-2: Do your target customers understand how they are going to pay?

If your target customers are already paying for services then you will probably not experience too much difficulty in introducing your particular concept to them but if they are inexperienced you may need to raise their awareness of pricing and payment methods.

How will your customers pay?

1. You need to consider a number of aspects:

- Method and frequency of payment
- Instalments will be easier for most customers, but the RESCO will need more funding to effectively extend credit to the customer.
- In advance - this is good for the RESCO as it will help cashflow and thus increase financial sustainability.
- In arrears ie after delivery - this is a common way of doing business, but you will need to be able to collect payment promptly to avoid cash flow problems.

2. Will cash be the only acceptable method of payment or will barter be acceptable? Cash is more useful for the RESCO, but barter may be the only way that some customers can buy your product. You need to ensure that if you accept payment by "barter" you receive goods that you can easily sell on or use in the day to day RESCO operations.

3. Do you expect regular payments evenly spaced throughout the year? If you want regular payments consider how your customers' income is derived - it may not be regular and you may have to cope with feast or famine on a seasonal basis and this could affect your cashflow (see M.4).

Who will they pay?

1. There are a number of options for collecting payment:

- You.
- Local staff member/agent.
- Local collection point eg shop or similar. You will probably have to pay to use this service, but it may make collection easy as people go there regularly.
- Community group.

2. You need to take security of collection and staff into account - see M5.

How will you provide proof of payment?

1. You should provide proof of payment to customers and for your own records. This will allow you to calculate how much money you should have, and help if disputes arise about whether payments have been made.

2. Typical ways of providing proof of payment include:

- Receipt
- 'Cash' book
- Tokens
- Payment in return for something specific eg gas bottle refilled.

Do they understand the consequences of not paying?

1. When you agree to supply services and/or equipment to your customers you must be sure that they understand what will happen if they can not pay the fees. For example, will the service stop, or will you remove equipment?

Previous: F5.1 Next: P7.1

F6-1: Do you know how much it will cost to set up your organisation?

When you have decided on the constitution of your organisation and considered the available funding you will need to think about the cost involved from start up through to an exit strategy. This information will be needed for cash flow calculations (F10).

Do you know what your start up costs are?

1. Do not under estimate the costs that will be involved in the start up and formation of the organisation. These include:

- Real time that will be needed for planning, researching and marketing your product;
- Paying yourself and other staff, consultants and/or contractors;
- Costs of travel and expenses to research locations and markets;
- The possibility of paying for information;
- Costs of obtaining licenses to operate - both fulfilling regulatory requirements (Environmental Impact Assessments) and possibly paying for the licenses themselves;
- You may have to 'oil the wheels';
- Marketing and advertising costs - you will need publicity even if you do not intend to be a fully commercial activity;
- Cost of arranging credit and funding;
- Cost of paying for credit - including up front costs and ongoing costs of credit;
- Likely overheads for example office space, furniture, telephones, computer equipment, maintenance equipment;
- Legal fees;
- Do not forget to include a contingency element (see F11.1);
- Initial equipment purchases.

Do you know what the running costs of the RESCO will be?

1. Identify and estimate all the costs and the timings involved in running the organisation. Get 'ball park figure' quotations where possible from potential suppliers (see P5.3). Do not forget to allow an element of contingency as things may cost more than you expect in reality.

2. Some of the costs that can easily be identified are shown below:

- Transport - for both initial delivery and future service and maintenance;
- Equipment - even if customers will buy the equipment this cost will inevitably be incurred by you at the outset and there may be a delay before you receive payment. This delay will have associated costs. If the customer is only renting the equipment and this will remain the property of the RESCO considerable 'up front' costs will be incurred before payments for service are received. These should be included in start-up costs.
- You may also need to store a certain amount of equipment or spare parts. This costs money in terms of the cost of the parts and the cost of the storage space;
- Fuel costs - for certain types of purchase of fuel you will need to purchase and pay in advance and it will almost certainly involve you in holding an amount in stock, tying up your available funds. Again there may be delay before you receive payment from your customers.
- Consider the cost of ongoing licenses and other regulatory requirements. For example there will almost certainly be an initial cost but there may be additional payments for renewals.

- Consider ongoing 'oiling of wheels'.
- Allow for the cost of any credit arrangements you may have.
- Consider the costs of selling (to new customers) and customer relations and liaison (eg dealing with customer queries and complaints).
- Consider the cost of paying yourself, your staff and/or sub-contractors.
- Assess all taxes that you may be liable to.
- Consider the cost of your 'exit strategy' - selling or transferring an organisation still has cost implications.
- Remember legal fees.
- Remember to include a realistic element for contingency, which may include insurance.
- Think about 'overhead' costs eg rent for offices, lighting, heating and water bills, include running and maintenance costs, telephone, electricity etc.

Previous: P7.1 Next: F6.2

F6-2: Have you identified the risks (commercial, financial and technological) associated with starting your organisation (and their potential mitigation)?

Any new venture has risks associated with it. It is important to identify those risks and take the best steps possible to mitigate them. We cannot supply a complete list of the possible risks as all organisations are different and you should think carefully about which risks will apply to your organisation specifically.

How should you deal with risks?

1. It is helpful to list any risks you can identify and then show beside them any actions which will help to make their impact smaller. The guidance below sets out each group of risks in this way. You may also want to think about the level of risk - how likely is it and what would be the impact.

2. Note that the order of the risk categories does not show their importance to the RESCO. You need to decide this for yourself.

Have you identified the commercial risks?

1. **Risk**: Company fails to sign up sufficient customers to provide required return.
Action: Intensive market research and activity in business planning stage. Make sure you identify and target only suitable customers.

2. **Risk**: Incorrect analysis of technology and fuel cost.
Actions: Research the availability of both technology and fuel carefully. Try and negotiate long term supply contracts for purchase so that you can assess your costs over the longest possible period (P5.5).

3. **Risk**: Failure in technology supply or performance.
Actions: Try to negotiate a technology supply contract with guarantees or warranties as to performance. Consider penalties for failure to supply or in product quality OR you may consider involving the technology supplier as part of the organisation so that his success depends on your success.

4. **Risk**: Failure in fuel supply or quality.
Actions: Try to negotiate a long fuel supply contract with penalties for failure to supply or in quality OR you may consider involving the fuel supplier as part of the organisation so that his success depends on your success.

5. **Risk**: Organisation cannot grow.
Actions: Identify the preferred future for your organisation and research your potential market carefully to ensure you can achieve growth and the associated level of return that you have identified as an objective.

6. **Risk**: Failure in customer relationships.
Actions: Ensure that you have a system for dealing with customers' queries, complaints etc and that it works. Encourage local identification and input through using local staff and support systems. Identify local 'leaders' through whom you can act thereby increasing local trust. Endeavour to build up local goodwill.

Have you identified the financial risks?

1. **Risk**: Substantial borrowing for capital costs of technology.
Actions: Negotiate best available finance deal. If you are borrowing to buy and resell to customers try and negotiate deferred early payments on any loan to the organisation.

2. **Risk**: Guarantees required.
Actions: Limit your liability where possible on these. Try to find sources of funding where these are less onerous eg so called 'soft loans'. Consider joining forces with another organisation (eg technology or fuel supplier) and spread liabilities or try to get the loan underwritten for example by Government.

3. **Risk**: Customer failure to pay.
Actions: Ensure there is a contractual provision to remove technology whether purchased or rented by customer. When choosing technology ensure that it can be utilised elsewhere if removed from the original customer.

4. **Risk**: Customer no longer wants service.
Actions: In the contract with each customer make sure that he has to give notice at least a couple of months before service is no longer wanted. Also make sure that technology can be used elsewhere. If a customer no longer wants the service find out why and see if you can avoid other people doing the same.

5. **Risk**: High finance costs before payment for service begins.
Actions: Attempt to negotiate deferred first payment(s) on any finance deal.

6. **Risk**: Robbery eg of equipment or money.
Actions: Get insurance, know area and increase security (see M5.1, M5.3).

7. **Risk**: Staff defrauding company of money and equipment.
Actions: This is discussed in M5.2.

8. **Risk**: Currency fluctuation makes equipment too expensive.
Actions: Be aware of trends in currency markets which may affect any imports. If this looks bad, consider more local sources and seek expert financial advice.

Have you identified the construction and build risks?

1. **Risk**: Delay in completion or non completion.
Actions: Allocate risk through the contract to the contractors - try to negotiate a fixed price turnkey contract. Costs incurred as a result of late completion (and non completion) should be born by the construction contractors where they are at fault. Penalties may also be appropriate in certain circumstances. Make sure contractor can provide irrevocable bond or similar to cover any costs/penalties due. Also, do not pay all money up front.

2. **Risk**: Additional expense - ie cost over-run.
Actions: Define responsibility for cost over-run carefully and where the burden falls on the contractor make sure an irrevocable bond or similar is available to cover any liabilities that arise.

3. **Risk**: Third party claims arising from activities during construction phase .
Actions: Ensure all necessary insurances are in place for all participants.

4. **Risk**: Dispute arising throughout construction and on completion.
Actions: Ensure contract has arbitration and dispute resolution clauses with a 'full and final' aspect to avoid as far as possible lengthy and expensive legal disputes.

Have you identified the technical risks?

1. **Risk**: Technical failure.
Actions: Try to choose proven and simple technology of the best quality you can afford. Try to use local service engineers ensuring that problems are dealt with quickly, so that you retain customer confidence. You may need to train local people to deal with technical problems. Setting up maintenance programmes will also help to keep equipment in good working order.

2. **Risk**: Incorrect interpretation of demand ie power and/or heat usage.
Actions: Try to negotiate contracts with guaranteed minimum payments by the customer.

Have you identified the general risks?

1. **Risk**: Exit strategy.
Actions: Consider the options for moving on from the RESCO at some point in advance of setting it up. If it is a commercial venture then set it up with sale prospects in mind.

2. **Risk**: Excessive staff and overhead costs.
Actions: Budget realistically and monitor carefully. 'Infrastructure' costs may well reduce the more installations are made.

3. **Risk**: Safety of fuel and equipment use.
Actions: Always be aware of safety issues when designing your product (P4.2) and training staff (9.2) etc.

4. **Risk**: Security of staff and equipment.
Actions: See M5.

5. **Risk**: Breakdown in communications leaves customers unhappy.
Actions: Ensure that an effective and regular communication process is followed (see M8).

Previous: F6.1 Next: P8.1

F7-1: Do you know how to provide the skills and experience needed to run the RESCO?

You will need a number of staff with certain skills and experience to get the RESCO started and keep it running.

What skills and experience are needed?

1. Think about what jobs will need to be done or the roles that people will need to play to make the RESCO run. Examples include:

- office manager
- installation
- sales
- inspection
- accounts
- product design
- parts or product manufacture
- management
- purchasing
- cleaning
- reception

This is not an exhaustive list, and you may not need all of these roles.

2. Once you are clear what roles are needed, you can think about whether you will have an organisation large enough for different people to play each role, or whether some roles will be done in one job (see F7.2).

3. The issue of trustworthiness was discussed in M5.4.

Can you recruit staff from the local area with the skills and experience you need?

1. Local staff will help raise your profile with the community and may help you communicate and understand the community better. In remote areas it may be difficult to find people with the right skills.

2. If you cannot find the right skills locally you can recruit local people with potential and train them to do the various jobs. This may be expensive because a lot of training may be needed and they may take some time to reach the level needed. However, you are likely to have a lower wage bill to start with, and this is also a good way of showing your commitment to the community.

3. You may also want to recruit people from outside the local area, who need less skills training, although they may need language training instead. If the area is very remote you may need to pay higher wages to tempt them to come to work for you, and to make sure they stay.

4. You can also hire in skills on a short term basis through employment agencies or consultancies. This is a good idea if you only need skills part time, or to cover gaps. However, such agency workers may not be easily available in remote areas.

5. A mixture of local people and outsiders can help you get started while building the skills base for the future. It should also allow locals to learn from the example of others while they work. A mixture of workers may make it easier to discover any fraud or unreliable workers, as there will be less likelihood of different groups covering up for each other. However, if there are particular tensions between different groups it can make working together very difficult.

Can you train staff?

1. Who will train the staff both initially and on an ongoing basis?

2. What can you do to ensure that the trained staff remain in the community, for example female employees are less likely to take their skills outside the community, but females may face credibility and cultural issues regarding their undertaking of skilled tasks.

3. You will need to train people for specific tasks eg production, sales, installation, management. You should also think about training in other business skills including communication, book keeping/accountancy, budgeting, computer skills etc.

Previous: P8.1 Next: F7.2

F7-2: Do you know how you will organise and motivate your staff?

Having thought about the kinds of skills you need and how you might get them you need to think about exactly how many staff you will need and how they will be organised.

How many staff will you need?

1. The number of staff will be a balance between getting all the skills you need (see F7.1) and what you can pay for, based on your forecasts for selling your product(s).

2. You will probably want to start with a small number of key staff, and have a plan for recruiting more in line with your sales and revenue. However, you need to start with enough staff to get things going, especially to do the first sales and installations.

3. Think about how many staff you need in terms of the number of customers that you want to serve, eg how many households can one maintenance person cover?

4. You may want to change the mixture of staff over time to include more local people after using more external or agency staff (see F7.1) to get things started.

How will you organise and manage your staff?

1. A simple organisation structure is a good idea, and in a small organisation this is particularly important. For example you may have a leader, such as a Managing Director, who has overall control, and all other staff report directly to the leader.

2. As the number of staff increases you will need a more detailed structure so that the leader still has time to run the business. This can be arranged by function eg sales staff report to the sales manager, installation staff to the installation manager etc, with the managers reporting to the leader. Alternatively you can organise on a geographical basis by having an area office with an area manager in charge of staff with different roles for that area (sales, installations, accounts etc). You can combine the structures in any way that helps to make the RESCO work. The important thing is that everyone is clear who is in charge of what and whom.

How will you motivate your staff?

1. There are a number of ways of getting staff to work hard and you may have to try a few different things before you find the best way for your staff. Think about what makes people work harder, for example some people are motivated by:

- holding on to a job to earn a living and support their family
- commitment to providing a service that the community needs and an opportunity for other community members to earn an income and gain skills
- specific (money) incentives eg piecework or payment for each installation or sale
- doing a good job
- prestige
- responsibility
- power.

2. If you know what motivates your staff it will be easier to set up a reward structure that will keep them interested. Think about:

- **short term contracts** may stop people from getting lazy as they are worried that you might not continue to employ them.
- **long term contracts** may make staff feel that the RESCO is committed to them, trusts them and/or recognises their worth, so that they don't have to worry about the future but can concentrate on doing a good job.
- **a fixed wage** also means security, and the ability to budget for household expenditure.
- **specific targets** or **piecework** (work paid per piece done eg $ per dress made) can encourage higher productivity from some people, but may also provide an incentive to cheat eg payment per fault fixed may mean staff and customers sharing the payment when a customer reports a non-existent fault.
- a clear **salary and career progression** may encourage people to work harder and be committed, as they can see a future with the RESCO.

3. Whatever payment or incentive structure you choose, it is usually a good idea to have clear responsibilities and targets and to provide regular feedback on good and bad performance so that staff know where they stand and can improve how they work. At the beginning it may not be easy to have clear responsibilities and roles, but regular communication about how things are going is still important.

4. Think carefully about salary levels to avoid any bias towards one group or another. For example you may need to pay people from outside the area more, but they should also be better or do more work. When a local reaches this standard they should be earning the same.

Are you aware of general staff issues?

1. It can be difficult to select the best staff the first time, so it is worth thinking about having short term contracts or trial periods to start with.

2. If you do want to stop employing someone, you should think about whether there will be any political issues, especially with local staff.

3. Make sure staff are given clear objectives so that their performance can easily be measured, and make sure that you have regular monitoring and feedback in place, with records kept of feedback and improvements. This will help with staff development but also provide evidence when staff have not been performing well enough and you want to sack them.

4. You need to check that you comply with local and national employment law, and may want to consider how you include any local working practices that locals already understand. Information is likely to be available form local or national governments, or trade unions.

Previous: F7.1 Next: F8.1

F8-1: Do you know what physical infrastructure the RESCO will need?

There are a number of physical things that will be needed to support the RESCO, most of which need to be in place at the beginning of operation.

Do you have a base for the RESCO?

1. The RESCO will need an official address (especially if licences are involved). This can be in a building bought, rented or built for the RESCO, or may be at the home of some the RESCO staff, to begin with.

2. Think about how much space you will need and what it will be used for. For example, some staff may need space to work and store records and paperwork. Other areas may be used for staff and customer meetings, building or repairing equipment, storing equipment and spare parts, parking vehicles, cooking and eating etc.

3. You will probably want a small space to begin with, depending on how many staff there will be and whether you are making or storing equipment. You may also want room to expand later, if everything goes to plan.

4. You should think about where your base or office is compared to your customers, suppliers and main infrastructure, so that you can reach all of these easily.

What tools and furniture do you need to run the RESCO?

1. Once you have a base or office you need to think about what furniture etc you need for the day to day running of the RESCO. Think about what is needed to get work done eg desks, chairs, computers, books, pens, phones, lights, storage such as shelves or filing cabinets etc. You may also need larger items such as vehicles, equipment and spares, tools etc.

2. Also think about the services you need such as water, electricity and other forms of energy, telephones, cooking etc.

3. These will have an initial cost to buy and many will also have a running or maintenance cost (see F6). You may also be able to rent many of these items.

Previous: F7.2 Next: F8.2

F8-2: Is the institutional infrastructure sufficient?

The presence of shops, banks, credit unions, women's groups etc can all help (or hinder) the establishment and operation of the RESCO.

What infrastructure do you need for your business to be a success?

1. The intelligence gathered through the 'Offering' part of the decision tree will have highlighted various aspects of infrastructure that are required in and around the community. These include: installers, local agents, support staff, banks, revenue collection and management systems, etc.

2. There are references to different aspects of the institutional infrastructure throughout the Design Tool, including:

- Customer access to funding: F3-1
- RESCO funding issues: F4-1, F4-2
- Fee collection infrastructure: F5-2, M5-3
- Licences: M2-1, M3-3
- Availability of fuel and equipment: P1, P3, P5.

To what extent can you use or modify the existing structures?

1. Modifying or utilising existing infrastructure is much more efficient than building a new one. In addition if aspects of the existing infrastructure can be utilised then hostility and competition from these sources can be minimised or removed altogether.

Previous: F8.1 Next: F8.3

F8-3: Do you have business "systems" in place?

While sorting out your base and the management structure of the RESCO, you also need to think about the other systems you need to help things run smoothly.

What systems might you need?

1. While the RESCO is very small you will not need to set up too many systems for running the RESCO, but as it grows you are likely to need more. However, it is always a good idea to keep things as simple as possible, to reduce mistakes and time wasting.

2. Think about how you will do things such as:

- keep track of payments, revenue, wages etc (accounting or book keeping); it is a good idea to talk to an accountant for guidance on these issues)
- keep your records in order (filing)
- keep track of who has ordered your product and who has received it
- keep track of any complaints
- keep track of maintenance and breakdowns
- monitor your staff performance
- monitor equipment performance
- measure customer satisfaction.

3. "Systems" can be as simple as agreeing what to do, who will do it and who is in charge. For example noting all complaints in a "complaints book", with dates and other information, and noting actions taken and by whom, with one person being in charge of keeping the book up to date.

4. It is usually helpful to write down the agreed system, or set of actions, so that you can remember what was agreed. It is also a good idea to review your systems regularly to check they are working and improve them when needed.

Previous: F8.2 Next: M6.1

F9-1: Now you have gathered all the information that you need and done all your research, does your RESCO look like a sustainable entity according to the vision and mission you had at the outset?

This questions serves as a check of your final price and everything so far. It is worth revisiting all of the early questions as well as the "Offering" - at least once.

If this is the first time you reach this point you should use the tree structure on the right hand side of the screen to **return to Question F1.1**. Do this more than once if you will find it useful.

If you are completely happy that everything holds together well, it is time to move forward and focus on the future - so press the "Next" button.

Don't forget to adjust your costs to take account of the strategic things you need to do.

1. Has costing taken your strategy costs into account? And marketing/promotion/communication. Also set up cost.

Does the product tie in with your mission?

1. In F1.1 you considered the mission of the RESCO. Review your product - in terms of the energy services offered and the price and payment options. Will this product provide the kind of returns you are looking for, and at the hoped for level? If not, you need to revise the product, or review your mission; one way of doing this is to start smaller than you originally planned but with a plan to grow later, eg you could also consider having an introductory/warm up period, and adding to your package later, if this will help establish the RESCO.

Previous: M8.2 Next: P9.1

F10-1: Have you identified all your fixed and variable costs?

Failure to identify all relevant costs can be a problem for both small commercial operations and organisations that do not necessarily aim to make a profit. If you have followed the guidelines under Question F6.1 you will hopefully be well aware of all the costs involved but you will need to consider how and when these will arise and ensure that you have funds to deal with them.

Have you identified your fixed costs?

1. Fixed costs will generally be items that you will pay for on a regular basis and at the same time. They will not stay the same for ever but you can forecast what they will be for a reasonable time ahead. They may include:

- Licences to operate
- Rent for premises
- Fixed interest payments on loans
- Permanent staff costs

2. Failure to pay these costs could lead to the RESCO failing and even prosecution (for example operating without a licence).

Have you identified your variable costs?

1. Many costs are variable and you will need to plan and budget carefully to ensure that you can meet them as they arise. Variable costs may include:

- Transport
- Marketing and Advertising
- Wages of casual staff
- Fuel purchase

2. Whilst not paying a fixed cost will cause failure in the long term the variable costs can cause immediate problems - if you have not budgeted correctly and cannot pay for fuel and transport for example you will fail to supply your customers who will in turn fail to pay and your real troubles will begin.

3. Try not to over or under stock technology and fuel supplies. Large sums tied up in stock can be very bad for your cash flow position.

4. Careful budgeting for fixed and variable costs is essential. Where there are larger sums to be paid out try to negotiate these to be paid at a time when you are confident that you will have enough money in hand to pay.

5. Refer back to F6.1 for a more detailed analysis of likely costs.

Previous: M9.1 Next: F10.2

F10-2: Do you know how frequently your customers will pay you?

Not only will you need to identify and budget for you outgoings you will need to do the same for your income.

How often will your customers pay?

1. You will know from your market research the pattern of your customers' incomes. If these are regular, for example weekly or monthly, preparing your cash flow and budgets will be easy as you will know accurately when you will be paid. Do not forget collection may be hampered by things over which you have no control eg bad weather.

2. If your customers have irregular incomes, eg from agriculture, you will need to plan your cash flow much more carefully. If possible you should negotiate your own agreements so that your largest outgoings fall to be paid when your income is at its highest. In this circumstance you will also need to consider the method of payment from your customers, for example, it may be unreasonable for them to pay regularly throughout the year for their equipment but at harvest time they may be able to afford a significant lump sum followed by much smaller sums on a regular basis throughout the year. (See Community SHS in Indonesia, case study summary 1; and SSDs in Mali, case study summary 10.)

Previous: F10.1 Next: F10.3

F10-3: Have you assessed the likelihood of debt?

The failure of customers to pay can be a major problem resulting in the organisation failing to meet its own financial obligations.

How can you deal with debt?

1. Make sure your method of collection discourages customer debt. This will depend on your customers and the nature of their income but do consider carefully what the best methods will be (eg personal collection, payment at a central office etc) and their timing.

2. Ensure you have sanctions to deal with non-payment in your contractual arrangements with your customers eg removal of equipment, no fuel supply etc.

3. Try to encourage an anti debt culture amongst your customers. Peer or community pressure can be very helpful with this. If the customers really value the service they are also more likely to pay.

4. Make an allowance for bad debt in your cash flow forecast. Be realistic, or even pessimistic.

Previous: F10.2 Next: F10.4

F10-4: Does your cash flow forecast work?

If you have not yet prepared a cashflow forecast do so now using the information contained in this section and that relating to costs in section F6.

Have you identified your costs and income?

1. When preparing your cash flow forecast you should pay particular attention to:

- Costs - variable and fixed.
- Income - its amount and reliability.
- Budget carefully and allow for the unexpected. (Refer to contingency F11 below.)
- Negotiation of preferred times for you to make payments on loans and other fixed items.
- Don't forget to include any payments the RESCO will have to make on its own debts.

2. A basic example of a cash flow is attached at "**Example cash flow.xls**". You can also find examples in the AREED Toolkit for Energy Entrepreneurs (http://www.areed.org/training/toolkit/index.htm)

3. Ideally your cash balance should be positive at all times. Take note where this isn't so and look at whether outgoings can be delayed or income brought forward to cover the gap.

4. You need to do a cash flow analysis to cover the first 2 years, with an outline for the first 5.

5. You may need to review all your plans once more if your cash flow does not work out well.

Previous: F10.3 Next: F11.1

F11-1: Have you decided on the level of financial contingency that you require?

You will need to budget for contingency. This 'margin for error' is very important as no matter how carefully you prepare your budgets there are likely to be unexpected expenses.

You need to decide on a suitable contingency level and budget for it in your business plan.

1. There is no simple rule for how much to allow and much will depend on your own circumstances.

2. All types of lending institutions will expect you to have budgeted for contingency.

3. Consider your risk assessment (and the associated actions - F6.1), market research and product specifications.

4. Identify areas where costs could rise in exceptional circumstances which it would be inappropriate to allow for in the standard costing.

5. Taking these things into account, choose a percentage of your annual costs as the financial contingency level. Don't include start up costs as this will be unbalanced.

6. Be prepared to justify the level you have chosen to any financing body.

Review your cash flow to ensure the right level of contingency has been used.

1. Check the cash flow calculations you have done (F10.4) to make sure enough contingency is included.

Previous: F10.4 Next: The Final Review

M1-1: Have the boundaries of the geographic area been defined?

The geographic boundaries define the area within you will operate. This knowledge allows you to address issues such as competition and policy with regard to potential customers from outside the area.

Who has defined the area within which you will operate?

1. The boundaries may be set by you or by a third party. In either case there are wider implications than simply drawing a line on a map such as how people on either side of the boundary will view the RESCO.

2. If you are being offered an area within which to operate it is critical to understand the physical, and political character early on (see M1.3). If the boundaries are not based on existing ones then new structures and relationships will probably need to be established.

3. If boundaries are not well defined you may find it difficult to control the size of your operations, and protecting your franchise/market may become difficult.

4. How the boundary has been derived will also reflect the institutional structure which may cause or solve problems eg in defining the franchise area, reconciling the geographical and political maps.

How will the boundaries be defined?

1. If the area you are offered coincides with an existing set of boundary definitions then there will probably be institutional and political groups that you should contact. Local governments and councils are a good place to start.

2. If the boundaries are new then new relationships will need to be built. This is likely to involve many contacts and there are likely to be some problems eg dealing with multiple local/regional/national government departments, several village hierarchies, crossing tribal/ethnic boundaries.

3. Socio-political maps may be useful for identifying different groups within the target area, sphere of influence of elders, fixed versus migratory communities etc.

How will you deal with approaches from customers outside this area?

1. There may be pressure on you to se to customers outside your defined area. This could come from the demand stimulated by successful operation, need to treat all in a community equally (even if they are outside your operational area). Your response to such opportunities will have to be considered early on to ensure that you do not undermine your own infrastructure and/or infringe on your “authority to operate” or infringe anyone else’s.

Previous: F2.2 Next: M1.2

M1-2: Have you carried out an initial characterisation of the target area?

The boundaries will establish the outer limit of the operational area. Early on you need to understand a number of characteristics of the local community so that you know who the gatekeepers and key stakeholders are outside the community itself. If these groups are friendly it will help your entry into the community.

Do you have a map of the area?

1. Physical maps are useful for defining your area and monitoring progress. You should be aware how accurate they are and whether they reflect water course movement etc.

2. If you have a map, is it at a useful scale, and is it accurate enough?

3. If you don't have a map, can you get some sort of map or perhaps an alternative such as aerial photographs on which you can base your own sketch maps. In this event it may be beneficial to engage expert help in deciphering the photographs so as to capture as much information as possible from visible features such as dried up river beds.

4.Socio-polical maps may be useful for identifying different groups within the target area, spheres of influence of elders, fixed and migratory communities etc.

5. Other tools may also be useful for mapping and checking your map (if available) eg GPS.

Where are the population centres within the area?

1. Where are villages situated?

2. How large are they?

3. How far apart are individual households?

What fraction of the area is inhabited/habitable?

1. Where are mountains, rivers, lakes and other features that can restrict access to large portions of the area, for some or all of the year?

2. Within your defined area what proportion of the population can you realistically access during the first phase of RESCO operation, and what part only in the longer term?

3. Think about how you will tell people that they are (currently) outside your area, and will not be able to receive your product (either now or ever, as appropriate).

What is the level of infrastructure in the area?

1. How do people get between the different towns and villages?

2. Where are the communal facilities, such as schools, shops, clinics, wells etc.

3. What is the spread of roads and tracks?

4. Is there any pre-existing energy infrastructure such as grid lines, gas/liquid/solid fuel delivery etc?

5. Is there any obvious institutional infrastructure eg banks (more detail in M7.2), development agencies, post offices, government offices, religious and community organisations?

6. Are there any deliveries of other items, such as bread, milk etc?

Previous: M1.1 Next: M1.3

M1-3: Do you have physical access to most of your chosen area?

The ability to reach all the customers in your area is vital for supply and maintenance of equipment, collecting money and other ongoing operations.

Is the area accessible by foot or vehicle?

1. You will need to get a vehicle into the area in order to supply and install equipment and possibly bring in maintenance staff and equipment.

2. Access can be via road or other methods including river transport.

3. Locate and talk to people who already have access eg Coca Cola, bakery and other deliveries, state agents etc.

4. If there are areas which are inaccessible by vehicle, will you be able to include them by supply on foot, or will you be unable to access them?

Is the area accessible all the year round?

1. For some technologies access needs to be possible at all times of year, for others only limited access is required eg PV only systems require occasional access (for installation and maintenance) while a PV+LPG combination requires access all the year round (for supply of LPG).

2. Speak to the older people in the community to see if there have been times in the past when access was cut off. This could be because of snow falls, floods, avalanches, rock falls, fire etc. Use these stories to assess the risk of choosing the area.

What proportion is therefore likely to be accessible?

1. Work out what proportion of the population in the area you can reach. Either (a) all of the time (b) some of the time (c) not at all. If a+b is very small you may find it very difficult to recover costs and should consider looking for another area. If b is needed, bear in mind when deciding what to offer (see P3).

Previous: M1.2 Next: M1.4

M1-4: Is the area politically stable?

In addition to gaining reassurance that physical access is adequate it is necessary to ensure that political access is possible, and will remain so, in terms of security, radical changes of government, invasion etc.

How long have the current authorities been in place?

1. How long have formal national and local government bodies been in place? Are the systems of government and change of government well established?

2. What other (informal) authorities exist in the area? Eg social, traditional structures, mafia or other power holders. Are these well established or in constant state of change?

3. Long term structures probably indicate stability, but may also cause a build up of pressure for change.

How often is the government likely to change and how/when do such changes take place?

1. How often are elections held, or other mechanisms for changing people in position of power? How do these affect life, incomes, businesses etc? Eg Many issues may become politicised including the provision of energy services etc.

Are any violent upheavals imminent?

1. If there is likely to be a civil war, invasion or other attack, migration etc, it is probably not a good time to start a business.

Previous: M1.3 Next: M2.1

M2-1: Can you operate without a licence in this area; if not can you get one?

If you require formal authority to operate, such as a license or permit, how do you set about obtaining it?

What is a licence?

1. A licence, or permit, gives you the legal right to operate in a certain business. Licences include the documentation required to operate as a commercial business, an NGO, a charity, etc.

2. In acting as a supplier of energy services you may also be required to comply with some or all of the relevant licensing arrangements for a national and/or private sector utility company.

How do you know if you need a licence?

1. This will be country specific. In general to operate in the energy sector you will need to deal with the Ministry of Energy (or equivalent) and the local utility company. A good source of information on how the licensing system works can often be other organisations currently operating in the fuel supply chain.

2. Licenses can sometimes be split into two types – those that you must have and those that will "smooth the path". When deciding which bodies you need to register with now, it is a good idea to assess which (currently) optional bodies you should approach and when.

3. You may need a license to qualify for a subsidy.

What do I need to obtain a licence?

1. As well as knowing who to approach, you should also find out what documentation is required, how long decisions take etc. Without this information the planning and establishment process can become bogged down and the scheme fail.

2. It is worth finding out if you are ever likely to be subject to the full spectrum of regulation etc. that applies to utilities.

3. Are you impinging upon licensed operations of other bodies (eg setting up in a formal supply monopoly). There may be exemptions etc. to be had, but these should be obtained before proceeding further.

4. You may also need to show that you have a good business, that you will meet safety and health standards and that you will use approved equipment.

5. You may need to go through a tendering process to get a license.

Is the need for a licence likely to change with time?

1. The process of planning, establishment and growth may throw up differing licence requirements as the nature of the business changes. For example moving from a pilot/demonstration approach to a larger scale commercial or community led scheme could completely change the need for legal authority to operate. It is a good idea to understand what maybe needed in the future as this may affect your future plans.

What levels of corruption will you have to deal with?

1. The political and social structures you must deal with may include a degree of corruption. The numbers of layers of government (in the widest sense) and their attitude to corruption will very strongly influence the outcome of the intervention.

2. Your own attitude to corruption (or facilitatory payments) needs to be understood: are you prepared to pay bribes?

Previous: M1.4 Next: M2.2

M2-2: Is the (local and/or national) government and environment supportive or enabling to the venture? If not, what can be done to improve the situation?

Government structures and initiatives can play a significant role in enabling/facilitating the intended venture. However, they can also be significant barriers. This depends on degree of bureaucracy, how likely they are to interfere, how well government aims match yours etc.

How many levels of government exist and how do they interact?

1. The formal levels of government need to be understood before legal access is possible. At the local or regional level this should be quite simple, but at national level you may need to take account of cross ministerial or departmental overlaps. For example, if you wish to look at hydro resources you may have to deal with ministries of environment, agriculture, energy and water in order to cover all water use restrictions.

2. There are almost always multiple levels of (formal) government, and they do not always agree on the optimal way to act. In your area, is there enough agreement at all levels of government (ie national/regional/local) for limited negative impact on your RESCO, at worst?

What current initiatives and incentives are available?

1. Are there any ways the government is encouraging you to start a business in your area? Have any other energy ventures started with government support? This information may be available from the schemes themselves. It is also worth talking to anyone who may have benefited from their involvement.

2. The government may offer a subsidy or other incentive schemes. It is a good idea to find out what support schemes exist and how you can qualify for them. It is also worth looking outside the energy sector eg by looking at small business support schemes, etc. (see F4.1) (See SSDs in Mali, case study summary 10; and Wind PV in Mongolia, case study summary 11.)

How much bureaucracy is involved?

1. Can you afford the resources to deal with this level of bureaucracy eg staff time, legal costs etc? Are there any alternatives (other than not starting the RESCO) eg hiring someone who is experienced in dealing with local regulations and systems?

How long are the current (positive) frameworks likely to last?

1. If you are responding to government initiatives it is important to know how long they are likely to last. For example if an election is approaching you need to understand the attitude of all parties to the initiatives. If the initiative is due to finish you should explore how government plans to withdraw from support - such exit schemes can be helpful or they can act to undermine or counteract the good done by the original initiative.

What can be done to solve or reduce (mitigate) these problems?

1. Don't be too put off by all of the above questions - you need to understand the risks and possible difficulties of working in a government regulated environment. Standard business practices can be applied to minimise such risks (they can never be eliminated).

Previous: M2.1 Next: M3.1

M3-1: Do you understand the social structures and therefore who you need to talk to within the community?

To run your RESCO you will need to gain the support of the community. This is in addition to any legal requirements. To do this you need to find out who makes decisions within the community and what the limits of their authority are.

Is there a clear social order within the community?

1. Social order such as tribal, caste or class structures can be as important as government structures. These can be very difficult for outsiders to understand, but are very important for building relationships at the local level. If structures are not clear, you need to find someone local, or with local experience, to help you clarify the situation.

What other power groupings exist?

1. Other groups may affect your legitimacy to work with the community. Such groups can include the church, women's groups, NGOs, syndicates, (extended) families, co-operatives or similar community groups, local political groups etc.

2. You can find out about these groupings by talking to people outside the community who know what the structures are, by talking to people inside the community etc.

Do any associations you will have to form have positive or negative connotations within the community?

1. It is important to remember that being associated with some groups can close doors with other groups. You may have to decide which are most useful and/or which can be persuaded to forgive you.

2. Associations can be made with a number of groups and used as appropriate. However, this can be dangerous if conflicting groups find out that you are dealing with both sides, and this could weaken your position with everyone.

Have you identified the key individuals?

1. Key individuals can help you understand the structures and politics, as well as making it easier to deal with the community. Relationships with key individuals will need to be built carefully, which may take time.

2. Typical key individuals include the head man, village entrepreneur, doctor, traditional healers etc. Other useful contacts may include teachers, other professionals, land owners, church leaders etc, depending on the local context and culture.

Previous: M2.2 Next: M3.2

M3-2: Do you have the authority to talk to the community?

To undertake your operations will normally require you to obtain formal (legal) authority to operate from national and possibly regional/local government. Such authorisation represents the legal basis for operating, and is distinct from gaining a purely local mandate through village hierarchies etc.

Do you have official authority to operate?

1. Your authority to talk to the community will probably depend on your gaining official authority to operate as discussed in M2.1. This may be indicated by a visit from a government or state utility representative, or a letter of introduction or other token.

Who will represent you in the community, and how?

1. You and some or all of your staff will need to visit the community, at least at first. It is usually a good idea for the same people to visit, to provide consistency and indicate your commitment to the community.

2. At a later stage, you may want the community to nominate a person to represent you as they will then feel ownership and involvement. However, you need to encourage selection of someone with suitable skills, status and influence to be successful. Such an agent may have a dual role of representing the RESCO to the community, and also representing the community to the RESCO. Alternatively these roles may be separated. You may also need to break down this job by area.

Previous: M3.1 Next: M3.3

M3-3: Can you obtain and maintain authority to operate?

Maintaining authority is as important as winning it in the first place.

How will you get authority to operate from each of the identified bodies?

1. Gaining authority to operate can be easier when partnering with a body that has credibility with the relevant parties eg by associating yourself with the national utility. Formal bodies should have procedures for gaining this authority (M2.1).

Who has provided your authority to operate?

1. This will vary according to the body giving authority. It is easiest with formal bodies who will provide such authorities in writing. For many of the informal bodies authority may be spread via word of mouth and this can be highly effective. Otherwise it may be necessary to get some other form of token, or even be seen in public with the authorising body/individual. This is often a good idea in poor communities in any case.

How will you demonstrate that you have this authority?

1. How long has this political structure been in place, and is it currently being challenged?

2. Authority to operate within communities can be highly complex and needs to be understood so that you can communicate with the local, regional and national political figure at both a formal and informal level. Thus, you may find that departments of national government are the main contacts or chiefs/elders, or absentee landowners/landlords.

3. Governments may promise actions such as energy upliftment just before elections and then cancel action immediately afterwards, so it is important to understand the election timetable and any likely impacts.

4. Will intervention be seen as vote buying and hence resented?

How long will this authority last, and what is necessary to renew it?

1. All authorities to operate have a limited life – how long is yours? For example you may be granted authority to operate for 5 years, or as long as a particular leader in the community is alive.

2. Renewing your authorities may be simple, but you may need to show evidence of success. Therefore it is a good idea to document and save any evidence that the RESCO has met its success criteria.

3. Continued profile and interest of the RESCO in the community will be key to maintaining authority.

Previous: M3.2 Next: M3.4

M3-4: Does the RESCO have (or have access to) the required language and communication skills to operate in this area?

The successful provision of rural energy needs a dialogue between the RESCO and the community and other stakeholders.

What languages/dialects etc are spoken by stakeholders?

1. In a number of cases the formal language of government may differ from that spoken by the majority of the community. You should know how many, and which languages are needed to communicate with the community (or communities) in your chosen area and the other stakeholders, including local and national governments, suppliers etc.

2. You need to decide how to communicate with the different groups eg by ensuring the RESCO staff cover the languages needed, by hiring interpreters, or by hoping to employ people from the target areas. Full time employees should provide a more secure service, but may be more expensive. In any case, you need to ensure your communicators have enough skill and experience with the languages.

Do you have the communication skills and cultural knowledge to operate in this area?

1. In addition to language skills, your RESCO needs to be able to use a range of verbal and written communication skills, to consult the community and explain the benefits of the services you offer eg through demonstrations, negotiations, individual and group meetings with communities and other stakeholders.

2. As with language skills you need to decide whether to build up staff skills or hire in as needed.

3. Use of a member of the community as go-between/representative is often particularly helpful (see M3.3).

Previous: M3.3 Next: M4.1

M4-1: Do you understand the full range of the community's current energy needs and uses?

You need a good baseline picture of the community on which to build plans for the RESCO. Without this knowledge it will be difficult to demonstrate a better lifestyle and the benefits that you will offer.

How and where are energy services currently used within the household?

1. A simple approach is to ask how the community currently:

- Cooks food
- Boils water
- Heats their homes
- Lights interior, exterior and public areas
- Provides high quality lighting for reading
- Produces hot water for washing of dishes and clothes
- Irons
- Preserves food (drying or refrigeration)
- Accesses entertainment (TV/radio)
- Pumps water.

2. Other uses for energy should also be followed up when they are mentioned such as micro-agriculture or micro-enterprise.

3. Few communities are totally reliant on a single fuel source and many use a number of fuels, switching between them as necessary. You need to find out what current "switching behaviour" is seen and what drives this (eg when and why would people move from wood to kerosene for cooking purposes).

4. Fuel use and levels of service will vary according to time of day and season, so answers may be different at different times.

5. You will need to cross check what people say as people often guess rather than know. Eg compare how much fuel people buy with how much is actually sold.

Are there other obvious areas of energy use outside the immediate household that you might be able to supply?

1. The final energy package that suits the particular community can be very different if non-household energy use is included. Think about things like farming practices (eg animal ownership and implications for dung/biogas use, the desire for mechanical harvesting and processing), educational use, clinics, public entertainment, shops/businesses, etc.

How will you gather data on the current energy position?

1. There are a number of participatory techniques you could use. "Rural participatory techniques.doc" lists a number of these, along with references for more information.

2. Another project funded by DFID, the Enpower project, provides community research guidelines and a specifically design current energy use questionnaire. Information and tools from this project can be found at www.etsu.com/energy_voices.

Have you included all the groups in the community?

1. Different groups will prioritise different benefits and services eg women may prioritise cooking, men entertainment. Therefore you need to understand the priorities of as many different groups as possible, to provide the best way of meeting their needs.

2. Groups include: gender groups, age groups, different classes, tribes or castes, different income groups, people who make a living in different ways etc.

Previous: M3.4 Next: M4.2

M4-2: Do you understand the energy aspirations, service preferences and desires of the community?

It is usual to assume that everyone in the community wants to gain access to the benefits that modern energy services can bring, but it is very important to check that your target customers do.

What does the community understand to be "modern energy services"?

1. Communities often think 'modern energy services' means grid electricity and thus a more 'Hollywood' lifestyle. But for remote communities this is usually too expensive, so you should be clear that this is not possible, and not what you are offering. This will start the expectation management process that should continue throughout.

2. It can be particularly helpful to discuss energy services in terms of the benefits they bring to the customer, rather than technologies, such as high quality lighting; cooking; education; entertainment; water purification, pumping and heating; space heating/cooling; as well as more general activities such as ironing and refrigeration.

What are their hopes and fears about gaining access?

1. From the beginning you need to understand and manage customers' hopes and fears, which may both be unrealistic, in terms of what they can afford and therefore what they will be able to do and how much their quality of life will improve.

2. Some parts of the community are more likely to change. The elder portion of the community can be very resistant to change and other some cultural dimensions and societal groupings (e.g. religious leaders) can have views that will either resist changes in the status quo or will highlight what they believe to be detrimental impacts on the community. Such groups need special attention, in particular to put fears to rest and make change less stressful.

3. Identifying aspirations and concerns is best done by talking with the community, both in groups and as individuals. You must be careful to not impose your views. A good way of doing this is comparing different choices and situations eg by using techniques such as participatory rural appraisal (PRA) (see "rural participatory techniques.doc" for references).

Do you understand what people want to do with modern energy, and in what order they would like to gain access?

1. There are techniques available to record preferences and desires (see below). However, in all cases it is necessary to apply them carefully. If an unrealistic level of expectation is raised it could undermine the whole RESCO: conversely not mentioning some options could effectively rule out perfectly acceptable options.

2. It is particularly important to record any biases or dislikes for any possible fuel or equipment so that you don't put customers off.

3. Another project funded by DFID, the Enpower project, provides community research guidelines including how to identify and record community energy aspirations. Information and tools from this project can be found at www.etsu.com/energy_voices.

Previous: M4.1 Next: M4.3

M4-3: Have you identified the relevant population statistics or demographic factors?

A knowledge of the local demography is essential in understanding the community.

Do you know how the population breaks down on a demographic basis?

1. Demographic factors can include:

- Total population
- Male & female numbers
- Household size and make up (eg number of men, woman, children, elderly; how many buildings etc)
- Life expectancy
- Breakdown by age and gender
- Rate of population growth (by sector)
- Numbers of people moving in and out of the community.

2. Identifying different groups with similar experiences and needs is helpful for understanding what different groups of customers there may be and whether they need different products. These are the groups referred to in the following questions.

3. It can also be useful to understand how local figures vary from national or regional data.

Do you know how this demographic profile impacts on the community in decision making etc?

1. This can be used to supplement knowledge on local power structures used in gaining authority to operate (M3) but will also provide insights into individuals and groups who influence and lead community thinking and action. If the RESCO targets this group early on they may well find that they can convert what can be a rather conservative group that is resistant to change into champions for the RESCO products and services. For example teachers and school children will not be involved in gaining authority to operate but both can significantly influence outcomes, and have particular impacts in the early stages of operation.

Previous: M4.2 Next: M4.4

M4-4: Have you identified the level of local wealth, sources of income and associated patterns?

Insights into the levels of income in the community are key to understanding who can afford what level of energy service. You will need to talk to community members and representatives to gather this information. However you should always be tactful and make it clear why you need to know so as not to offend or worry people.

How is wealth held in the community?

1. Wealth may take the form of deposits with a formal financial institution, cash held within the community and/or asset such as buildings, land, capital goods etc. or in the form of livestock.

2. It is important to know who holds these assets eg men, women, community, head of household etc.

3. Wealth and assets will be significant when considering credit systems etc as traditional lending institutions will usually consider lending against fixed assets but will not normally lend against animal assets.

How are assets viewed by the community?

1. Community attitudes towards asset ownership should be taken into account when putting together your product offering - will you sell or rent equipment etc. Find out by talking to community members (P2.2).

2. You should not assume that the individuals in the community can demonstrate ownership of assets in a manner which would allow them to secure loans. This is the case when assets such as land etc are communally held and/or administered, eg through the village chief/elders.

What are the local income generating activities?

1. Is agriculture the main income generating activity? If so what are the crops and cropping patterns, how much is sold, where, for how much etc?

2. Are there any local employers? If so what is their nature, how do they pay, is all the pay in the form of cash.

3. Other likely activities include skills such as pottery, leatherwork and other crafts.

What are the external sources of income?

1. Many rural communities rely on income from elsewhere, such as:

- From migratory workers (who may be resident in foreign countries, or working elsewhere in the same country)
- Payments from government and industrial pensions
- Members of the (extended) family
- Savings

2. Again the income is likely to be cash (and may even in the form of foreign currency), but may also take the form of goods etc.

How does the income of each group vary with time and over the year?

1. Internally and externally sourced income will probably vary with time. In particular local income from agriculture will vary seasonally according to harvest etc. and on a longer timescale due to drought, flooding etc. Information on trends in both types of factor needs to be collected.

2. You should try to tie your customers payments in with their income patterns to make it easier for them to pay you - and make it easier for you to collect your money. Eg If people are paid weekly, then weekly fees may be a good idea. Also if income varies seasonally, you may be able to vary your fees with the season.

3. This information is useful for F5.2.

Are there undeclared sources of income?

1. It is probable that the full range of income generating activities will be not be revealed. Sometimes this will be associated with a natural reluctance to divulge such information, in other cases it may be due to social taboos (eg in admitting to collecting and selling dung, through to cash crops that are bought and sold illegally).

2. Confirming that the full spectrum of income can be difficult. Probably the simplest way of carrying out a 'common sense' check is to ask about expenditure, and if expenditure appears to be widely different from income the full picture has not been revealed.

Previous: M4.3 Next: M4.5

M4-5: Have you assessed the education levels of the different groups?

Insights into the education levels within the community can help to tailor interactions with the community as well as the institutional infrastructure required in establishing the RESCO.

Do you have data on which groups have been educated to what level?

1. A check list of education level based on the following can be used for each group:

- University
- Technical college
- A-Level/SSS/Baccalaureate, Secondary schooling
- Junior school certificate
- Basic/elementary schooling
- Primary School
- None

2. You may also want to find out what kind of training people have eg animal husbandry or physics.

What are the implications of the findings?

1. The level of education is likely to affect a group's ability to accept and understand the type of technology installed, maintenance requirements, financial systems, etc.

2. If there are suitable educated people in the community then identifying and training local support staff is easier.

3. The more educated members of the community will probably be highly influential members of the community and so may act as 'early adopters' who encourage wider uptake of your product by example.

4. Different levels of education will also affect how you communicate eg whether through leaflets and/or talks and/or demonstrations.

5. A higher level of education may also make it easier for community members to understand rental, credit and service agreements.

Previous: M4.4 Next: M4.6

M4-6: Have you assessed the ability to pay of the different groups?

The ability to pay for the level of energy service offered is a key to providing the right product and building a sustainable RESCO.

Is there sufficient wealth and income in the community to support the RESCO?

1. Refer to your answers to M4.4. The result from this question will have to be re-visited throughout the assessment process but remember that the financial needs of the RESCO have to be met, at least in part, from the community as a group or as individual customers. Thus it is necessary to regularly balance the ability of the community to contribute to the sustained operation of the RESCO against the incentives (subsidies) on offer and the nature of the RESCO that is formed (ie the level of financial sustainability required).

What are the current levels of expenditure on energy (and other) services?

1. It is useful to understand current expenditure levels on energy services, as an indication of the need and ability to pay for these services. You could aim to offer services at a similar cost.

2. It may also help to have estimates of other vital expenditures to provide an indication of how much income could potentially be put towards the new services. This estimate may also indicate other services that are important to the community which could be provided alongside the energy services of the RESCO.

Previous: M4.5 Next: M4.7

M4-7: Have you assessed the willingness to pay of different groups?

Willingness to pay is not the same as ability to pay.

Have the various community groupings demonstrated their willingness to pay for the services likely to be offered?

1. Ability to pay is not the same as willingness to pay. Willingness to pay reflects the ability to pay and the cultural and wider factors that alter the sort of transactions envisaged. Thus it brings in aspects of attitudes to ownership, credit records, familiarity with credit/cash based transactions etc.

2. This is one of the key questions that needs to be answered during the market research phase. If the target groupings are aware of what you are offering, value it and have shown their willingness to pay for other goods/services that they also valued then there is good reason to proceed. Demonstrations of a track record in willingness to pay could come from previous exposure to purchases, such as with animals, agricultural supplies, furniture etc.

3. However, to equate willingness to pay for other goods and services it is necessary to demonstrate that the desire to access modern energy services at least matches the desire for those other goods or services.

4. People are less willing to pay for something which they see as a right or which has been provided free before. To avoid this situation it is a good idea not to give free or very low cost products as early samples.

Previous: M4.6 Next: M4.8

M4-8: Have you segmented the target community?

The formal segmentation of the community is one of the key steps in building your sales and marketing strategy.

What market segments exist?

1. A good starting point for the segmentation exercise is to undertake a formal stakeholder analysis. Often the formal segments equate to the (primary) stakeholding groups, and so techniques for stakeholder analysis can be highly useful in this area (see appended document). [other refs]

2. Segments are also likely to match the groups discussed in M4.3.

How are these segments characterised?

1. A market segment is defined as a group with some common characteristics which are relevant in explaining (and predicting) their response to stimuli. To be of maximum use the segment should be characterised in terms of:

- Size: This may be in terms of numbers, influence, spending power etc.
- Identity: Need to be able to clearly label people within their segment, eg by age or income etc.
- Relevance: The characteristics used to define the segment must allow you to explain and predict their behaviour, such as energy priorities, willingness to pay etc.
- Access: Can you communicate with them and engage their interest, etc.

To be useful to the RESCO the identified segments need to be clearly differentiated so that patterns in factors such as desire for service, range of services sought, ability/willingness to pay etc vary between them.

Previous: M4.7 Next: M4.9

M4-9: Do you intend to target all or part of the community?

Segmentation will almost certainly show that you cannot reach the entire community with a single initial offering.

Which of the identified market segments do you intend to target first?

1. The segments targeted first will probably be a mixture of those groups targeted as part of the mission and vision of the RESCO (see F1.1) and those that can contribute directly to the financial sustainability of the operation. This may cause a degree of conflict, if the mission and financial goals are not the same. For example if the mission is helping the poorest women in the community, but segmentation and market research showed that they do not aspire to the service offered and/or do not have an ability and/or willingness to pay.

2. It is often a good idea to focus on 1 or 2 segments initially to keep things simple, then expand to target others when the RESCO is established. Otherwise you can end up with a very widespread customer base needing a large infrastructure, which is expensive and difficult to manage.

How do you intend to deal with the other segments, and when?

1. The implications of not targeting some segments can be high in terms of financial sustainability (F9), security (M5), planning for growth (M9) etc. There may also be political implications of excluding particular segments.

2. The question of future access patterns is not a key part of the market research per se, but the findings will be important for the future business plans, eg in terms of new products, building a wider aspiration for the energy service in the community, etc. It is important to have thought about the future direction briefly even at a very early stage.

Previous: M4.8 Next: M4.10

M4-10: Is energy upliftment a priority within the initial target segments?

You need to confirm that the segmentation exercise has left you with a viable market in terms of potential customers who actually wish to buy the 'modern energy service' package being developed.

How has the provision of modern energy service been shown to be of value to the target segments?

1. This question is meant as a check that your selected initial market is the right one.

2. The groups may have shown their interest in a number of ways - from offering you deposit money already, continued interest in meetings and discussions etc. Of course until people actually start to pay it can be hard to be certain of the level of interest.

3. Consider whether other services are also important to the community eg roads, water, healthcare, education, TV etc.

Previous: M4.9 Next: M4.11

M4-11: Are you confident that the grid will not be offered in the area in the next 5-10 years?

Probably the single biggest threat to the RESCO is the possible arrival of the national grid in the vicinity of the community.

Have you seen electrification plans for the area?

1. In some areas electrification plans are freely available and should show where the grid is likely to run to, and on what time frame.

Does the local utility have a track record of following electrification plans strictly?

1. Some utilities either work without formal electrification plans or have a track record of reactive electrification. Reactive electrification can take place because of the unpredicted availability of funding or because of wider developments (eg the opening up of new industrial areas).

Is the grid likely to be reliable if it arrives?

1. The grid is often perceived as being the ultimately desired outcome of energy upliftment. Unfortunately this is not always found to be the case as there may be long periods when power is not available, the 'quality' of the power may be low or the infrastructure may be vulnerable to disruption (eg through wind or flood damage).

Do you have a monopoly agreement for the operational area?

1. If the RESCO has a monopoly agreement for the community then a utility should not be able to transgress on these terms. Such a monopoly agreement should not stop grid extension into the community, but it can put the RESCO in a strong position to play a significant role in the electrification process (eg by acting as a local distribution company).

2. Could you work with the utility or grid company to assess whether a combined energy package with a limited grid supply is a good option?

Previous: M4.10 Next: P1.1

M5-1: Will installed equipment be safe from theft?

If installed equipment is not secure whoever owns it may have to pay for a replacement or lose their investment.

What is the attitude of the community to property ownership and theft?

1. This may be difficult to assess, but if the community and particularly the individuals within that community feel a sense of ownership and worth then theft and damage will be reduced.

2. This issue may become a particular problem when looking at different asset ownership models – if equipment is free, or seen as free, then people worry less about loss or damage. The larger their stake in its continued operation, the greater the peer group pressure against theft and damage and the greater the recovery rate if theft takes place.

3. Information on how this works in practice can be gained from local police sources, or from discussion with individuals and local leaders regarding theft and malicious damage patterns of similar capital goods.

Are you relying on an engineered solution to security?

1. A degree of protection against theft and/or malicious damage can be built into any installation. This nearly always puts the cost up, and may not be very effective.

2. The need for security can be built into the specification/standard used. For example by specifying equipment with clearly marked unique identifiers, or building in security constraints as part of the fixing system for PV panels. However, such solutions can often be bypassed, sometimes simply by increasing the damage done to the dwelling during the theft.

3. An alternative approach involves using pre-payment meters and related enabling devices in order to make the equipment useless when interfered with. Again this will add direct costs, as well as indirect costs in terms of the required supporting infrastructure. It may also be bypassed by corrupt staff.

4. See the Fee for Service Case Study for an example of a high security system.

Previous: P5.5 Next: M5.2

M5-2: Will personnel be safe working in the target area?

The members of the RESCO team and anyone working with or for them need to be secure whilst they work.

How will personal security be protected?

1. The individual security needs of all the team need to be addressed. A formal assessment of the risks faced needs to be undertaken. This should cover factors such as risk of theft of goods they are holding on behalf of the RESCO, theft of revenue, disputes over installation, operation, payment, disconnection etc.

2. Appropriate insurance provision may cover some or all of the financial damage, but this adds cost and does nothing for personal safety fears.

3. Personal safety considerations will have to be reviewed in terms of the position of the staff in the community, and in particular the added risks to female team members will need to be considered.

4. Be aware of health risks, such as malaria, which may affect staff in the area.

5. Having a good understanding and relationship with the community will help identify likely problems and solutions and will help staff to feel safe as the work.

6. This issue may affect your decision to work in the area (see M4.9).

Previous: M5.1 Next: M5.3

M5-3: How will revenue be collected?

Payments for the services delivered by the RESCO have to be collected and held in suitable secure premises before being deposited in a suitable Bank, so that loans can be repaid and money held securely.

Who will be responsible for revenue collection?

1. The position of this person in the community can play a significant role in the ability of revenue collectors to actually collect payments. If the revenue collectors have a suitable position within the community, eg through being community appointed, or backed by local leaders, they will find it easier to collect the revenue.

Where will revenue be held?

1. It will probably not be possible for revenue to be banked on a daily basis, so provision may have to be made for interim secure storage. This may take the form of a suitable safe/strongbox.

2. If pre-payment systems are being used then the tokens or smart cards purchased by individuals will have to be stored in a secure location, along with the equipment used to activate smart cards, master system over-ride devices etc. Note: any tokens should be single-use only to prevent re-selling.

3. Ideally revenue should be held only in small amounts so that it is not a target for robbery.

What systems will be put in place to monitor revenue flows?

1. The revenue collector will be in a difficult position. He will have to account for all the valuables that pass through him, such as money, tokens, smart cards etc. This will require that suitable accounting systems be put in place, and that the collector be trained in their operation.

2. The accounting systems and procedures become even more difficult to administer when payments are allowed to be slightly irregular eg payment holidays of several months before harvests are collected and sold. This may make the system easier to cheat.

How will revenue be moved and banked?

1. The process of moving cash from the community to a formal banking institution needs to be planned. Discussion with the local police authorities will give insights into practical and security issues that will need to be addressed during this process. It may also be worth finding out how shopkeepers and other service providers manage the transfer as you may all be able to use the same system.

Previous: M5.2 Next: M5.4

M5-4: Are personnel reliable and trustworthy?

Any security system is going to be most vulnerable to exploitation by employees.

How will appropriate checks be designed in and implemented?

1. Security systems aimed at checking on the performance of the RESCO team will have to be handled in a very sensitively. It is best if systems are designed in early in the RESCO lifetime, so that they become a part of the standard functions of the RESCO and not a response to perceived failings of the team.

2. The standard approach to minimising risks from dishonest staff is:

- Seeking appropriate references
- Introducing a suitable set of accounting procedures – and training the staff in their use
- Undertaking periodic audits
- Carrying out random checks

3. Consider how you recruit your staff: they should have minimum qualifications, a track record and references, wherever possible. You may also need to employ auditors to check up on other staff etc.

4. If staff are found to be unreliable or untrustworthy they will probably have to be removed from their position – but what are the implications on the continued operation of the RESCO of doing this? Eg relations with community, difficulty with finding replacements etc.

Previous: M5.3 Next: M5.5

M5-5: Are there any security implications for the community?

The introduction of the RESCO could affect the security of the community and/or groups within it.

Will the overall security of the community change?

1. If the RESCO is providing external lighting then the security of the community as a whole and of individuals is likely to be improved.

2. However, it is possible that the possession of assets that provide such services could make the village more vulnerable to external bodies who will raid the community to steal the assets.

Will the security of groups within the community change?

1. Increasing the assets held by the most vulnerable in the community may increase their vulnerability still further. For example female heads of households in some areas may be concerned that gaining access to modern energy services may increase the risk of their household being the target of criminal actions (ie they are concerned about being more 'visible' as targets with in the community).

2. Providing the same product/service to all groups may also not fit with the community's view of the rights, privileges and power of different groups, which may cause tension and an increase in vulnerability for the least powerful.

Previous: M5.4 Next: P6.1

M6-1: Are you confident that your sales strategy is right?

You have already covered many things which contribute to your sales strategy and now you need to pull it all together to give you a clear plan of attack.

Is your strategy focussed on key areas?

1. Focusing on a few areas at a time is usually better than using a "scatter gun" approach – trying to sell installations in the whole area and then having them spread out. Focusing on smaller areas will help reduce installation costs and help you keep control of what is going on.

2. Focussing will also ensure that you don't take lots of orders (and money) and then take a long time to install. This would irritate the customers and give you a bad name.

Do you have sensible targets?

1. It is useful to set targets for the number of sales (and installations) to be made within certain timeframes eg monthly, quarterly, yearly. This will allow you to check how well the business is going and help with cash flow calculations (particularly if done for the same time periods).

2. Your targets should take into account the numbers of potential customers in each target area and your ability to install your equipment or connect your customers.

3. Realistic targets will also be important for your financial planning, and therefore meeting those targets is important for keeping the business open.

4. Your targets also need to relate to your promotion strategy (question M8.1)

Are you happy that everyone knows who is doing the selling?

1. You need to be clear about who within the RESCO is doing the selling. For example, if it is a large enough business/ group you may have staff who only do selling. If you are smaller, you need to know how the responsibility is shared.

2. The people who are selling your product need to communicate with those who are putting it together and those who are doing the installations/ delivery so that the you don't make promises you can't keep (eg it'll be delivered on Tuesday, when equipment reaches the RESCO on Wednesday).

Are you happy that sales agreements are clear enough?

1. When a sale is made there should be an official record eg a contract signed by the customer, and a receipt for any money taken by the sales person. If customers are unable to read and write, you need to consider an alternative way of recording that a sale has been agreed.

2. Make sure that the agreements say what you want, and that they are clear and easily understood by the customers. You could consider having a third party to witness the agreement. It is probably a good idea to consult a lawyer about what is needed.

3. This paperwork will need to be kept safely in a way that will allow you to find it when and if required – ie you need storage space and a filing system!

Previous: F8.3 Next: M6.2

M6-2: Are you confident that your installations are of high enough quality?

Ensuring that installations are done right is important – return visits cost time and money, as well as not impressing the customer. It can also be much more difficult to fix something that is installed wrong than to get it right in the first place.

Do you have a standard installation procedure?

1. Having a standard procedure makes it easier to get installations right first time. You need to test this procedure to make sure it's right, and also be prepared to add improvements where necessary.

2. All RESCO staff who will be carrying out installations should be trained to follow the standard procedure, so that all installations will be of the same quality.

3. The procedure should include completion of paperwork to record installation and receipt of equipment by the customer. This should be as simple as possible, especially where customer and/or staff literacy is not high. For example, it could include a series of pictures for different stages which could be marked (with tick or cross) to indicate that the step has been carried out. This kind of record keeping is important to remind people of the standard procedure and to allow follow-up checks and investigation of problems.

Does your installation schedule take account of access and delivery times?

1. Installation schedules will need to take account of when equipment is available to be installed ie when it is delivered or manufactured.

2. Installation schedules should be closely tied in to sales targets and strategy so that customers do not have to wait too long to receive the product.

3. Delivery and installation of equipment is likely to require access to the customer's home or work premises. This should be agreed with the customer, and may need to take into account the customer's work schedule as well as seasonal access issues explored in question M1.3.

Have you ensured that your customers come first?

1. It is important to remember that you are providing a service to your customers. This includes keeping them informed of any delays, dealing with problems as quickly as possible etc.

2. Try to make the customer feel that you take them seriously and they are more likely to understand when problems arise. This means that all of the RESCO staff need to put the customer first. You can check this by carrying out regular customer checks (see M8.2).

Do you have a system of checks of installations in place?

1. You need to ensure that installations are following the procedure you set out, and that there are no problems. A good way of doing this is to have a system of checks, which could include some of the following:

- Observing installations.
- Carrying out installations.

- Visiting new installations after a week or month to see how things are working. This can be with or without the installer.
- Scheduled visits to check a selection of installations after a longer period.
- Random, unscheduled checks on installed equipment.

2. You may find it helpful to have more checks at the beginning when you are still trying to improve the way you do things. Later on you can probably reduce the number of checks, although it is always a good idea to have a few.

3. These checks will help you to have confidence in your procedures, equipment and staff. They will also give you a better chance of spotting any problems that might arise later on eg through customer behaviour that wasn't taken into account.

4. Carrying out checks should also give the customer more confidence, as they will feel that they are important and you care enough to ask them if they are happy with the product.

Previous: M6.1 Next: M7.1

M7-1: Are you clear about the current energy situation and the demand(s) you intend to meet?

The basis of a competition strategy is that there will be better energy service provision, so it is necessary to establish a baseline position.

How does the community meet its current need for energy?

1. The current pattern of energy use needs to be measured so that any improvement through use of your product can be clearly demonstrated. This was discussed in M4.1.

Who currently provides energy services?

1. You should list the formal and informal sources of all the fuels. This may not be simple as there will be examples where there is on-selling of commodities such as candles and kerosene, or there appear to be fewer purchases of firewood then sellers.

2. You should also list formal and informal sources of appliances and services.

3. Large scale customer switching between fuel sources can result in existing businesses failing (eg due to falls in kerosene sales). This is likely to lead to opposition from the current market chain, which may undermine the RESCO operation. However, if the existing infrastructure can be used eg by making kerosene agents act as wider energy agents for the RESCO, then competition will be reduced. (This may impact on your response to P5.)

4. Overall transaction costs etc may also be reduced by using existing suppliers and infrastructure since they will already have arrangements for revenue collection, banking, security, etc.

Will the RESCO meet a demand which is not currently met?

1. Does your product meet the demands and aspirations for energy services you identified in M4.2? You thought about this for P2.1.

2. If you can help the community to state its energy needs and desires then these are an obvious target for the RESCO operation. However, if the desires identified by the community cannot be met by the RESCO you need to manage expectations in a very sensitive way.

3. If additional services have been identified by the RESCO and not the community then you need to consider the reception that the offer will receive. If the community does not value the service offered uptake rates will be slow and income low. But if low priority is due to a lack of knowledge of the benefit such service can bring, you need to raise awareness of the benefits and stimulate a real (and realistic) demand for the product.

Previous: M6.2 Next: M7.2

M7-2: Do you have a strategy for building and defending your market?

To carry out medium term planning it is necessary to have some idea as to what competing service options and suppliers are/could become available. You need a strategy to build your market, and then a medium term plan.

Do you have a formal monopoly in this area?

1. If you have a monopoly, usually represented by the granting of an exclusive licence, what are the dimensions of what you have a monopoly on, how long will this monopoly be guaranteed, and what regulatory controls are imposed under the monopoly agreement? (See M2.1)

2. If the RESCO has a monopoly agreement for the community then a utility should not be able to transgress on these terms. Such a monopoly agreement should not stop grid extension into the community, but it can put the RESCO in a strong position to play a significant role in the electrification process (eg by acting as a local distribution company).

What are the competing service options and suppliers, why should the community choose your offering?

1. If you do not have a monopoly supply position then it is necessary to consider what competing products are, or could be made available. Review the findings of the 'Offering' portion (P2-P8 on the default path) of this Design Tool in order to re-visit supply and supplier options that may have been dismissed for use by this RESCO, but could offer products and services directly to the community in competition to the RESCO service mix.

Do you know which benefits you will use to market the RESCO?

1. Do you know enough about your target segments to be able to put together a package that will meet their requirements?

2. The sum of all of the information in M7.1 should represent a clear picture of what the community preferences and desires are. This knowledge can be used to directly design a campaign to stimulate demand based on the simple message of "we can deliver what you want". How to communicate this to the community is discussed in M8.1.

Have you identified the switching criteria of the target groups?

1. Think about what will make the target groups change their current patterns of energy use to take up your products/services.

2. This question is a complex one that can be very difficult to answer. Which fuel/appliance is used in any given situation is difficult to predict without good knowledge gained from within the community. For example, it is not uncommon to find that a household has the capacity to use firewood, kerosene and LPG for cooking. Exactly which is used for any given meal depends on the type of food prepared, fuel cost and availability and the perception of their desirability (eg kerosene is often the fuel people most want to stop using). An understanding of what drives this type of behaviour can help to establish any new products that the RESCO brings into the community. This understanding is most likely to come from observation and discussion with community members and local staff.

What will happen to the RESCO's assets if the national grid arrives?

1. Even though you will have decided on an area where the grid is not scheduled to arrive, it is worth thinking about what happens if plans change. If the state utility decides to upgrade to a grid based system (national or local) then householders or the RESCO could be left with stranded assets (ie equipment that has been purchased and is no longer of value).

2. If the RESCO is to deliver services which include electricity via a mini grid there is much less problem with stranded assets. Refurbishment or upgrades should be feasible.

3. Moving to a full national grid will transform the way that any electricity based services are delivered by the RESCO (it may even put the RESCO out of business). However, grid electricity is unlikely to be able to deliver thermal services unless very high degrees of reticulation are employed and the income levels in the village are very high.

4. The arrival of the national grid need not necessarily mean the end of the RESCO operation, as it may be possible for the RESCO to act as the distribution company for the (state) utility. This trend is encouraged by many current electricity sector liberalisation programmes.

5. If the RESCO is delivering services using a decentralised supply model then it is likely that arrival of the national grid will leave the community or RESCO with substantial stranded assets ie equipment. If a leasing type of approach has been used then the RESCO has the option to re-deploy the assets outside the grid area, but the scope to do this for individually owned units is much more limited.

Previous: M7.1 Next: M8.1

M8-1: Do you have a written communications plan?

The RESCO must communicate with the community, a sound starting point for establishing this is a formal communication plan. The communications plan can be based on the need to deliver answers to the following questions:

Who is the audience?

1. The audience you wish to communicate with is probably made up of more than one group. The segmentation exercise carried out earlier (Question M4.8) will give you the basis on which to build a picture of the way that the audience can be broken down, and will also highlight any key individuals or groups who must be 'brought on side' to make operation possible.

What is the message to be sent to this audience?

1. Your knowledge of the community and groups within it should have given you a clear idea of the needs, wants and desires of the various groups. The message that needs to be, sent to each is how the package(s) on offer from the RESCO can meet some or all of the groups needs (M7.2).

2. Do not mislead people. If the package can only deliver a partial solution, tell them what it will deliver and what it will not. If they are not told about the compromises that have had to be made in package design then they will feel betrayed when their expectations are not met.

3. If you plan to expand your package in the future, you can also let people know (P10). But be careful not to make promises you cannot keep.

What are the best ways to deliver the message to the target audience(s)?

1. The approach and media used to inform the community must be tailored. If paper based approaches are to be used it is essential to look at the literacy of the community – both in terms of ability to read, but also in terms of what languages are read. It is always advisable to keep the text simple and use diagrams and pictures to help deliver the messages.

2. Radio and TV can be extremely powerful and effective media for contacting rural groups.

3. Word of mouth is the default route for information dissemination in many rural communities and so this method should not be forgotten. This includes talking to individual households, community leaders, holding community meetings etc.

4. Demonstration of systems and benefits in real situations in and around the community can be a highly efficient way of communication. Public demonstrations can be undertaken through community events, for example new cooking methods can be demonstrated by using new appliances to cater for a community meeting or public event. Eg KwaBhaza Case Study 'Energy Day'.

5. Longer term demonstrations are possible by putting in a limited number of systems on a trial basis. By placing these in the households of key influencers or in visible positions such as shops it may be possible to both demonstrate the benefits delivered and create demand. The hosts for such demonstrations may require targeting and extensive support in order to get their agreement including reduced costs or even a free system.

6. Do not forget that you are likely to need to keep communicating - you may need to answer the same questions several times, as well as responding to new concerns as your product is taken up. Continued visibility in the area will help build up familiarity and community confidence in your RESCO.

How do you demonstrate benefit to the target audience?

1. Simply assuring the community that the package will deliver benefit is unlikely to be enough, particularly if new fuels and/or utilisation methods are planned. For example introducing LPG cookers to communities which have no direct experience of cooking over high intensity heat sources requires some form of introduction what such a change will mean to types of meals prepared, etc.

2. Provision of the package at reduced rate to one or two key users eg leaders or shops, can help to demonstrate the system and provide local 'witnesses' to the benefits provided (see answers above).

Who are the key influencers?

1. Typically these will be a mixture of the informal leaders, such as the elders, tribal leaders, local elected officials and those who are respected by the community, such as teachers, nurses, lawyers, etc.

2. The position of key influencers in the community means that they are a very important target group; if they approve of the RESCO's activities they are likely to lead the way in purchasing energy services and encouraging others to do so. Alternatively, they may block the RESCO if they feel ignored or otherwise offended.

3. Make sure that as many key influencers as possible are identified and that you take an obvious interest in their opinion etc. You may wish to encourage them to take up the product through targeted courses, or reduced price demonstration systems

How do you find out if the communication plan has worked?

1. Communication is a two way process, and so it is important to find out what messages have actually been received, and what the implications of these are. This is required in the short term as the final customisation of the package offering should be capable of being influenced by the community.

2. The best way to do this will depend on the particular situation, but you may be able to get feedback from community leaders, by talking to individuals, or by discussing with local staff. You may also get feedback from community meetings. However, in all cases people may tell you what they think you want to hear, rather than their opinions. There may also be local political factors inhibiting responses such as not wanting to disagree with a leader.

Previous: M7.2 Next: M8.2

M8-2: Have you decided how you will measure customer satisfaction?

The formal measurement of customer satisfaction will inform future growth strategies and at the same time by listening to the community increase links between the RESCO and its customers. This process allows the community to state their views and then see how this has been incorporated within the actions of the RESCO.

Will you formally or informally collect customer satisfaction information?

1. Formal feedback on customer satisfaction can be collected and interpreted at a variety of levels. At one extreme professional organisations can be employed who will conduct in depth research and give analyses in great detail. At the other extreme individuals can collect information by door-to-door interviewing, or by attending public meetings and seeking comments.

2. Informal collection is essentially a passive approach that relies on public opinion being articulated and fed back to the RESCO. In terms of customer satisfaction it is usually viewed as unsatisfactory if it is all that is used since it does not allow the establishment of a link between comment and action.

3. Meetings of the community (or groups within it – such as women's groups) allow a good way of collecting customer satisfaction information.

4. It is a good idea to establish a timetable for collecting customer feedback. Examples include:

- from individuals at set intervals;
- after installation;
- from groups of users at regular intervals eg 6 months;
- from randomly selected samples at regular intervals.

In many ways this is an extension of the checks on installation quality discussion in P9.2.

Previous: M8.1 Next: F9.1

M9-1: Do you know what you would like the RESCO to be like in the longer term (10-15 years)?

Thinking about where your RESCO will be in 10 to 15 years will help you understand your goals in the shorter term and know whether your vision has changed from the beginning of the process.

What is your vision for the future?

1. Where do you hope the RESCO will be in 10-15 years time? This vision can be captured in a number of ways, including:

- number of customers being served
- number of products and/or services offered
- number of employees
- geographical area covered
- level of return (or profit) each year
- return on capital invested
- market share (100% is very rare).

2. How does this compare with your starting mission (F1.1)? If these do not match you may need to decide which vision you prefer and check your plans reflect this revised vision and mission.

How might you achieve your longer term vision?

1. There are many ways of realising your vision. You could think about which way you would prefer, but be aware of other options so that you can take any opportunities that come along.

2. You may want to think about some or all of the following:

- **"organic" growth** ie the kind of growth discussed in P9.
- **acquisition** can help you expand very quickly, and may possibly reduce competition. However, it requires a lot of capital and can be risky if the organisation you buy is not exactly the right fit.
- **replicate** the RESCO in other areas, either as new ventures or as some kind of franchise.
- **sell** the RESCO to a company which will develop it further, or to a local group.

3. How do these options match your early thoughts on the long term future (F2.2)? If the match is not very close you may need to think about what you really want, and make sure your plans reflect this.

Are you making any assumptions about the environment and external forces?

1. Are there any external issues which could cause severe problems in the long term, such as reliance on exchange rates, international commodity prices (especially oil), regional stability etc?

2. Is there anything you can do to reduce the risk (see F6.2)?

3. It is worth identifying important issues even if you cannot do anything about them as this will help you recognise when problems are likely to come up.

Is your long term vision consistent with your short to medium term plans and your start up strategy?

1. Think about whether your long term vision provides you with the right framework for starting the RESCO, and whether your short to medium term plans will help you achieve this vision.1. Thank about whether your long term vision provides you with the right framework for starting the RESCO, and whether your short to medium term plans will help you achieve this vision.

Previous: P9.2 Next: F10.1

P1-1: Do you know which fuels and equipment are generally available?

The planned size of operation determines how important this step is: if you are starting out small it is worth taking a little time to make sure you're aware of the options; if you are planning to cover a number of areas then understanding the regional scale resources becomes more significant . It may be also more appropriate to consider this question at a national, state or regional level, depending on the variability and size of different areas, and how large you want your business to be.

What are the national/regional resources?

1. Is the area rich in fossil fuels eg coal, oil, gas?

2. What renewable resources does the region have eg sun, wind, water, biomass, waste, geothermal?

What equipment is manufactured on a national or regional scale?

1. Consider individual and larger-scale equipment eg stoves, solar photovoltaic (PV) panels at individual scale; hydro equipment, mini-grids, generators etc at a larger scale.

What other fuels and technologies are easily available?

1. Which fuels and equipment are imported regularly and therefore accessible/available? (see suggestions above) (See Wind PV in Mongolia, case study summary 11)

2. What else could be imported easily and for the right price?

Sources of information

1. Observation: eg fuels and equipment/technology that are available in markets in large towns or visible on/in buildings etc.

2. Ministry of Energy (or equivalent).

3. Customs/import authorities.

4. Some general and technical information can be found from various international sources - see "Technology Information.doc".

Previous: M4.11 Next: P1.2

P1-2: Do you know which fuels are available locally?

At this stage you should have an idea eg by visiting the area, but do not need detailed information.

Within the national context, what particular resources does your chosen area have?

1. Referring to your answer to P1.1, which of the fuels available nationally or regionally are available in your area? Eg renewables (wood, water, sunshine, wind, animal and agricultural waste), fossil fuels (coal, oil, gas, etc) etc.

2. Don't forget to consider resources that are currently in use and those which have not yet been exploited – renewable resources may well fall into this category, particularly planting crops with a non-food portion to be used for energy.

3. Are there any resources which are only available locally, so are not on your regional list?

Sources of information

1. Observation: eg petrol stations, fuels currently in use for different activities (wood, charcoal, LPG).

2. Talk to storeholders in local settlements.

3. Local governments or other agencies may have information eg via licensing.

Previous: P1.1 Next: P1.3

P1-3: Do you know which hardware/equipment is available locally?

Once again, it is important to have a wider-ranging, detailed understanding of the situation to give you as much flexibility as possible, to help you define the best product. This, in turn, will increase the chances of success of your venture. The more information you have, the better you will understand the situation, making it easier to put together your product. However, do not worry if there are still gaps as you will be able to fill these in later.

What equipment is currently available in your chosen area?

1. What is manufactured locally? (See Community SHS Indonesia, case study summary 2)

2. What is brought into the area? (See Energy Stores in India, case study summary 5)

What equipment is available near by, and might therefore be easily brought into your area?

1. What is manufactured nearby and could be brought to the local area?

2. What is transported to nearby areas and could be brought into the local area?

Sources of information

1. Observation: markets, people going about their lives.

2. Licence lists eg from local or national government.

3. Check list.

Previous: P1.2 Next: P2.1

P2-1: Have you identified the energy needs that you intend to meet?

This gives you an opportunity to review your results from your market research (M4). Don't worry if you are considering a number of options as you can return to this question and those following it a number of times until you are happy with the answers. The important thing is to start considering all the issues and sketching out what your answers are.

From your market research, what are the community's energy need priorities?

1. Think about which services people would value most. This may vary across different groups, so you may need to consider a number of different groups separately and see how many you can serve, initially and later on (M4.10, P10). For example, in Mongolia the government identified a strong need for increased energy services (see Wind PV in Mongolia, case study summary 11).

Do you have experience in any of the priority areas?

1. If you have experience of working with any particular set of needs, this may be a good place to start. You should still consider supplying energy to meet as many of the needs as possible. For example, if you already sell charcoal you may also want to charge batteries.

Are there any non-energy services which would fit well with your energy services?

1. Combining the supply of energy services with additional non-energy services which are a priority for the community can enhance your product and increase your market. Examples of such services include:

- selling additional equipment eg stoves, lights, radios, TVs etc,
- servicing equipment not installed by you,
- providing telecommunications,
- providing micro-credit/loans,
- providing access to potable water/water purification,
- selling micro-insurance.

2. However, adding these non-energy services can also make things very complicated! For example, you may have to deal with more licensing authorities, different sets of regulations, additional sets of suppliers etc.

3. There may also be an additional risk in supplying something which is not your main business, as you may not know so much about it. Where water in particular is involved, you need to be aware of the potential for bad publicity if something goes wrong.

Now, make an initial choice of which service(s) to supply!

1. There is a balance between supplying a group of services which will make your product more attractive to your market, and meet the community's needs better, and trying to do too much in one go. You may want to identify all the needs that you think you could meet and then choose a smaller number to focus on initially, while planning how to bring others in later.

2. You may find it useful to look at the different case studies to see how the different approaches work.

Previous: P1.3 Next: P2.2

P2-2: Do you understand the community's attitude to ownership of energy equipment?

Your market research should give you a clear idea about this question (M4.4).

What are the traditional patterns of ownership?

1. How are assets traditionally held? Eg are most things owned by the community as a whole, most assets owned by individuals, assets only owned by men or by women etc?

2. Look at other assets that the community holds, particularly physical but non-living things eg land, houses, televisions etc. Attitudes to livestock ownership may be relevant but often depend on different attitudes.

What new patterns of ownership has the community experienced?

1. Has the community had experience of loans, hire/purchase etc?

Therefore, what pattern of ownership is preferred for your product?

1. Where your product will be based on lots of smaller pieces of equipment you may want to consider individual ownership by a number of mechanisms eg buying outright, loans (eg KwaBhaza Case Study), or renting (Fee for Service Case Study). Renting has the advantage that the user does not have to pay for maintenance or replacement, but puts reduces the freedom of the user.

2. Where the product will be based on central supplies eg a mini-grid, you may want to hand the ownership of the system over to the community eventually. However, initially it probably makes sense for the RESCO to own the equipment, but it is up to you to decide whether that includes the bulbs on the ends of the wires etc.

Previous: P2.1 Next: P3.2

P3-1: Is your chosen equipment/hardware available in your target area?

Hardware and equipment includes any parts of the equipment needed to deliver your proposed energy services, other than the fuel eg stoves, solar photovoltaic (PV) panels, wiring, lamps, gasifiers, boilers etc. This question is intimately linked to P3.2, so you may need to go back and forwards between the two.

Which equipment is most suitable for supplying the services you want to provide?

1. You may find it useful to relate equipment to the services that you are trying to provide. An example of how these relate can be found in "Service fuels and appliances.doc".

2. You should consider issues such as health, safety (Implications of equipment (and fuel?) - examples and references – perhaps a table? (take from Enpower flags?)).

3. The need for access for supply and maintenance should also be taken into consideration (see M1.3).

Do the customers have any hardware preference or bias?

1. These may have come up in your market research (M4) or you may need to return to the community to check.

2. How “real” are these? Can these be changed eg by demonstration and/or communication (see Fee for Service and KwaBhaza Case Studies – PV vs grid)?

Are there subsidies for particular equipment eg renewable energy equipment?

1. This is discussed in F4.2.

2. However, subsidies may distort the market, making it more difficult to set up a profitable business eg Selco Case Study.

Which hardware is available in the target areas?

1. As part of the Macro supply side research (P1) you should have collected general information on which hardware is available. Now you need to check that information and get more details.

Is there any hardware which is not currently available but could become available if there was enough demand?

1. As part of the Macro supply side research (P1) you should have some idea if there is any hardware which is not currently available but could become so if there is enough demand. If you are not aware of any, it may be worth reviewing the information to see if you can identify any, particularly if your preferred hardware is not on the currently available list.

Should you manufacture any of the equipment locally?

1. You may be able to set up a local manufacturing facility as part of your venture, to supply any equipment that you can not buy in the area. You may also want to do this even if equipment can be brought in eg for jobs, or for cheaper supply, or to produce a design tailored for local needs.

2. To do this you need to consider similar issues such as availability of materials, skilled staff, premises, need for (different) licences etc. If you do decide that this is part of your operation, it will probably be worth reviewing your earlier decisions in the light of this change before proceeding.

3. If you will be competing with other suppliers you must consider the economics particularly carefully, and weigh up any additional costs against the benefits.

Is there enough of the right fuel available to run your preferred equipment?

1. See P1 and P3.2.

2. If not, can you use an alternative fuel or do you need to review your equipment choice?

Which hardware is best in terms of ease of delivery, price etc?

1. Think about any practical issues such as quantity of hardware required to meet your target installation rate ie each week, month etc. How will the hardware reach the installation site, and how frequently – this will depend on seasonal access (M1.3), the costs of delivery (F6.1) and the availability of local storage for hardware.

2. You should also take reliability of suppliers (see P5.3) into account.

What is your preferred equipment?

1. Using all of the above information, which is your preferred equipment? It will help to guess this the first time – don't worry you can review the information and change your mind later. Do not forget to record this decision along, with reasons (eg answers to previous questions) to refer to later.

Previous: P2.2 Next: P3.2

P3-2: Are your chosen/likely fuels available in your target area?

You need to take a number of factors into account when deciding which fuel you prefer; local availability is a key issue, but a number of others are also included here. This question is intimately linked to P3.1, so you may need to go back and forward between the two.

Which fuels are available in the target areas?

1. As part of the macro supply side research (P1.2) you should have collected general information on which fuels are available.

Are there any fuels which are not currently available but could become available if there was enough demand?

1. As part of the macro supply side research (P1.1, P1.2) you should have some idea if there are fuels that are not currently available but could become so if there was enough demand. If you are not aware of any, it may be worth reviewing the information to see if you can identify any, particularly if your “favourite” fuel is not on the currently available list.

2. Eg in KwaBhaza, LPG was not available as suppliers believed the market was small and delivery impossible. Once demand was demonstrated, it was also easier to find a way to deliver the LPG.

Which of these (potentially) available fuels are most suitable for supplying the services you want to provide?

1. Think about issues such as health and safety, efficiency, etc. Examples are in Enpower flags.

2. You may find it useful to relate fuels to the services that you are trying to provide, and the equipment that can provide them. An example can be found in "Services fuels and appliances.doc".

Do the customers have any fuel preference or bias?

1. Were any fuel biases/preferences expressed during the market research (M4.2)?

2. How “real” are these? Can these be changed eg by demonstration and/or communication (see KwaBhaza Case Study).

Are there any fuels which are subsidised?

1.This information is referred to in F4.2.

Which fuels are best in terms of ease of delivery, price etc?

1. Think about any practical issues such as quantity of fuel required each week, month etc. How will the fuel reach the customers, and how frequently – this will depend on seasonal access (M1.3), the costs of delivery (F6.1) and the availability of local storage for fuel.

2. Think about the reliability of your suppliers. See also P5 (Sourcing).

What are your preferred fuels?

1. Using all of the above information, which is your preferred fuel? It will help to guess this the first time – don't worry you can review the information and change your mind later.

Previous: P3.1 Next: F3.1

P4-1: Do you know what technical standards you should meet?

Setting standards is very important for getting the right product for your market. More and higher standards generally imply higher costs, but will contribute to a better product, so there is a trade off between what your customers can afford and the quality of product they would like. In many cases, there are also local standards of various kinds that you need to meet to comply with local regulations or laws, or be eligible for subsidies or other sources of funding.

"Technical standards" covers the quality of the equipment you will be using and therefore of the product you will provide. These include standards you are obliged to meet and those you may choose to work to.

Are there any local or national standards or regulations that you must meet – and have you taken these into account in your product design (and cost)?

1. If you are unaware of any technical regulations you should check with local government and any relevant national agencies. National and regional Trade Associations may also be able to provide useful information.

Have you considered international or regional technical standards that may improve the reliability of your product?

1. Voluntary adoption of technical standards should help to improve the quality and therefore reliability of a product. Reliability of a product is important to reduce maintenance costs and keep customers happy.For example PVMTI's SHS scheme in Kenya required adoption of minimum standards (see SHS Kenya, case study summary 1)

2. Guarantees from manufacturers and suppliers can be a good way to ensure reliability and reduce costs if there are problems.

Taking into account regulations and voluntary standards, are you comfortable that the technical standards of your product(s) are appropriate for your market?

1. Higher quality and/or guarantees usually mean that components are more expensive, so you must consider whether your customers can afford them. If your first offering must be very low cost, you may be able to offer something better – and more expensive – later on, which people can upgrade to.

2. Meeting standards can become a selling point, or differentiate you from a competitor. For example, if the products carry a recognised standard mark. They can also provide an advertising point – being the most reliable, longest running etc.

Previous: F3.1 Next: P4.2

P4-2: Do you know what safety standards you should meet?

Safety standards could be included under the other headings, but this is such an important issue that it is worth considering separately.

Are there any local or national safety standards or regulations that you must meet – and have you taken these into account in your product and service design (and cost)?

1. If you are unaware of any safety regulations you could check with local government and any relevant national agencies.

Have you considered international or regional safety standards that may enhance your product?

1. Voluntary adoption of safety standards may help to improve the quality of your product.

2. Guarantees from manufacturers and suppliers may also cover safety issues.

3. Sources of some international standards and guideline can be found at "Safety and Labour Information.doc".

Even if there are no regulations or standards, have you thought about how safe your product is to use?

1. Safety aspects of the product include fuel use and storage, any parts of the equipment which may get too hot and so on.

2. With careful thought, safety can be improved eg by changing fuel, using a different material and so on.

Taking into account regulations and voluntary standards, are you comfortable that the safety standards of your product(s) are high enough?

1. Higher safety standards may mean that components are more expensive, so you must consider whether your customers can afford them. However, you may be able to adjust the design of your product, or include some basic training to your customer to improve safety see above).

2. Meeting safety standards in particular can become a selling point, or differentiate you from a competitor or previous product. For example, if the products carry a recognised standard mark. They can also provide an advertising point – being the most reliable, longest running etc.

Previous: P4.1 Next: P4.3

P4-3: Do you know what standard of service you are aiming for?

In many ways “service” (ie installation, maintenance and repairs) should be an integral part of the product that you offer, but for completeness it is worth considering it as a separate component.

Are there any local or national service standards or regulations that are relevant – and have you taken these into account in your product design (and cost)?

1. If you are unaware of any technical regulations you could check with local government and any relevant national agencies.

Have you considered international or regional technical standards that may improve the quality of your service?

1. Examples include maintenance schedules recommended or used by other organisations.

2. Guarantees from manufacturers and suppliers, or higher quality components, may reduce the amount of maintenance or the skill needed to install the product.

3. Training installers and service engineers can be an important factor in service standards. It is also a good idea to carry out regular and unscheduled checks to ensure that the service is up to standard (see P9.2).

Taking into account regulations and voluntary standards, are you comfortable that the service standards you are setting are appropriate for your market?

1. Although standards do usually have costs attached eg training and checking work, good service is often one of the most important factors in maintaining a good relationship with customers. For example SELCO in India carry out frequent maintenance visits to maintain customer contact and a high profile. This also gives the engineer a chance to find out whether the customer is happy, or wants to take up more products. Therefore, this kind of spending is generally a good investment.

2. Meeting service standards can become a big selling point. It may also allow you to expand your service market to include equipment not installed by the RESCO.

3. You should set out your service standards clearly, for your employees to understand, as well as your customers. Eg respond to problems within 48 hours.

Previous: P4.2 Next: P4.4

P4-4: Are you satisfied with the balance of quality versus costs?

As stated in the previous questions, there is usually a trade off between cost and quality so to serve markets where people cannot afford a lot (at least to begin with) cost may be more important. This question gives a chance to review your previous thoughts.

Do the standards you have set for product, service and safety meet your obligations?

1. You should have identified your obligations in questions P4.1-P4.3.

Do the standards also meet market needs?

1. You should have identified any areas where standards will be particularly relevant during your market research (M4).

Can the market bear the costs of the standards you are setting?

1. Once you have been through the "Offering" loop (P2-P8 on the default path) one or two times you should have a good idea of the product cost, and how much the customers can afford. If these are not about equal, think about whether you can meet the same standards more cheaply eg by changing manufacturer (see P5), fuel etc, or whether you will have to reduce the standards. If this is difficult you will need to look at other costs too – another trip through the loop!

Previous: P4.3 Next: F4.1

P5-1: Do you have a complete list of local, national and international suppliers of your chosen equipment and fuel?

You should already know what's available and probably have some details of where you can get it from (see P3.1 and P3.2). It's worth spending a bit of time getting as complete a list as possible so that you make the best choice of suppliers.

Do you have details of all potential local suppliers?

1. To gather the details it is a good idea to talk to the community to see if they are aware of any suppliers and what their opinions are. However, you may wish to keep your supply issues independent of the community – and if you ask for advice and views you must be careful to show that you have listened.

2. Using local suppliers should help to keep transport costs low.

3. Using local suppliers can help to interact with the community and customers, especially when this supports local jobs. (see M6.1)

4. Don't forget that you may be able to manufacture or supply some things yourself. This will make setting up the business more complicated, but should reduce your worries over suppliers, and may improve your standing in the community by providing more local jobs. It may also be the most cost effective way, especially for specially designed products or low volumes. Eg the SELCO Case Study.

Do you have details of national suppliers?

1. National suppliers are likely to be larger companies and so may be able to supply products or fuel more cheaply. However, they may not be as flexible and easy to deal with as a local company.

2. You need to consider transport costs.

Do you have details of international suppliers?

1. International suppliers may provide very high quality goods, and be reliable.

2. There are likely to be import taxes to pay for international goods, and transport costs may be high.

Previous: F4.2 Next: P5.2

P5-2: Can you reduce your list to the 2 or 3 suppliers of each item who are most likely to meet your needs?

It should be easy to reduce your long list to a shorter list of a few suppliers to check in more detail. This will save time and effort compared with collecting the information for the whole list.

Can you choose 2 or 3 key tests that your suppliers must pass?

1. Pick 2 or 3 things which are the most important, and rule out any suppliers that don't seem to fit this profile. For example, if local jobs are important put local suppliers to the top of the list (but make sure you are left with more than one finalist where possible). Or safety issues may be the most important – which suppliers deal with these best? More detailed queries are given in P5.3. For example the community SHS scheme in Indonesia followed a detailed evaluation of over 100 suppliers (see Community SHS Indonesia, case study summary 2)

Can you reduce your list?

1. Apply the tests, and introduce more until you have a short list.

Previous: P5.1 Next: P5.3

P5-3: Do you have quotes from each of these possible suppliers?

Asking for quotes is a good way to start of the negotiations with suppliers as well as allowing you to finalise your choice.

Are you clear what you need?

1. This builds on the tests you used in P5.2.

2. It will be difficult for a supplier to give you what you want/ need if you are not clear about it. A good way of clarifying what is important is to list your requirements, putting the most important first. You could then give this list to each supplier and see which can meet your needs best. This will also help you to compare between different suppliers.

List your requirements.

1. For example:

- Does the supplier have the product that you want or are they willing to adapt their product to suit you?
- Is the equipment or fuel of the right quality?
- Does it meet any standards (see Questions P4) required/ chosen?
- How expensive is it?
- How secure is the supply? Will the supplier still be in business in the future (established suppliers may be more likely to remain in business)?
- How helpful (and friendly) are they?
- How easy will it be to get hold of the supplier if there is a problem?
- What kind of reputation do they have? You may know, or be able to find out by asking around, or asking the supplier for references, or visiting other places where their equipment has been installed.
- Can they offer you any discounts eg for bulk or regular buying?
- Can they supply at the volume and frequency that you need?
- Can they offer guarantees or other sorts of support for breakdowns?
- How reliable are they?
- Do they supply spare parts for maintenance?
- Are the quotes in your local currency?
- How long is the quote valid for?

Have you started negotiating?

1. Use your list of requirements and quotes to negotiate with those that do best. This is taken further in P5.4.

Previous: P5.2 Next: P5.4

P5-4: Are you comfortable with your choice of equipment/hardware suppliers?

Once you have chosen your supplier, it is worth checking that everything fits together.

Have you negotiated a good deal?

1. Make sure that you take long enough over the negotiations to be happy with the results. Although things can be changed later, it is often more difficult once things have been set up.

Are you happy with the balance between cost, quality and security?

1. Check again that you will be getting the quality you need at a cost your customers can afford – if possible without putting the supply at risk.

How can you build a relationship with your supplier?

1. Try to recognise when you have a win-win situation or how to create one. A win-win situation is when both you and the supplier will benefit from the business. This will help to strengthen your partnership and ensure your suppliers are happy to continue to deal with you.

2. Regular contact to discuss any problems and new ideas can be important.

3. Prompt payment in return for prompt delivery will help to forge a strong partnership.

4. Continue to be aware of how you can help each other. This is easier when you are both clear about what you need.

Have you considered the risks?

1. See F6.2 (later).

Previous: P5.3 Next: P5.5

P5-5: Are you comfortable with your choice of fuel suppliers?

It is worth checking again that your chosen supplier meets your needs.

Have you negotiated a good deal?

1. Make sure that you take long enough over the negotiations to be happy with the results. Although things can be changed later, it is often more difficult once things have been set up.

Are you happy with the balance between cost, quality and security?

1. Check again that you will be getting the quality you need at a cost your customers can afford – if possible without putting the supply at risk.

How can you build a relationship with your supplier?

1. Try to recognise when you have a win-win situation – that is when both you and the supplier will benefit from the business. This will help to strengthen your partnership and ensure your suppliers are happy to continue to deal with you.

2. Regular contact to discuss any problems and new ideas can be important.

3. Prompt payment in return for prompt delivery will help to forge a strong partnership.

4. Continue to be aware of how you can help each other. This is easier when you are both clear about what you need.

Have you considered the risks?

1. See F6.2 (later).

Which parts of the goods required by the RESCO can be manufactured locally?

1. Local manufacture is an excellent way of localising the RESCO and bringing jobs to the community. However, if local manufacture is not appropriate then inferior equipment and/or support may result with a resulting loss in confidence in the RESCO as a service provider. The inability to deliver the contracted level of service can also directly impact on the RESCO financial position under certain RESCO structures.

How will goods required from outside the immediate locale be sourced, and how/where will they be stored?

1. If goods do have to be sourced from outside the community this will have implications in terms of:

- The ability of the RESCO to obtain required spare parts in the long-term.
- The ability of the RESCO to hold a spares inventory that allows rapid installation/repair etc.
- The capital that will be tied up in the spares inventory could represent a substantial challenge to the RESCOs financial position.

2. How many will you keep in stock? The most economical way is to keep the minimum amount, as long as delivery is reliable.

Previous: P5.4 Next: M5.1

P6-1: Are you comfortable with your chosen pattern of equipment ownership?

There are many different patterns of equipment ownership that you may want to choose.

What patterns of equipment ownership are there?

1. New patterns are always possible, but examples include:

- Customer buys equipment at the beginning, and pays for fuel and possibly maintenance from the RESCO afterwards.
- Customer owns the equipment from the beginning, paying the RESCO back for some or all of the value depending on the size of the deposit required; the customer pays for ongoing fuel and possibly maintenance. Eg KwaBhaza Case Study.
- Customer owns the equipment after a payback period (with or without deposit) and pays for ongoing fuel and possibly maintenance.
- Customer rents the equipment from the RESCO; fuel may be charged for separately, or as part of the rent if a fixed amount is included. Maintenance and replacement of parts is not included in the rental fee. Appliances belong to the customer.
- Customer rents the equipment from the RESCO; fuel may be charged for separately, or as part of the rent if a fixed amount is included. Maintenance and replacement of parts is included in the rental fee. Appliances may belong to the customer or to the RESCO.
- The community buys the equipment initially and rents it to the customers. The customers pay the RESCO for fuel and possibly maintenance.
- The community buys the equipment initially and then individual customers purchase it from the community over a number of years (eg 3 years to pay off the value). The customers pay the RESCO for fuel and possibly maintenance.
- The community (or some other group) could in some way guarantee rent or purchase by individual customers, in combination with many of the above patterns.
- Maintenance cover may be included in a regular fee or paid for as required, with any of the above patterns.

2. To have a suitable role in the transactions, the community, or any other group, must be represented by a well-defined body or committee.

3. Other groups or entities such as co-operatives and banks may offer funding in combination with the above patterns.

4. Depending on the technology used, it may not be relevant to offer the customers ownership of the equipment. Instead they may want an ongoing supply agreement, and possibly the ability to buy or rent equipment. For example where a biomass or hydro plant is generating electricity distributed via a mini-grid (eg West Bengal Mini Grids Case Study).

Is ownership of equipment a customer priority?

1. Customer attitude to ownership was discussed in questions M4.4 and P2.2. This should be taken into account when considering which pattern of ownership to offer.

Are customers able and willing to pay to own equipment?

1. Ownership of equipment often implies a higher initial cost to the customer – for example having to put down a higher deposit and cover the cost in a shorter time.

2. In questions M4.6 and M4.7 you were asked about customers' ability and willingness to pay. This needs to be taken into account when selecting your pattern of ownership.

Are you happy with the balance of risks between the RESCO and the customers of the chosen pattern of ownership?

1. Owning equipment is more risky for the customer as they will have to pay for any replacement if equipment is damaged, or stolen. Also if a better service is provided, they bear the cost of potentially useless equipment – for example if the electricity grid extended to the target area.

2. If the RESCO owns the equipment or effectively gives the customers credit it risks not being able to recover the investment. However, the RESCO may be able to move equipment to another area if a better service become available (such as the grid), and is likely to be in a better position to obtain insurance, guarantees and other forms of protection.

3. It is possible to share these risks with a "third party", which may be the community as a whole, a co-operative, NGO, church group or financing agency. This may be as a prelude to handing over ownership of the RESCO to this group, or as a temporary or permanent partnership.

4. Whoever legally owns the equipment, it is important that the customers and the community as a whole feel a sense of responsibility or ownership. This will significantly reduce the likelihood of damage and theft (see M5.1). This is most likely when the product/ service are well designed to meet the community and customer needs and preferences, when they have contributed to the cost and have a good relationship with the RESCO.

Previous: M5.5 Next: F5.1

P7-1: Check: have you defined or refined your product?

This question tries to bring everything together to let you define or refine your product. It is important to spend some time putting together a good product and service, as it will save you time and money in the longer term. Therefore, you may have to revisit this section a number of times.

Are you clear which energy services you will offer?

1. It is a good idea to take a few minutes to review the energy services that you will be meeting. You should have ideas from questions M4.2 and P2.1.

What technology mix will you use?

1. You should have some idea which technologies you will be using from question P3.1 and P5.4.

What fuel mix will you use?

1. You should have some idea which fuels you will be using from question P3.2 and P5.5.

What appliance mix will you use?

1. You should have some idea which appliances you will be supplying from question P3.1 and P5.4.

What equipment ownership pattern will you use?

1. You looked at equipment ownership pattern in Questions P2.2 and P6.1.

What additional (non-energy) services will you offer?

1. You started thinking about this in P2.1.

How many different products will you offer?

1. Offering a single product will make it easier to run the RESCO. However you may only be able to reach a few customers, so you may need to offer more than one product.

Are you comfortable with your selection of products?

1. Does the group of products you have put together provide a sensible range of options? It may not be a good idea to offer different products which provide the same services as you will divide your market.

2. One way to provide a variety of options is to have a number of products which can be supplied separately or together - so that they add on to each other rather than overlap.

Previous: F5.2 Next: F6.1

P8-1: Checkpoint: Can your funding and expected income cover your costs?

This question serves as a check between pulling together all the technical and design issues of the product and the risks and funding issues, to see if your product is ready, or if you have to refine it further.

If you are not yet happy with your product(s) you should use the tree structure on the right hand side of the screen to **return to Question P2.1** and complete the "Offering loop" again. Don't worry if you have to do this a number of times.

Once you are happy with your product(s) you can move forward to look at strategy issues by using the "Next" button.

Can you find more funding?

1. If you don't have enough funding to finance your RESCO you could look for further funding - see Question F4. Don't forget to include options that you didn't look at before, or those that seemed unlikely.

Can you reduce your costs?

1. You may be able to reduce your costs, perhaps by using cheaper components, employing fewer people, or concentrating on fewer products and target areas, at least initially. These issues are covered at various points in the "Offering Loop".

Can you increase your income?

1. You may be able to increase your income in a number of ways. The most obvious is through raising your prices, but you risk loosing customers this way. Your expected income will increase if you can increase the number of customers without increasing costs too much. These issues are covered at various points in the "Offering Loop".

Previous: F6.2 Next: F7.1

P9-1: Have you got a short to medium term growth plan?

Your immediate effort will be put into getting the RESCO set up and running but you should spend some time thinking about how the RESCO will grow in the short to medium term (eg 5 years) so that growth will be continuous.

Will you supply additional products and services?

1. One way of growing the RESCO is to add new products and services to those you offer your customers to stat with. Think about variations on the original products, perhaps in response to comments you receive. You can also offer completely new products or services – perhaps in the non-energy sector.

2. Make sure you think (briefly) about all the steps in the "Offering Loop" (P2-P8 no the default path) for each new product, and keep your notes to turn into detailed plans later.

Will you target new geographical areas?

1. You can think about growing the RESCO to provide the products and services to new geographical areas.

2. You may be able to simply widen the current boundaries, or pick specific neighbouring areas. You may even want to target a new separate area, although this is likely to be more work.

3. Make sure that you review the early question in the "Location" phase for each new area (M1-M3). You may also need to do more market research (M4) and review supply arrangements and costs.

Will you target other market segments?

1. Think about whether you can grow the RESCO by targeting additional market segments in an area you already serve.

2. For example you may be able to reach a poorer group by producing a smaller or cheaper version of your original product. Or you may be able to reach a group which has been less keen to try new things once you have a track record and with new communications or marketing ideas.

3. You will need to review the market research you did as part of the "Location" phase (M4) to check you have all the information you need, and you may also want to review the "Offering Loop" (P2-P8 on the default path) if you need to produce a variation or new product.

Previous: F9.1 Next: P9.2

P9-2: Have you thought about what other changes you may need to make in the short to medium term?

To be sure the RESCO grows and remains strong you need to think about other changes you will need to make. To be sure the RESCO grows and remains strong you need to think about other changes you will need to make.

How will your prices change in the future?

1. In the future your prices may need to increase (or decrease) to take account of factors such as inflation and any changes in your costs, particularly if any parts are imported. Other causes of cost rises include low levels of customer payment, increased transport costs, increased funding costs etc.

2. If a new competitor comes into the area you may be under pressure to reduce your prices.

3. If you introduce new products or services you must think carefully about what the price will be, taking into account what your customers already pay, your costs and the value your customers place on what you are offering.

4. Any price changes must be handled carefully so that customers are not surprised and do not feel that you are taking advantage of them. This will need good communication, such as visiting community meetings to explain or getting key community members to explain to the rest of the community.

Will you need additional funding to allow the RESCO to grow?

1. However you are planning to grow the RESCO (see P9.1), you are likely to need funding to do this. You may be able to use your income from the RESCO to invest in this, but you may have to seek additional funding so that you do no run out of cash (this will be discussed in F10).

2. You may be able to get additional funds from the same sources as the start up funding. However, many grants or low-interest loans are likely to have restrictions on repeat lending so you may have to try other more commercial sources of funding.

3. At this stage you only need to have one or two ideas, so that you will be aware of when you should start the process of applying for additional funding and what you will need to help you get hold of it (see F4).

Will you need more staff to run the successful RESCO?

1. If the RESCO is growing you are likely to need more staff, and possibly a wider range of skills to make sure that the RESCO runs properly. You may already have some ideas about how many more staff you might need, and what skills they will need, but this will probably have to be refined later on. See also F7.1.

2. You will also need to review the management structure and how you organise your staff, once the RESCO grows (see F7.2).

Will your business infrastructure support the growing RESCO?

1. You will need to review your business infrastructure as the RESCO grows. You may need larger premises (see physical infrastructure, F8.1) and you will need to check that your systems or processes (F8.3) give you the ability to monitor and control the growing RESCO.

2. You may also need to review how well your current institutional infrastructure (F8.2) supports you as things change. You may also be in a position to invest in the local institutional infrastructure, or lobby for better provision by local governments etc.

Do you have a timetable for short to medium term growth?

1. It is helpful to have an idea about the timing of the different phases of growth of the RESCO so that you are ready to deal with changes, and can make the most of the momentum you build up.

2. Think about which ways of growing you will go for first, and how long it might take to make the changes needed to support each step.

3. Of course you can't predict exactly when each phase will happen, and the order may even change, but it is better to review and adjust the plan from time to time than work without a plan at all.

Previous: P9.1 Next: M9.1

The Final Review

Now you have worked through the RESCOs Design Tool you should have collected most of the information needed to put together your business case for starting your RESCO, or at least be well on the way.

You may now want to think about whether everything hangs together so we have provided a list of critical success factors (CSFs) below, which have been found to be important in similar ventures. Read through these CSFs and see if you can match them with aspects of your planning (you can use "CSF checklist.doc" to do this). As always, you do not need to match every single one, as they may not all be appropriate to every RESCO, but the more you have the more likely it is that your RESCO will be sustainable.

You can also print out the Decision Tree to provide a quick reminder of how many questions you were satisfied with. ….

You may find it useful to look at some of the tools developed by other organisations, to provide you with an alternative overview. You may want to use some of the checklists and examples provided by AREED's Toolkit for Energy Entrepreneurs (http://www.areed.org/training/toolkit/index.htm) or see if what you have developed fits one of the models described by RESuM (http://resum.ises.org/).

Once you have completed this overview, you are ready to take your case to your funders and start your RESCO.

Good Luck.

Previous: F11.1 Next: CSFs

Critical Success Factors

1. **Clarity of vision and goals.** In most cases there is a need to be sure that the RESCO's goals are suitable, understood by all, and achievable. The RESCO must be clear what its goals are, and what the implications of these goals are. For example, if the mission is to get return on capital employed, then the financial case must not be forgotten. Similarly if there are any social goals they should be stated clearly.
2. **Markets, actors and benefits identified.** For sustainable operation of the RESCO all the relevant actors in a delivery chain must be involved at an early stage. If all the actors get a suitable return (financial or other) from involvement in the RESCO (ie set up win-win relationships at all levels), this is a good way of developing market pull. To establish such relationships it may be useful to segment the market and target your actions based on your knowledge of each segment.
3. **Credible project champion or entrepreneur.** In most ventures success or failure is due to the actions of one or more key individuals. These individuals typically take ownership of the problems and have lots of drive and determination to see the RESCO succeed. For RESCOs set up by a large organisation it is a good idea to have a champion within the organisation, and it is important to identify who will be the champion within the community. Having a committed local presence is particularly important when community decisions have to be made.
4. **Establish the demand.** First the market gaps in this sector must be identified. Then it is necessary to introduce the products/services in a way that makes the customers want them. It is much better to make appropriate technology available to meet an expressed need than to push an unwelcome product.
5. **Build market pull.** Meeting the demand is more than simply providing technology to the community. What is required is to build the "want" within the community, eg by undertaking a series of visits and community meetings where the offered solutions are demonstrated and discussed with the key groups; and/or by disseminating relevant success stories. In addition to building demand such publicity may influence the finance community, and potentially reduce the risk weighting applied to similar investments.
6. **Informed and appropriate (technology) selection possible.** Part of the process of establishing a market pull is making the right choice of technology, and not simply taking the technology with the strongest push. The selection must be made on an informed basis against clear user needs. Once a selection has been made it is essential to begin building confidence in that technology eg by selecting equipment with a track record that has been demonstrated in similar circumstances. In the absence of such real experience other mechanisms can be used, such as offering some form of warranty. Finally, once a technology has been introduced it should be capable of evolving to fill appropriate gaps, to address the changing needs of the market, and to enter emerging new sectors.
7. **Ability to pay and affordability.** It is obviously important to find out if, and how, payment for energy services will be made. Problems with regular repayments, poor or zero credit rating, and the acceptability/ impact of 'giving up' the energy services offered must all be considered (and possibly the unfamiliarity with a particular kind of transaction). It is important to remember that under such circumstances simple comparison of lifetime costs of, for example, kerosene lanterns and solar photovoltaic lighting, can be misleading.
8. **Acceptable economics (least cost in market).** The economics of a RESCO, particularly in terms of being able to show a positive return on a cost-benefit basis, is fundamental to sustainability. You should note that economic assessments are normally generic, and so assumptions may hide the details of a scheme. Therefore it is best to talk about demonstrating the "least cost solution in the specified market". In addition the definition of least cost may be wide, so as to capture environmental benefits (eg a project is least cost after incorporating a shadow carbon tax element).
9. **Acceptable tariff structure.** It is very important to make sure that tariff structures exist which allow recovery of investment, as this is often the reason for failure. Tariff structures can also play a role in controlling demand. The ability to offer variable tariff rates can help

create options to refine the markets for energy services, and so allow maximum use of the installed capacity. It is also important not to undermine the value of the product/service by giving free gifts, as other customers will wish to receive the benefits for the same (zero) cost.

10. **Appropriate finance package(s).** The detail of the finance for the RESCO is probably more important than the underlying economic case. This is because the real, or perceived, financial risk of the investment will essentially determine the payback conditions. Thus, the ability of the market to support (ie pay the investment back) the technology will be dependent upon the nature, and terms, of the overall finance package.
11. **Right and targeted incentives.** Provision of energy services rarely have positive economic cases using classical definitions. Therefore the case for the RESCO may be based on the assumption of incentives (subsidies). The impact of such subsidies needs to be thought about to be sure that they complement the RESCO's activities (ie they are targeted), and plans need to be in place to make sure that the RESCO remains viable when the current incentives are withdrawn.
12. **Favourable legislative/ political/regulatory framework.** It is important to identify legislation and regulations as they apply within the target markets and understand whether they are essentially friendly or hostile to the type of investment considered by the RESCO. It is also necessary, as far as possible, to take into account how local and national political considerations can affect energy service developments.
13. **Bureaucratic streamlining.** Provision of basic energy services is often based on the introduction of a large number of items (eg individual solar PV lighting units for an entire village). So the price of such items can be pushed up too high if there is a large bureaucratic overhead.
14. **Cater for changes (particularly growth) in demand.** It is one of the basic principles of energy analysis that demand for energy services will always grow. So, a single installation will meet a current demand whilst stimulating a larger future one. You should consider early on how to meet this additional demand. Patterns of energy service use may also change, eg after introducing basic domestic energy services the need to introduce energy for productive uses must be considered at some point.
15. **Adequate management systems.** The need for project review, feedback mechanisms and record keeping is one of the universal criteria. However, simply collecting this information is not sufficient to result in good management. There is a need to have systems in place that allow rapid reaction to the reality of day-to-day operations.
16. **Adequate market support.** You need an appropriate support structure to ensure the sustainability of the RESCO, in terms of continuing operation and growth. This should provide suitably qualified and trained maintenance staff plus arrangements to access spare parts. The revenue collection and management systems are particularly important.
17. **Appropriate standards.** In the case of RESCOs such standards can take two forms: (i) Technical standards for equipment supply and use. Equipment must be selected on the basis of quality and fitness for purpose. One way of doing this, and also ensuring quality and reliability remain high, is to set and monitor equipment design and performance against minimum performance standards. (ii) Service standards that define what energy service is being provided, and on what terms. For RESCOs where equipment ownership rests with the RESCO this definition of the service standard defines exactly what customers will receive in exchange for their payments.
18. **Appropriate suppliers.** A similar approach to that applied to equipment selection should be applied to select quality contractors and suppliers. In this way it is possible to incorporate after sales service and other less easy to measure returns into the overall assessment process.
19. **Resource/Fuel known to be available.** The fuel cycle must be considered in the widest context. For example in collecting biomass the sort of factors that need to be considered include: long term availability of feedstock, transport and storage of the fuel, and matching potentially seasonal variation in fuel supply with demand.
20. **(Sustained) Job creation.** If the RESCO is to be self-sustaining and replicating it is important that those elements of the set up that can generate local employment, and the associated education, training and infrastructure development, are encouraged.

Note: These CSFs are based on previous projects for DFID:

1. R6485 Integrating Renewables in Energy Systems, ETSU 1999.
2. R6143 Critical Success Factors for Renewable Energy Projects, ETSU 1995.

The Case Studies also include examples of these CSFs.