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ACCELERATED RENEWABLE ENERGY COMMERCIALIZATION (ARECOMM)

FINAL REPORT

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Winrock International India
1, Navjeevan Vihar, New Delhi – 110 017

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Table of Contents

S. NO	CHAPTER	PAGE#
1.	Introduction	2
2.	Project Background	3
3.	Project Overview	5
4.	ARECOMM Portfolio	15
5.	Conclusion	21
6.	Annexures	
I.	Eligibility and Selection Criteria	23
II.	Submission Guidelines	25
III.	Individual Project Inputs	
III (a)	Andromeda Energy Technologies (P) limited	27
III (b)	Noble Energies Solar Technologies Limited	30
III (c)	USL Photovoltaics (P) Limited	33
III (d)	M V Foundation	36
III (e)	TIDE Technocrats (P) Limited	40
III (f)	SVAM Electronics (P) Limited	43
III (g)	DLI Power/ ASCENT Hydro	46
IV.	Lending Terms and conditions	49
V.	Details of Reflows	50

1.0 INTRODUCTION

The use of renewable energy in a developing country like India holds enormous promise against a background of concern over energy security, equality, poverty reduction and climate change. Through harnessing local resources, it can provide energy to remote villages thus stimulating regional development, increasing livelihood opportunities, and improving the quality of life at the same time.

Recognizing the importance of renewable energy, the Government of India has also been very proactive, with the result that India is successful in creating one of the largest and most diverse renewable energy programs in the world. However because of a number of reasons that range from; high central cost of RE technologies, lack of adequate infrastructure for repair and maintenance and, lack of financing available for RE projects, renewable energy still remains far from energy mainstream.

Some of the main barriers of financing small and medium scale RE enterprises which this initiative tries to achieve, are listed below.

- Initial transaction costs (for the engineering, legal, institutional, financial, and contracting arrangements) are often high relative to financing needs and the funds for repayment of such costs are not usually available until the project reaches operational phase. There is very limited access to first stage capital to cover such high up-front costs.
- Entrepreneurs executing small-scale renewable energy-based projects in rural areas of developing countries often do not have the knowledge and expertise necessary to write all the components of a business plan or feasibility study that assesses the rewards, risks and costs associated with a proposed project in a manner acceptable to lenders offering second stage debt and equity. Access to credit from banks and financial institutions is thus usually not available.
- There is reluctance to lend to small borrowers, given the constraints associated with the technological, small-scale, and rural nature of such projects, Financing agencies lend money they themselves have borrowed, and seek assurance that their loans will be repaid, so that the funding agency in turn can repay its lenders on time. Hence, the lender sometimes cares less about the use of money than about the assurance of repayment. Conservative practices, such as reliance on collateral and lending only to medium and large established businesses, are manifestations of this quest, and do not recognize the ground reality.

To address the barriers highlighted above, the ARECOMM project was initiated, to accelerate the commercialization of renewable energy with provision of low-cost long term credit along with associated enterprise assistance and others services to a range of small and medium RE enterprises.

2.0 PROJECT BACKGROUND

The ARECOMM project, though Winrock International India (WII) implemented it, has its roots in the RECOMM project, initially awarded to Winrock International (WI) and then implemented jointly by WI and WII. A brief background to the RECOMM as part of the project background to the ARECOMM is provided below.

In 1995, WI launched its Renewable Energy Project Support Office (REPSO) in India with the support of the United State Agency for International development (USAID). USAID authorized a grant of US \$ 3.15 million to WI for a Renewable Energy Commercialization or RECOMM Project, to encourage the expanded use of renewable energy (RE) systems in India, in order to achieve the larger environmental objectives of the US agency. The RECOMM grant supported USAID interest to encourage expanded use of RE systems in India by acting as a catalyst for broader private sector awareness of market opportunities. The following set of activities were implemented by WI in support of the Project:

- Commercialization of high potential technologies
- Developing renewable energy projects
- Improving access to financing and capital
- Strengthening the environment for RE technologies and projects



Figure1: A Solar Panel

The goal of RECOMM was to increase India's capacity to meet its present and future energy needs in an environmentally sustainable manner, by focusing on the use of commercially viable energy technologies in the country. RECOMM's activities therefore included the creation of financial/ institutional models for rural electrification, policy development, supporting innovative applications of RE technologies, integrated rural power producers, building capacity, networking and international exchanges. In the

process, RECOMM thus facilitated the development of REPSO, and over its 4 years of operation, provided financial assistance in the areas of Solar, Wind, small hydro, biomass etc.

The successful completion of the RECOMM project led to the development of the Accelerated Renewable Energy Commercialization or ARECOMM Project. The ARECOMM Project's main objective was to implement the 'learning' of the RECOMM Project, and to facilitate greater private sector participation in providing commercial assistance to the RE sector.

Accordingly, the Accelerated Renewable Energy Commercialization or ARECOMM was awarded to Winrock International India (WII) by the United State Agency for International Development (USAID), to promote commercialization of renewable energy technologies and for the development of commercially small and medium scale enterprises (SMEs) that harness such renewable energy technologies.

As mentioned in the previous section, numerous barriers hinder private investment in the commercialization of Renewable Energy sector. The major barriers included the following:

- Limited financing to defray high up front costs associated with the developing renewable energy projects;
- Entrepreneurs' unfamiliarity with how to structure commercially viable business;
- Tough competition from subsidized conventional energy sources that lower the market price for electric and thermal power;
- High market penetration costs

Hence, the ARECOMM project was initiated to overcome the fundamental barriers that retard private investment in the commercialization of renewable energy technologies and encourage the development of enterprises that harness these technologies. The Project focused on defraying high up- front costs associated with developing SME in a number of ways. These included the following:

- Providing an investment window for cost, long-term credit to the entrepreneurs in the initial phase of a subject property,
- Strengthening entrepreneurial ability in developing business plans necessary to access financing,
- Linking entrepreneurs with financiers and technical assistance services tailored to meet the requirements of their business,
- Assisting entrepreneurs in developing an institutional mechanism that fostered replication and accelerated the development of RE technologies

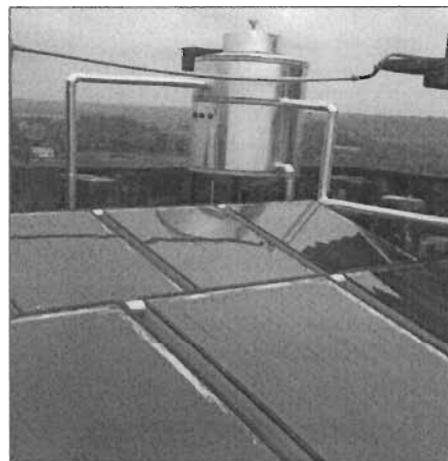


Figure 2: Solar water heating system

The Project focused on connecting small and medium scale RE projects and others who planned to integrate RE in existing business units with small amounts of low cost, long-term credit and enterprise assistance services at an early stage. The ARECOMM initiative aimed at providing capital and service linkages involving local entrepreneurs and developers, NGOs, technology suppliers (domestic and external), local development institutions, financing institutions and local community groups.

3.0 PROJECT OVERVIEW

The ARECOMM project was launched with the main objective of accelerating private sector led commercialization of high potential renewable energy technologies/projects primarily solar photovoltaic, stand alone pico/small/mini hydro based technologies, etc –

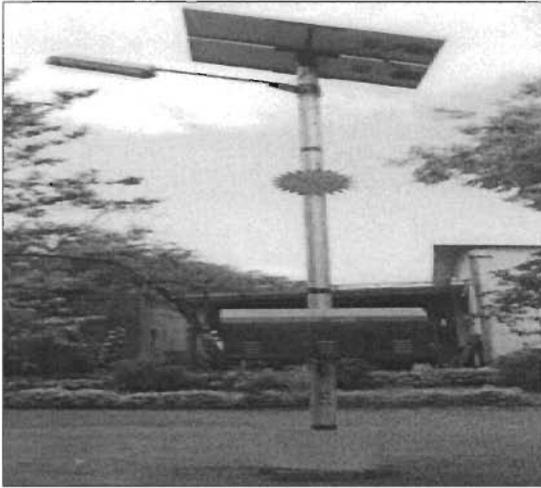


Figure 3: Solar Street light with weatherproof fixtures manufactured by SVAM Electronics

by providing financial assistance to small and medium companies/entrepreneurs in the form of loans to finance commercially viable and sustainable renewable energy projects in India.

The project fostered the development of enterprises that harness RE technologies. Its distinguishing feature was that it connected entrepreneurs proposing small and medium scale RE projects and others who planned to integrate RE in their existing businesses. The ARECOMM team, as part of the project provided a wide range of technical, enterprise and other services, to assist the enterprises in a number of ways, as detailed later in this report.

For example, apart from providing assistance in developing and devising the business strategy, the activities included preparation of the business plan of the enterprise, and the project was able to create demand for RE products. The ARECOMM team also helped in building the supply chain for the businesses financed under the project. In the case of NEST, the team helped the company in structuring a suitable arrangement with and getting business from EXIDE, with NEST acting as a third party contract supplier. The team also assisted with exploring supplier - buyer relationships (SVAM - UPL, SVAM - MVF) within the limited portfolio. These may be considered as significant achievements of the project.

While the project considered a large number of enterprises and projects, it conducted detailed diligence and evaluation of almost 25 projects, and eventually financed four new and four existing enterprises, using different RE technologies, across various states in India.

The project focused on the following specific areas:

- Assisting private sector renewable energy technologies, projects and enterprises in accessing financing
- Facilitating technology transfer between Indian and US business organizations
- Working with entrepreneurs in renewable energy technologies, and
- Helping forge trade and investment links with the US firms.

The project envisaged the overall development of the targeted area including the local

community, renewable energy enterprises, NGOs beside other stakeholders. The access to basic energy requirement met by the RE products facilitated the following:

- Respite from time and labor intensive activities related to fetching water and fuel wood, especially for the women folk,
- Improved health conditions by reducing exposures to noxious gases, smoke and fire hazards posed by the traditional energy sources,
- Enhanced educational opportunities through night reading,
- Awareness through access to electronic media – radio, television etc.,
- Economic empowerment through productive, income generating activities such as extended hours of operation for small businesses and development of small and cottage industries, and
- Generation of employment opportunities in technical and service areas created by the development of a local energy resource and enterprise.



Figure 4: Review of Energy Plantation site financed under ARECOMM

3.1 Detailed Project activities

The following four broad activities were undertaken to achieve the purpose and objective of the ARECOMM project, namely;

- i. Management of investment facility
- ii. Enterprise Assistance Services
- iii. Facilitating access to Finance and
- iv. Development of institutional capacity.

A description of each of these activities is detailed in the following sections.

3.1.1 Management of Investment facility: The ARECOMM funds were used for the investment, care and nurturing of the RE enterprises funded under the project.

The project assisted in seeding the supply side to complement the rise in demand for renewable energy products. At another level, it also helped generate demand for the products and services of the assisted RE enterprises, both within the portfolio as well as outside the portfolio. It also facilitated commercialization of high potential RE technologies/projects. The following paragraphs describe various operational and management aspects related to the project.

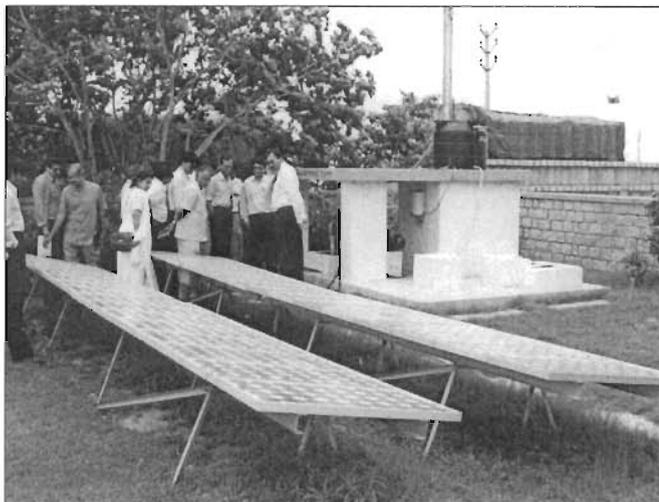


Figure 5 Solar panels being monitored by experts

As part of the project a series of activities were developed and implemented for the successful utilization of project funds, including, inter-alia, the following:

- 1) Threshold eligibility criteria
- 2) Proposal submission guidelines
- 3) Operational procedures for the facility
- 4) Management processes for the facility
- 5) Enterprise assistance services, including finance facilitation
- 6) Due-diligence processes
- 7) Approval of loan through formation of the Investment Committee (IC) and management of IC meetings
- 8) Sanction and loan documentation processes
- 9) Review and Monitoring procedures

The financing mechanism for the project was designed such that the USAID funds serve as a capital base for a revolving credit facility that would self sustain after the completion of the project.

The ARECOMM team at WII received a large number of proposals, several of which were sourced by the team and the business plans prepared with active support from the team. Of these proposals, over 20 were evaluated in some detail and were presented to the Investment Committee. The Investment Committee deliberated and debated all the proposals, and approved 10 proposals with one proposal being approved conditionally. Eight of the finally approved 10 proposals were financed under the project, and two were dropped for their inability to meet the conditions proposed within the agreed period. Figure 6 summarizes the sequence of approval.

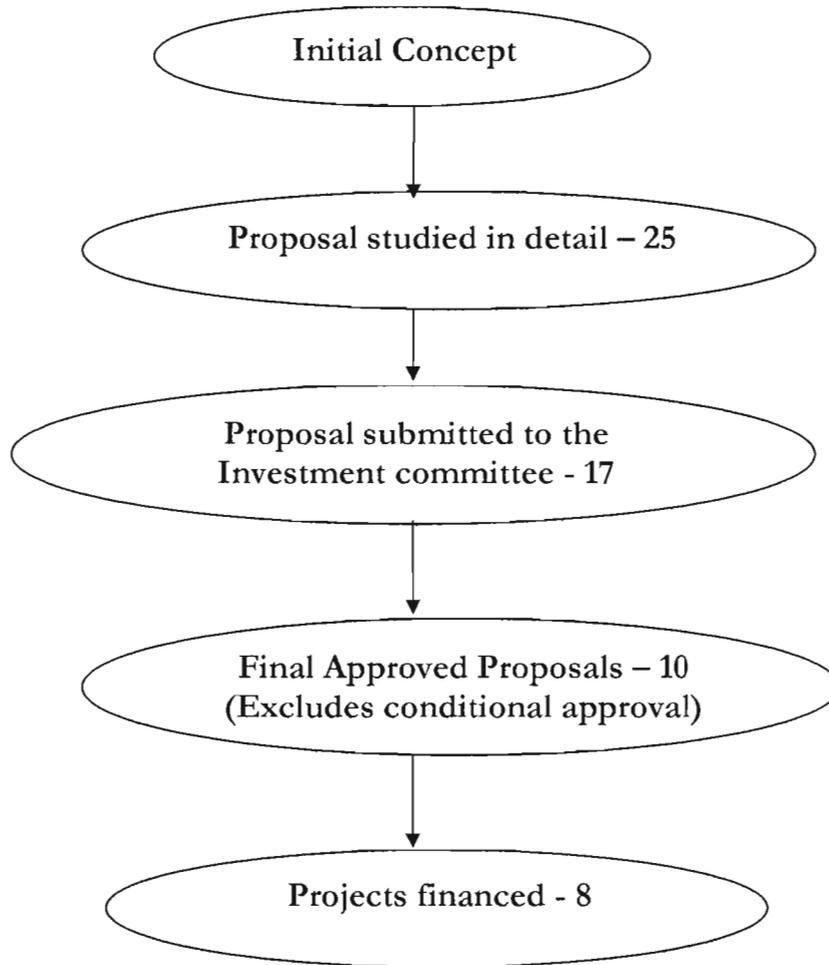
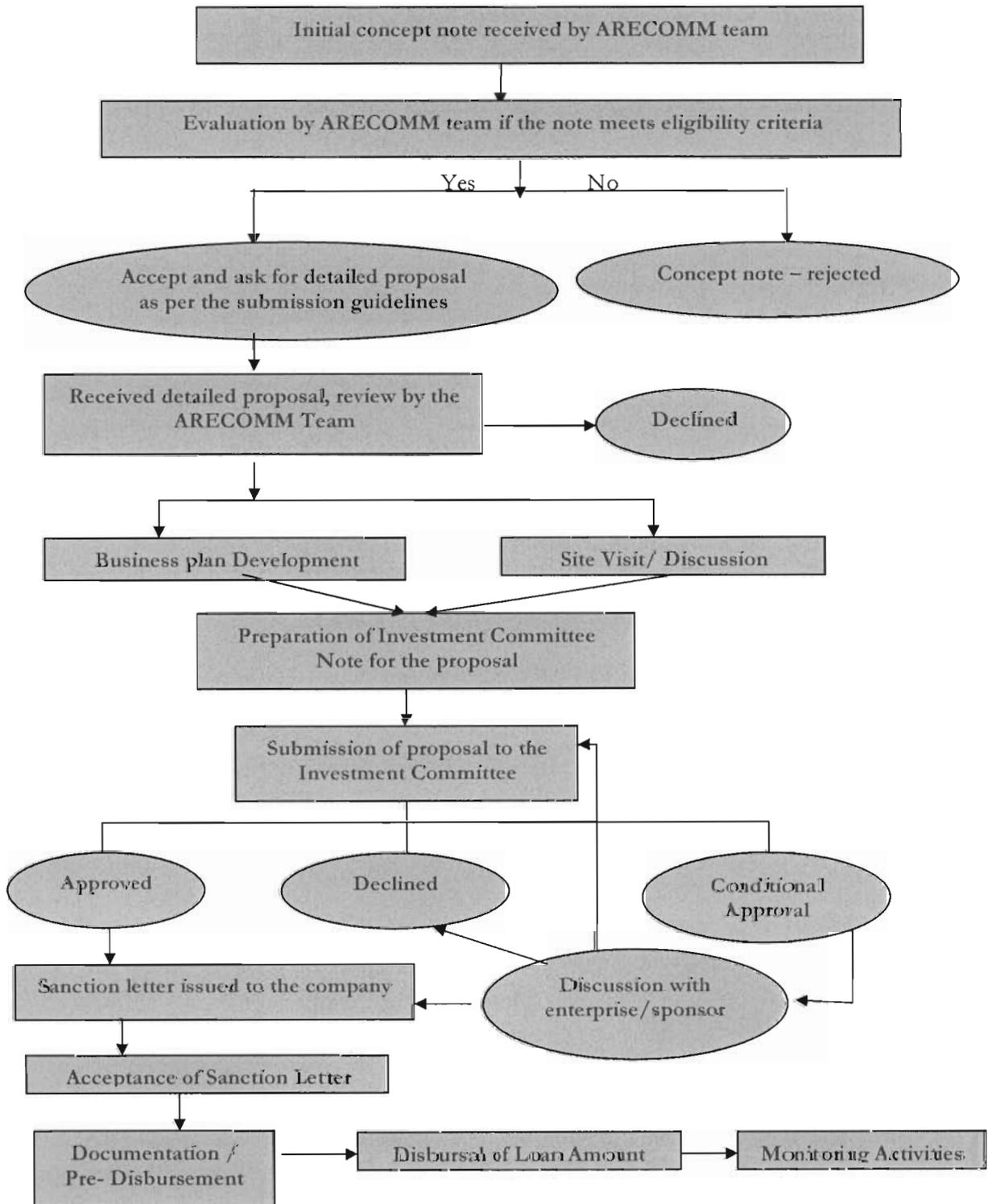


Figure 6: Summarized flow of Investment proposals

The ARECOMM team, in keeping with the project objectives and guidelines in mind, conducted a large number of detailed due diligence on about 25 proposals. Figure 7 summarizes due diligence process in detail.

Figure 7: Due diligence process for project approval



A brief description of the main steps is outlined below.

- **Eligibility criteria - the first cut:** The ARECOMM team received a large number of proposals, which were evaluated according to the eligibility criteria (Annexure I). A few proposals that did not meet the criteria were largely because of aspects such as turn-around cases, which had accumulated losses.
- **Initial evaluation:** The ones that cleared the eligibility were vetted by the ARECOMM team, and accepted for further evaluation or declined at the concept note stage. The initial concept note was then developed further through extensive interaction with the enterprise team, internal debate, meetings/ discussions with technical and other experts, both in-house as well as externally.
- **Business Plan development and detailed due diligence:** The result of the above mentioned exercise was the development and articulation of the enterprise's plan in a business plan document, prepared as per the submission guidelines (Annexure II) and a site visit, as well as discussions with the enterprise team, customers, market and technical assessment work, etc. The business plan incorporated provision of capital and enterprise assistance as well as other services provided by the ARECOMM team. The plan also included, as envisaged in the project objectives, suitable financial structures to design, build, operate and sustain RE enterprises.

In several cases, to ensure quality work, detailed work had to be undertaken related to technical, marketing, resource assessment and other matters, within the limitations of the time and budget available. The site visit was sometimes conducted at an early stage of diligence or later, depending on the specific situation or case. For example, a new hydel power project site visit was conducted at a later stage in the due diligence, whereas the market assessment and site visit for a processed biomass producer had to be conducted earlier.

- **Investment Committee (IC) approval:** detailed project memorandums were submitted to the IC for consideration. These included a detailed assessment of the project opportunity, company and market information, technical structure, regulatory treatment, cost and financing structures, competitive analysis and risk assessment and mitigation, as well as lending terms and conditions

The Investment Committee (IC) was a vital element in the successful implementation of the project, providing overall guidance and direction. The IC led by the USAID was responsible for making all investment decisions with respect to the proposal presented to them by the ARECOMM team. The committee consisted of 5 persons, each with significant experience in private sector investment or development of RE projects in India. The Committee guided the project throughout the progress of the project. Table 1 shows the composition of the Investment Committee:

Table 1: Composition of Investment Committee

S. No.	Name of the Member	Designation	Name of the Organization
1.	Mr. Ram K Berry	Program Manager	United State Agency for International Development
2.	Mr. P D Shedde	President & CEO	BTS Investment Advisors Private Limited
3.	Mr. Ajay Narayanan	Vice-President	Infrastructure Development Finance Company Limited
4.	Dr. P Venkata Ramana	Managing Director, Clean Energy	Winrock International
5.	John E H Ryan*	Enterprise Incubation	Winrock International

* later resigned

The IC consisted of the USAID nominee, Mr. Berry, a venture capital expert, Mr. Shedde and Mr. Narayanan, financial institution expert, an RE expert, Dr Ramana, as well as Mr. John Ryan, entrepreneur developer (enterprise incubation). The ARECOMM Project Manager was also an invitee to the committee.

The IC typically either approved or declined an opportunity, or in select cases provided conditional approval. The IC approved ten funding proposals unconditionally, and one approved conditionally. The conditionally approved proposal was eventually dropped. Of the ten approved cases, ARECOMM finally provided loans in eight cases- four new and four existing enterprises.

Detailed notes on these approved cases, which were provided funding, are summarized in Annexure III (a) – (g). Included in these detailed notes is a background to the opportunity and the profile of the enterprise, a brief description of the project and the role of the ARECOMM team and its inputs.

The ARECOMM team has also attempted to put together a system of internal controls at each of these enterprises to ensure some element of follow up on the agreed upon goals and objectives of these enterprises. The loan agreement details the conditions to be met by the enterprises from time to time and the information sharing on a regular basis that the enterprises need to provide.

- **Post IC processes:** Following the sanction, a sanction letter detailing the key terms and conditions was issued to the enterprise. Upon acceptance, documentation linked to the loan agreement and others was prepared and executed. On meeting of the pre-disbursement conditions, laid out in the loan agreement, release of funds in one or more tranche was affected. The release of funds was linked to the achievement of financial or operating milestones, as defined in the loan agreement

- **Disbursement, Follow-up and Monitoring:** Following the disbursement of the loan, the monitoring process commenced. This is an ongoing activity. The ARECOMM team has been reviewing the implementation of the project and the operational and financial performance of the enterprises.

3.1.2 Enterprise Assistance Services: As envisaged in the original proposal, the ARECOMM team provided technical assistance to the enterprises financed under the Project. The assistance included a wide range of activities, such as the following:

- a) **Development of business plan** – its conceptualization and development, refined technical and managerial capacity. This was provided to almost all enterprises, such as NEST, Tide, Svam,
- b) **Development of business strategy and marketing approach**– In cases like NEST and Svam, the ARECOMM team spent considerable time and effort debating, and developing an appropriate business strategy (with elements such as diversification), and a suitable marketing approach (such as third party manufacture for NEST and additional national customers in the private sector for Svam). The ARECOMM team assisted the enterprise in developing a possible business relationship where SVAM would buy modules from UPL regularly. Hence the project facilitated the growth of the enterprises and acted as catalyst in creating demand- supply relationships. The ARECOMM team also helped the entrepreneurs in access to the new markets.
- c) **Supply chain and distribution network** – With demanding customers and a commercial approach, enhancing supply meant looking closely at this important aspect of supplier/creditor relationship, especially in a business that is working capital intensive. For enterprises such as NEST which became a third party supplier to EXIDE, this was an important strategic issue.
- d) **Quality** – Quality is increasingly becoming an important consideration for both use in remote, rural areas where back up maintenance services are difficult and costly to provide, as well as for exports. In several cases, e.g. NEST for supply to EXIDE, UPL for exports to new markets, MVF for captive use and leasing of lanterns, as well as other enterprises, the ARECOMM team worked with entrepreneurs and entities, developing approaches and helping with information, focus as well as action plans.
- e) **Working capital management** - Linked to the supply chain and other factors, in a competitive scenario, this became an increasingly important aspect. The ARECOMM team worked with almost all companies, barring the hydel projects under development/construction to get them to focus on an area where better management would lead to improved bottom lines.
- f) **Finance facilitation** – This is discussed as a separate activity in the next sub-section below.

At the time of submission of the proposal, it was envisaged that WII would work closely

with the Syndicate Rural Development Trust (SRDT) for the project activities dealing with entrepreneurship development. However, SRDT was established only in October 2002, and the various institutes for imparting entrepreneurship training started subsequently. Initially four institutes in Karnataka came up, followed by one in Kerala, and two in Andhra Pradesh. The training facilities in the AP (which is one of the states having the largest number of projects under the ARECOMM) came up only in September 2003, and the entrepreneur development programmes by SRDT started only recently. It may be noted that 91% of the grantees are outside the state of Karnataka, and it was not possible to reach out to them through the SRDT. Additionally, SRDT is yet to organize any programme, till date, that deals with renewable energy. Keeping the above factors in mind, the entrepreneur development programmes were carried out by WII in association with other NGOs and equipment manufacturers.

3.1.3 Facilitating Access to Finance: The ARECOMM team worked with the proponent to help the latter get concessionary and commercial funding.

The team also helped a number of enterprises to obtain financing from other sources, or assisted in the preparation of financing documents or financing approach, including in some cases discussions with potential financiers. In several cases, the financial projections, structuring and design of the facility, and improved financial systems and processes, were prepared by the ARECOMM team, or substantially assisted by the team.

Further, ARECOMM also assisted with working capital financing or advice, especially the new enterprises and where the working capital requirements were large or growing rapidly as a result of the ARECOMM funded project. In some instances ARECOMM, itself provided the line of credit needed.

There were also instances of support of direct financial assistance to enterprises for the specific RE project funded by ARECOMM. These included assistance with risk capital for Tide Technocrats, expansion of working capital assistance to USL Photovoltaics from their existing bankers, and assistance with obtaining concessional term assistance from IREDA. One application is still in the pipeline for funding from IREDA for a micro-hydel project in Himachal Pradesh.

Implementation of the systems and carrying forward the initial work started is going to be a challenge for these enterprises, especially the smaller and newer entities. This is likely to be part of the next steps for the ARECOMM Project.

3.1.4 Development of Institutional Capacity: The ARECOMM team worked closely with the community of RE entrepreneurs and helped them setup and/or expand their businesses, and in some cases diversify as well. This effort acted as a 'pilot', to catalyze more market – driven RE enterprise projects and programs countrywide. In addition, the ARECOMM assisted in enhancing trade links between the enterprises funded and between the enterprises and US firms.

Specific instances of both institution development and the establishment and/or strengthening of the trade links are detailed in the notes on the enterprises in

Annexure III (a) - (g). For example, the ARECOMM team helped both the small micro-hydro projects of DLI Power India and Ascent Hydro at Himachal Pradesh and Madhya Pradesh strengthen their existing relationship with the US parent.

Further, in the case of UPL both purchase of equipment and an enhanced quality focus has led to greater direct involvement with US firms. In addition, UPL is also exploring sales to US markets, with support from ARECOMM going forward. Table 2 summarizes the range of services provided to different companies.

Company/ Assistance	Co- Finan- cing	Second Stage Financing	Strategy	Business Plan	Supply Chain	Marketing	Quality/ Distribution Network	Trade Links	Insti- tutional Capacity
Andromeda		✓	✓			✓	✓		
ASCENT		✓						✓	
DLIPI		✓						✓	
MV Foundation			✓	✓		✓	✓		
NEST			✓	✓	✓	✓	✓		✓
TIDE	✓		✓	✓					✓
SVAM			✓	✓	✓	✓	✓		✓
USL Photovoltaics	✓		✓		✓		✓	✓	

Table 2: Assistance provide to the individual projects – A summary.

4.0 ARECOMM PORTFOLIO

The ARECOMM project looked at various proposals in RE sector. After detailed analysis of a number of proposals, the project eventually financed eight projects. A total of Rs.19.223 million was disbursed over the period of the ARECOMM project. Table 3 below provides an overview of the portfolio.

<u>Company</u>	<u>Segment</u>	<u>Amt. (Rs. mn)</u>	<u>Location</u>
Andromeda	Solar	3.789	Andhra Pradesh
ASCENT	Micro-Hydro	2.3	Madhya Pradesh
DLIPI	Micro Hydro	2.3	Himachal Pradesh
MVF	Solar/ Energy Plantation	1.034	Andhra Pradesh
NEST	Solar	2.3	Andhra Pradesh
TIDE	Biomass / Micro Hydro	1.7	Karnataka
SVAM	Solar	2.0	Maharashtra
USL Photovoltaics	Solar	3.8	Tamil Nadu

Table3: ARECOMM Portfolio – An overview

Figure 8: Break up of financing across RE Segment

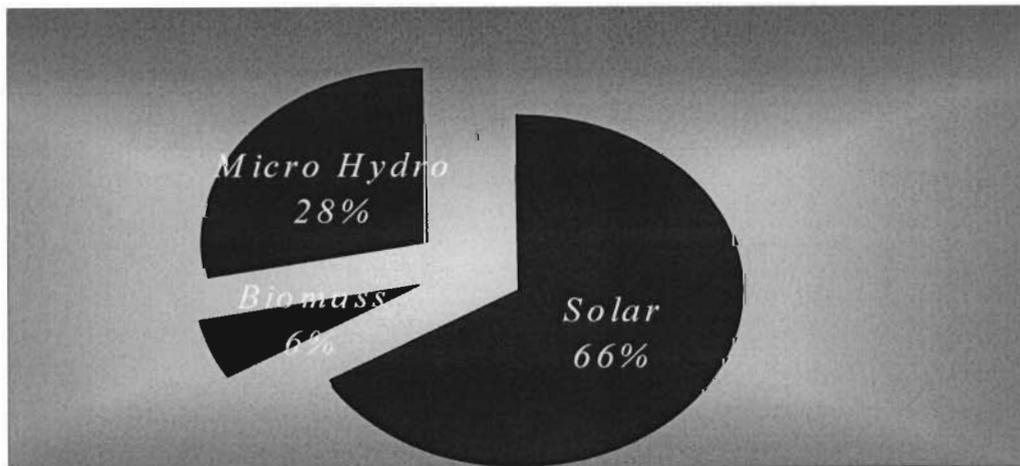
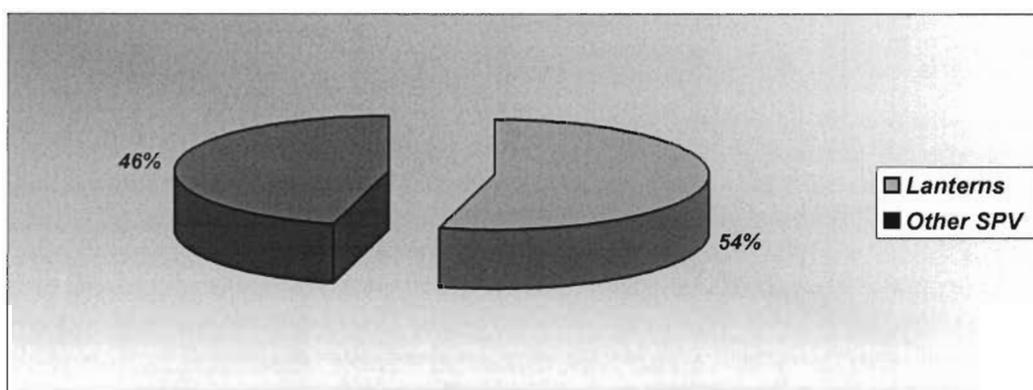


Figure 8, shows a pie chart distributing the different types of renewable energy technologies funded by the project. Although financing to solar photovoltaic (SPV) projects constitutes the bulk, viz. two thirds or 66% of the aggregate financing by value, there is diversification within this- Lanterns and solar panels constitute 54% of the solar 'pie' and the balance 46% was invested in enterprises dealing in other solar products and services.

Figure 9 illustrates distribution of the ARECOMM portfolio in solar photovoltaic centered enterprises. In terms of value, the 'solar portfolio' comprises of about Rs. 13 million of the total fund corpus of just under Rs.20 million. The funding to enterprises dealing in solar lanterns comprises around Rs.7 million and other solar components like home systems, panels, solar dryers etc. comprises the balance Rs. 6 million funding.

Figure 9 Break up for solar investment of the portfolio



Companies like NEST, Andromeda are entirely into solar lanterns business followed by SVAM which apart from solar lanterns also assembles solar home light systems, battery chargers, water heating systems, and other solar products like dryers, pump set etc.. UPL on the other hand is focused on production & assembling of solar cells, modules, and panels. The company is focused largely on exports and is targeting mostly international markets.

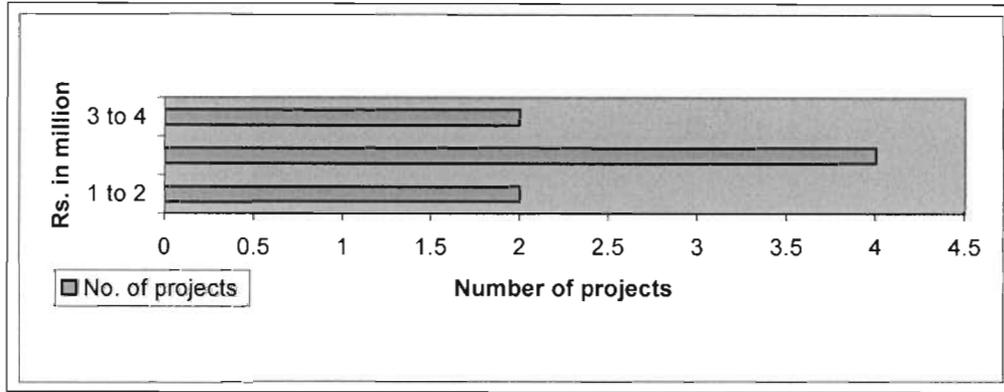
The second largest concentration of the ARECOMM (refer to figure 3) portfolio is micro hydro comprising of 28% of the project funds, or Rs. 5 million. The projects are expected to generate capacity of 9 MW (approx) for producing electricity, for the state grid.

The biomass projects contributed to the balance 6% of the aggregate ARECOMM funds. The plantation project financed will add to the environment benefits and to the incremental income of the people engaged/associated with the project.

The ARECOMM project funded individual project ranging from Rs. 1 million to Rs. 4 million. Figure 10 indicates the same in detail. The smallest loan was for Rs 1.034 million and the largest Rs 3.8 million. There were two projects in the band range of Rs.1-2 million comprising 15% of the total ARECOMM corpus by value. These were the projects

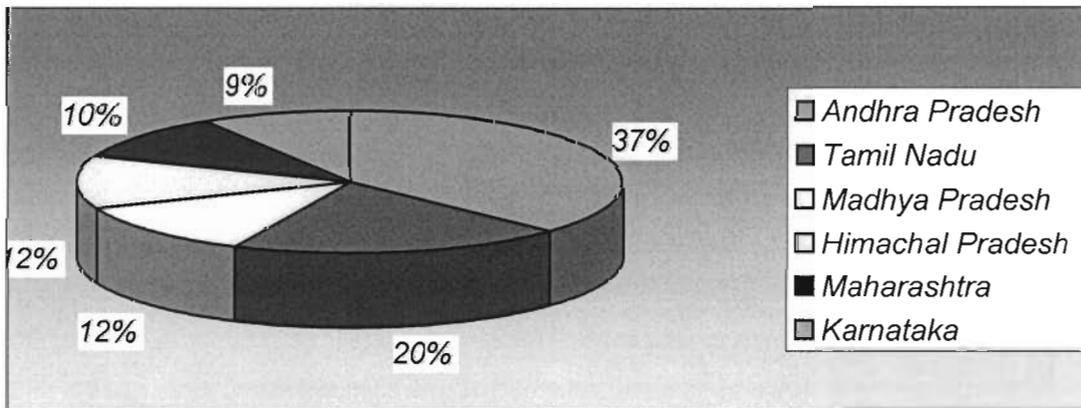
wherein the ARECOMM funds were used for innovating financing and community development.

Figure 10: Project funded – An overview



The second strata comprises the majority of ARECOMM funding in the range of Rs.2-3 million, where the funds focused on development of the existing projects and needed vital funding for their expansion/ R&D. Four projects were financed in this range comprising just under half, viz. 46% of the total corpus disbursed. The balance two projects constituted 39% of the total funds. These projects were of larger enterprises companies who want to cater new emerging domestic and international markets. The ARECOMM funds provided a gateway for these companies to achieve their objectives and goals.

Figure 11 Portfolio distribution across States



The diversity of ARECOMM portfolio lies in the fact that the project did not restrict limit itself to a particular region. Though the major corpus flowed down south as the region in particular is more aware and enthusiast about the alternate sources of energy. Availability of the financing mechanism (RRBs, cooperatives etc) also supports the growth of this sector. The project covered over six states of Andhra Pradesh, Karnataka, Tamil Nadu, Maharashtra, Madhya Pradesh and Himachal

Pradesh (Illustrated in Figure 11). 63% of the funds were distributed to Southern India where 5 projects worth Rs. 13 million were financed. These states are where the registered/ production offices are located. However, the market for each of the project is definitely beyond the geographical territories of the particular state.

The figure also depicts that the funding in south India was lead by the state of Andhra Pradesh (37%), followed by Tamil Nadu (20%) and Karnataka (9%). Central and West India shared 32% of the corpus and the balance 12% goes to the North. One of the learning of the project is that more funds are required to institutionalize the usage of RE products and services in this region. Innovative institutional models for RE promotion needs to be developed apart from the financing scheme to promote RE technologies and also facilitating the development of RE manufacturers and Energy service company's (ESCOs). Figure 12 depicts the geographical location of projects funded under ARECOMM.



Figure 12: Geographical location of the project financed under ARECOMM

The following table summarizes the lending terms and conditions related to the various enterprises

S No.	Company Name	Loan Amount in Rs. Lacs	Interest Rate p.a. (%)	Moratorium	Principal Repayment starts	Principal Repayment end
1	Andromeda Energy Technologies Private Limited	37.89	8.5	3 months	30-Jun-04	31-May-07
2	Ascent Hydro Project Limited	23.00	10	3 years	31-Dec-05	30-Jun-07
3	DLI Power (India) Private Limited	23.00	10	3 years	31-May-06	30-Nov-07
4	M Venkatarangaiya Foundation	10.34	7.5	1year 6 mths	30-Jun-05	31-Mar-10
5	Noble Energies Solar Technology Limited	23.00	9.5	1 year	31-Dec-04	30-Sep-07
6	SVAM Electronics (P) Limited	20.00	10	1 year	31-Dec-04	31-Dec-08
7	TIDE Technocrats (P) Limited	17.00	9	1 year	31-Dec-04	30-Sep-08
8	USL Photovoltaics (P) Limited	38.00	9	3 months	31-May-04	30-Nov-07
	Total	192.23				

Table 4: Summary of lending terms

It may be noted that the average interest rate has been 1-2% below prime lending rate. Further, the moratorium was largely between 3 and 12 months, barring Ascent and DLIPI - which is turning out to be 3 years – given the considerable delay in the implementation and hence the start of power generation of these projects. MVF was given a moratorium of 1-½ years, linked to the lag in the income generation from the products and services to be provided by the project financed under ARECOMM. However, payment of interest continues to be made even during the moratorium for principal repayment.

The loan repayment period varied across enterprises, linked largely to the cash flows associated with the projects/ businesses financed, and the ability of the enterprises to pay. For example, MVF was given a 5-year repayment schedule, whereas others like Ascent and DLIPI, as well as Andromeda have agreed a shorter repayment schedule.

4.1 Arecomm Reflows

As a result of the loans provided to the RE enterprises, there will be loan repayments with interest spread over the next 5-6 years. The project design incorporates the creation and management of a 'reflows' facility. The project expects to generate Reflows of Rs.24 million (approx) over a 6-year period upto 2010. The Reflows are summarized in the Table 3.

Calendar Year	Amount of Reflows	Cumulative Reflows
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Upto December 31, 2004	39,06, 708.00	39,06, 708.00
December31, 2005	61,24, 323.00	100,31, 031.00
December31, 2006	74,15, 085.00	174,46, 116.00
December31, 2007	53,25, 221.00	227,71, 337.00
December31, 2008	10, 68, 917.00	238,40, 254.00
December31, 2009	2,20, 334.00	240,60, 587.00
March 31, 2010	52, 656.00	241,13, 243.00

Table 3: Reflows summary for ARECOMM project

The table above shows that the reflows are maximum between calendar year 2005 and 2007 and taper away sharply after that as most of the loans are repaid by then. The collection of the reflows and their management is not part of the current project, but is envisaged as a separate activity.

Annexure V gives the details of the reflows from the eight projects financed under the initiative.

5.0 CONCLUSION

In this section, the various lessons learned during the implementation of the project is summarized. These lessons relate to sector specific issues, programmatic level issues and deal/transaction related aspects. The RE sector is akin to the 'infrastructure' sector in several respects - such as large upfront investment, limited record in India, large development time-frame, considerable time and effort required in development activities, etc. Accordingly, the approach required for this sector is clearly one that is beyond financing. The ARECOMM team experienced this first hand, as it dealt with these issues in a large number of cases, especially the early stage enterprises and first generation entrepreneurs. Other stakeholder linkages are also important. The ARECOMM team drew on the experience and expertise of both the in-house technical resources, at various levels, as well as external resources. The following specific conclusions can be drawn, which includes some lessons learned as also some innovative features of this project.

- Considerable handholding was required in a number of projects and enterprises. As mentioned earlier, a hand holding approach that is almost like that of the time and effort a risk taking venture capital investor would put in, is required. These included those before loan sanction (such as due diligence, business plan preparation and re-work), as well as post-sanction and even post-disbursement – such as documentation (e.g. related to the loan agreement) and follow up with enterprises for information.
- The developmental issues were the prime concern while selecting proposal to be financed under the ARECOMM project. The ARECOMM team with support of the Investment Committee was able to identify the projects, which will address to the developmental objectives of USAID and enhance the quality of life of the beneficiaries of the project. For example, TIDE is one example of innovative financing which ARECOMM financed. The project aims at providing power to remote plantations using micro hydel technology. The project aims at the plantations in far-flung, rural areas. Providing power to these off grid areas will definitely provide the local community enhanced livelihood opportunities. Moreover, the second operation line of the company envisages at supplying biomass to the industrial boiler as value added stock, which will also provide incremental income to the rural households.
- In case of Andromeda an existing profit making company having clientele of public sector employees in the lower income group. The company supplies solar lanterns to them on monthly installment basis. ARECOMM funding though to a big company, is facilitating the lives of thousands of lower/middle class employees and their families.
- Income generation through energy plantation by MV foundation for the rural villagers supports latter's incremental income and also caters to the growing environmental concerns. The income from the source will be used for development of renewable energy projects, which will provide a better environment for the users and their families.
- To cater to the growing requirements of today's RE projects larger funds would be needed in future. Further, the transaction and up-front investigation costs being in

order. To make an impact, and to defray high transaction costs, a larger facility would help achieve the objectives better. Equity/risk capital investment would require a larger financing pool, which could be either part of or separate from the loan funding, but part of the same overall structure.

- The experience with the project was that it takes time to allow for build up of quality proposals, mentoring, enterprise assistance services, due-diligence, appraisal, sanction, commitment and draw down. For example, on average it takes 6-10 weeks to complete appraisal after all information is available and structured suitably (depending on whether detailed technical evaluation is required), but collecting and collating the information itself takes 6-10 weeks on average. Documentation and post sanction formalities take 4-6 weeks. Accordingly, the project design needs to allow for a phased loan draw down project.
- The ARECOMM team faced challenges on terms and conditions stipulated. It specifically relates to aspects such as matching contribution the lending of 50% which was often found to be the single largest barrier, moratorium of no more than a year, security sought etc. although these are important for ensuring commitment and the intent of the entrepreneur, but small scale RE players generally face lot of problem in meeting these conditions. Flexibility in structure design would enable the implementing team with sufficient leeway to look at structuring according to the cash flows. Further, step-up cash flow or other innovative financing solutions could be structured, depending on the specific project. Such a structure would also facilitate greater risk taking by the project, in keeping with a growing need for risk capital and the lack of sufficient finance in this regard for RE projects.

Eligibility and Selection Criteria

Eligibility Criteria

Loans shall be considered for any entity registered in India proposing a commercially viable renewable energy (solar, wind, hydro, or biomass) project that has powers to borrow and take up such enterprises as per their charter, except for the following. Exceptional conditions require specific Investment Committee approval:

1. Government entities and individuals.
2. Entities with accumulated losses as per Audited Annual Accounts of the last financial year.
3. Loss-making entities as per Audited Annual Accounts of the immediate last year of operation.
4. Erosion of paid-up equity share capital of the submitting entity as per the latest Annual Report.
5. Entities whose existing debt/equity ratio exceeds 3:1 after taking into account the proposed borrowings from the fund.
6. Trust/societies with accumulated revenue deficit or revenue deficit during the past year.
7. Entities who are in default of dues to financial institutions, banks, Non-Bank Financial Companies (NBFCs) at the time of submission.
8. Entities classified as willful defaulters.
9. Re-financing financial assistance availed of/from other financial institutions, banks, or NBFCs.
10. Entities seeking cost over-run financing.
11. Entities and/or managers of the entity convicted for criminal/economic offences or under National Security laws.

Selection Criteria

The team proposes to evaluate each project against these following ten criteria against which each submitted project would be rated. The project rating will help the ARECOMM team decide if the project merits recommendation to the Investment Committee.

1. The renewable natural resource or project “fuel source” (sunlight, wind, biomass, biogas, water) must be available in predictable and sufficient quantity and quality.
2. Innovative approaches to service delivery, financing, management, or technical application (i.e. new productive use) will be given preference. However, the proponent must prove that the specific renewable energy technology proposed has converted the resource into energy in a commercially viable manner in a number of previous projects.
3. Evidence has been provided indicating that the energy produced can be transmitted & sold to credit-worthy customers & that the price is competitive with conventional alternatives.
4. The permits and clearances needed to design, build, and operate the project have been clearly identified, and evidence shows that they can be obtained in a timely manner.
5. The project is compatible with the economic, commercial, political, and social setting, and offer clear social and environmental benefits.
6. Qualified suppliers, contractors and consultants are available, and have expressed interest in meeting the requirements of the project.
7. Reasonable estimates have been made of all revenue, capital, and operating costs, including contingency allowances and taxes. Project revenues are sufficient to pay operating costs, repay loans, and provide adequate returns to investors. These aspects should be explicitly supported in the project brief.
8. The team launching the project has the right skill set to succeed in the project. Specifically, the members have sufficient experience and skills to design, build and operate the project, a strong track record in their careers, a good network of potential business partners and functional experts, and work well together both internally and with external parties. If the team does not have a specific set of skills then it should have, or show, an aptitude for learning the requisite skills within the scope and resources of the project.
9. The project is replicable and makes a good investment as a pilot to seed a market or catalyze a scale-up.
10. There is interest from investment institutions in financing future stages of the project.

Submission Guidelines

1. Initial Evaluation

The proposal should cover the proposed project including a brief discussion of the project, the present state of commercialization, total estimated cost, the applicant's contribution in meeting the cost, the amount of financial assistance requested, expected time required for the completion of the project, and forecasted annual sales over the next five years. The content and format of the additional information is outlined below. To expedite the evaluation process, WII requires that project briefs be submitted in the following format, wherever applicable:

- **Executive Summary:** Summarize the project approach including the opportunity, the location, the applicability of the technology, the target market, the generation scale, and business and marketing strategy.
- **Company Information:** Describe the history, goals, structure, and track record of the entity in the sector related to the project. Include resumes of key management, and demonstrate the team's experience and skills in designing, building, and operating similar projects, their track record and network of potential business partners and functional experts, and ability to work well together both internally and with external parties.
- **Technical Structure:** Explain the site-specific technical design including technology or process, equipment specifications, and fuel supply (wind or solar resource, biomass feedstock, etc). Emphasize any innovative technologies, applications or approaches to energy provision. Briefly, describe previous applications of the technology or delivery approach.
- **Regulatory Treatment:** Indicate licenses, permits, and third-party approvals necessary to execute the project. Discuss how these clearances can be obtained, and the expected time involved in the process.
- **Financing Sought:** Outline the financial construct in MS Excel. Inclusive of Project cost structure and interest rate along with the financial projections for the project.
- **Marketing, Sales, and Distribution Strategy:** Discuss the terms of the power purchase agreement or service contract; the target market including a treatment of the client's ability and willingness to pay; the supplier/client relationship (equipment supply chain, etc); and information about any previously conducted studies (pre-feasibility, feasibility, marketing), including their costs and companies involved.
- **Competition Analysis:** A company's position in the market significantly influences its growth potential and future revenue streams. A number of factors including competitor behavior and market structure affect the said position. Please provide in

details inputs as how the project confronts this issue.

- **Risk Factors:** Financing for a project depends upon the proponent illustrating how risks can be mitigated by various technical, managerial and financial structures. Please detail how the project will mitigate risks associated with it along with a contingency plan for the same.

Andromeda Energy Technologies (Private) Ltd

Introduction

Andromeda Energy Technologies (Private) Ltd (Andromeda) is a five-year old, profit making entity in business line of assembling, selling and servicing solar photo-voltaics (SPV) lanterns and fans. It approached ARECOMM to part finance the capex costs and long-term credit needs to enable it to supply and service its existing SPV lantern business.

Company Background and Overview

The company - promoted by professionals - Mr. PCM Rao and Mr. MB Prasad, with the objective of promoting renewable energy (RE) products, initially SPV lanterns and fans. The promoters have 10 years of vast experience in product development, manufacturing, and marketing of solar related products, both thermal and SPV at Hyderabad based Renewable Energy Systems (now Microsol), one of India's first RE and SPV enterprises. While relatively inexperienced as entrepreneurs, they have developed a team over the last 4 years, as well as a network of associates for sales and servicing.

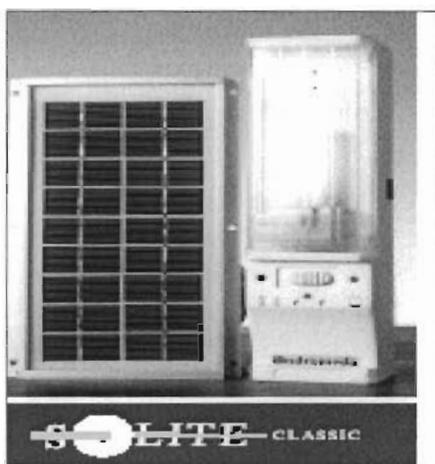


Figure 13: Solite Classic – An Andromeda Product

The company's business model relies on sale of non- subsidy SPV products (largely lanterns) to employees of established public sector undertakings initially in the state of Andhra Pradesh, backed by an extensive maintenance and service network. The sales are on instalments basis, with recovery from the employee through a salary-deduction arrangement with the employer, over a 12-month or 20-month period, depending on the customer and the product.

The company's plan was to build a business quickly using a single SPV lantern model. Andromeda's promoters decided to start with a few orders from institutional customers and to focus on Andhra Pradesh alone. However, they had not factored in all the issues with building a business and services associated with institutional customers. Henceforth, the initial growth was slower than anticipated.

Over a period of time, Andromeda perfected its product and manufacturing operations, and established its sales and service network. It established a network of over 85 service centres in the state, of which 60 were set-up within the first 2-3 years of operation. While the business has grown well over the last 2-3 years, Andromeda faced the need for suitable financing to support the growing demand for its products. A recent loan from a private sector bank is inadequate, expensive and inappropriate for Andromeda's growing financing needs. In fact, sales in the last quarter of the FY2004 were affected due to lack of a suitable line of credit. Besides, the credit available is for a 20-month period, that too not on a

revolving basis. Business with Coal India Limited, potentially a large customer, and marketing to other potential clients is awaiting long - term credit support. It is important to note that unlike other companies, Andromeda's financing needs are more long-term in nature, linked to its receivables cycle.

Project

As mentioned earlier, the company has been expanding rapidly, with business from employees of APSRTC and SCL. Accordingly, it has invested in moulds, dies and assembly equipment. At the same time, the service network has grown as well. In the last year, given the lack of long-term or working capital funding, Andromeda had to cut back its investment plans. It has not been able to service new customers, nor grow its business with SCL as expected. An Rs 8.4 mn loan from UTI Bank has acted as breather to the cash flow in the current year, but is clearly inadequate- 13% interest, short-term loan (max. 20 months), no moratorium, large collateral requirement, etc.

Service equipment and line of credit financing for working capital expansion are the key investment requirements. The aggregate cost of Rs 7.8 mn is being met from accruals (Rs 1.3 mn), unsecured loans (Rs 2.7 mn) and the ARECOMM loan (Rs 3.76 mn).

This one time critical support from ARECOMM would help provide the much-needed fillip to help expand and sustain the company's business. The loan could help facilitate the enhanced ability of Andromeda to assemble and supply SPV products to new customers such as Coal India and others, service existing customers better through an enhanced service network, thereby enabling larger sales, as well as the achievement of incremental retail sales.



*Figure 14 Solite Expo
- Andromeda Product*

ARECOMM inputs and financing

Inputs from the ARECOMM team, has helped the company to strengthen its earlier approach to focus on trapping payments through the salaries of employees. The strategy suggested by ARECOMM has been to build incremental business from new customers (rather than rely on only 2 institutional customers) and to diversify its product range as well (e.g. adding fans to lanterns, and possibly home lighting systems at a later stage). The intention is to leverage the service network that has already been built by the company over time. Accordingly, the company is adding both institutional clients and focusing on retail clients as well, through its service outlets which are spread all over the state. In addition, ARECOMM has advised the company on how to add long-term lenders, although a financial intermediary would facilitate the actual process, as the project ends.

Summary

Andromeda has a unique business model that relies on a well established sales and service network to deliver quality products and services, which are not dependent on the subsidy market. The promoters are technocrats. APSRTC and SCL are Andromeda's anchor customers, with large potential. New customers are being added, as the market expands.

Andromeda's growth is constrained by the financing needs, resulting in the inability to meet new orders. ARECOMM provides appropriate financing of the credit needs of a growing company, much needed to facilitate leveraging of the company's service network and support incremental sales in both products and markets.

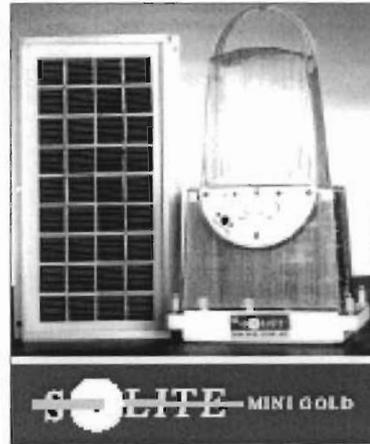


Figure 15 Another Product of Andromeda

Noble Energies Solar Technologies Limited

Introduction

NEST Limited (NEST) is a Hyderabad based, new but rapidly growing company promoted by experienced technocrats engaged in the assembly, sale and servicing of solar photovoltaic (SPV) lanterns.

The company focuses on rural and semi-urban markets, to provide affordable lighting products. Its technocrat entrepreneur, Dr. D T Barki, has largely driven the company. NEST has used the NGO dealer distribution model successfully, and has developed markets for its SPV lanterns in MP, AP, UP and other southern and northern states in the country.

Promoter and Company Background

The main promoter, Mr. D T Barki, is an experienced SPV technocrat, and the driving force behind the business. Over the last 2 years, NEST has established itself as a low cost manufacturer and positioned its product as a basic, affordable and reliable product for the masses. Using its dealer network and a marketing 'push', over the 18 month period upto September 2003, the company's sales force has been able to help NEST achieve sales of 18,000 numbers of its own SPV lanterns (Aishwarya brand) to the direct market. The committed promoter is responsible for the success of the company.

Project Background

While NEST has grown at a rapid pace in the first 18-24 months of its existence in terms of products sold, it encountered some challenges as it attempted to scale up, including limited availability of early stage finance at appropriate terms. Further, the limited managerial resources of NEST meant that the enterprise was unable to take up emerging opportunities in contract assembly, and develop its own brand simultaneously. NEST approached the ARECOMM team to part finance its expansion plans, seeking funding to meet its long-term credit requirements, and also, for some strategic advice.



Figure 16: Aishwarya – A NEST Product

Its has vision to become a significant player in the Indian SPV lantern market within the next 3-4 years, which is now experiencing renewed growth. However, the company's vision was not backed by a suitable and robust plan. Importantly, the ARECOMM team found that the current growth was not sustainable without an organizational set up, and a realistic business plan that included some key elements of planning, logistics and marketing, among others.

The initial project costs of NEST were financed through capital from the promoter, his associates, and a small bank loan against personal property. However, as NEST began to scale up, bank finance at reasonable costs became a limiting factor.

Project

NEST had drawn up an ambitious marketing and investment plan - to invest Rs 8 mn lacs over a 6-month period in expansion and working capital. With inputs from the ARECOMM team, the business plan was conceptualised to include missing elements in strategy, marketing, distribution set up (including dealer aspects), supply chain and quality. The plan has since been tempered to a realistic level, keeping in mind the recent inability of NEST to cope with the market opportunity, and the associated issues of quality, supply chain management, dealer distribution set up, and need for senior management inputs.

ARECOMM team inputs

The ARECOMM team 'engaged' actively with NEST on various business aspects and evaluated the above-mentioned issues in particular over a period. The company's management team was strengthened, especially in the area of marketing. Arrangements for suitable credit with suppliers have been worked out, and along with the supply chain arrangements, which are working satisfactorily.

A third party contract supply agreement with EXIDE was negotiated and established. This helped the company diversify its income sources, and get better terms from its suppliers for larger volumes sourced due to its long-term contract with EXIDE. The company's dealer distribution set-up is being strengthened through the provision of dealer training and workshops. Quality came into sharper focus on institutional customer's order. The company also began to focus more clearly on better working capital management. Financing became an important input at this stage, to support NEST's ability to meet its financial targets.

Results

The promoter and the company who realizes the need to grow at a realistic pace, and the need for various aspects of the business to work in sync have appreciated an important success of the above-mentioned exercise with WII over the last 6 months.

The company is now fine tuning its supply chain, and trying to put in processes, systems and controls to ensure that the desired growth can be managed. The market is also helping NEST temper its ambitions, as implementation challenges in the supply chain and the working capital cycle are ironed out. Better terms have been negotiated with suppliers, which have been able to create more jobs. Quality standards are being improved.

NEST has reduced its investment plan in line with its revised plans. The promoters are also putting in substantial monies of their own. NEST has invested Rs 4.7 mn, for which it has taken Rs 2.3 mn of financing from ARECOMM. The timely availability finance is important to NEST's success. The sponsors have put in a fresh investment of Rs 2.3 mn, and Rs 0.2 mn has come from internal accruals.

ARECOMM Financing

A long-term line of credit of the nature offered by ARECOMM meets NEST's requirements, far better than would a costly bank loan, which NEST had earlier experimented with.

The moratorium of almost one year provides time for the benefits of the company's efforts to translate into cash flows, and a four-year principal repayment in quarterly installments provides sufficient cushion for the gradual build up of the business to generate surplus for repayment of the loan in a staged manner.

Importantly, financing came with useful assistance to help address the barriers to growth. Further, the contribution of the promoters and their associates of Rs 2.3 mn in equity and interest free unsecured loans strengthened the company's balance sheet, which was likely to be leveraged otherwise.

Summary

NEST is a small enterprise seeking entrepreneurial assistance and long term low cost financing. It has been a single entrepreneur driven company, and a seedbed of innovation-low cost standard products that meet the market needs. A large new customer is enabling NEST to scale up. The management team is now growing. NEST has faced initial implementation challenges, but is now taking some important steps to remain on course to achieve its growth targets, which have been tempered with the reality of its recent experience. The ARECOMM team has engaged with NEST to provide tailored enterprise assistance services in critical areas. An ARECOMM loan on appropriate terms would help NEST achieve its objectives, and remove a key bottleneck to growth, as well as help in creation of employment and income.

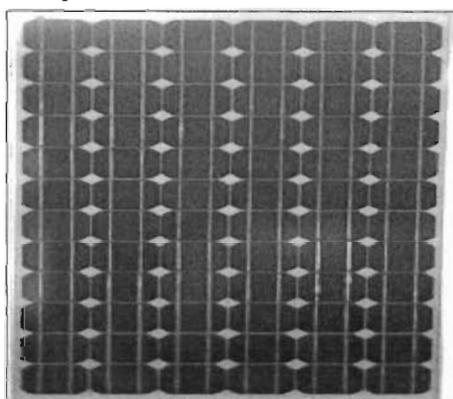
USL Photovoltaics (Private) Limited

Introduction

USL Photovoltaics (Private) Limited (UPL) is an existing Coimbatore based exports oriented company, engaged in manufacturing and assembling of solar photovoltaic (SPV) cells and modules with a capacity of 1 MW. A closely held entity promoted initially by two technocrat brothers, it has 65 employees including 20 engineers.

Company background and overview

UPL has a group company, Udaya Semiconductors Pvt Limited (USL), which assembles solar pumps and sells modules and other SPV assembled products in the domestic market. While USL concentrates in the domestic market, UPL has been recently set up to focus on the export market.



*Figure 17: USP 5, 4.5W6V-
Indian Version – Solar Panels*

UPL exports its products - modules to company like Shell and hard currency markets such as US, Germany, other parts of Europe and Africa. The high-tech nature of the industry resulted in unstable profits for the initial period, but UPL has been largely profitable since it decided to grow using the export market, rather than the subsidy driven domestic market. It has recently filed in for international certification, which will enhance its position as an emerging exporter. Simultaneously it is expanding its capacity to cater to new customers and markets, for which it approached ARECOMM for support.

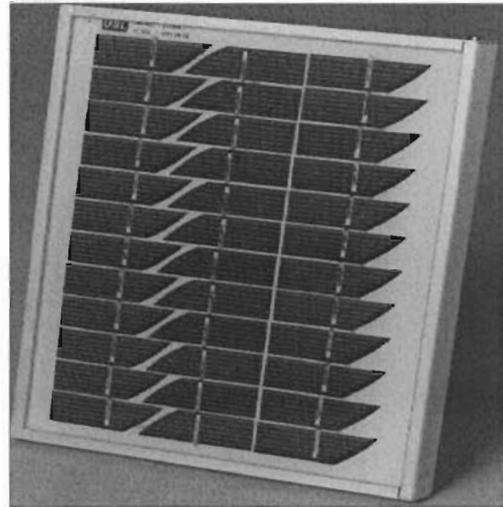
Project background

The company has an annual production capacity of almost 1 MW in cells and 3 MW in modules. UPL's products are exported mostly to developed countries such as US, and in Europe along with Africa and others. As a 100% EOU that confirms to Electronic Hardware Technology Park status, the company has production contract agreement with M/s Shell Solar GmbH (Shell) and produce the Shell brand modules in their plant.

UPL has been operating at near capacity levels, and the order book is growing. Besides there was a need to upgrade product quality and use improved machines for better efficiency, since products were largely meant for the export market. The company is now expanding its production line with the commissioning of the PECVD process line, which will enhance the cell efficiency. Further, the project envisages certification. However, the international UL or IEC certification, which is the hallmark of global quality, has yet to be

obtained by the company. Until now the cost – Rs 2.4 mn - was prohibitive.

The expansion plan involves an expansion of capacity by almost 1 MW and completion of international certification, at an aggregate cost of Rs 8.1 mn. The certification is a critical step in the overall strategy of UPL to become a recognized player in the export market. As soon as the company gets the test certification, the production volume is sure to increase as UPL is already in active dialogue with customers in Europe, who have additional business requirements. The equipment cost includes balance of systems equipment, a sintering furnace, screen printing machines and other related miscellaneous fixed assets, including civil works.



*Figure 18: USP5, 5W 6V
International Version – Solar Panels*

Given the lack of availability of long-term finance at appropriate terms-, both long terms as well as appropriate cost, UPL has been expanding very gradually. For example, banks were prepared to provide it financing at 14-15% p.a. with no moratorium and for a 2-3 year period. Based on discussions with ARECOMM, UPL was able to draw up a larger plan and focus on investing for creating quality for the long term. The company also wanted to forge a long-term relationship with multi-lateral institutions and development agencies such as USAID and others.

ARECOMM team inputs

Accordingly, the ARECOMM team's approach was different from that for other enterprises. It may be mentioned that often it has been noticed that SME enterprises falter in their attempt to scale up their operations. The issues are often related to the inability to 'manage' growth or expansion plans, cost competitiveness, processes and systems, or inadequate or inappropriate financing, in addition to business and market risk assessment and mitigation. The ARECOMM team evaluated its role in enterprise assistance and finance facilitation and discussed the various growth and expansion related issues with the company.

Consequently, the company's processes were strengthened, especially in the area of costing, inter-company transactions, quality, and marketing. In a unique move, a potential buyer of solar panels and another ARECOMM enterprise, Svam Electronics Pvt Ltd, has been put in touch with UPL, and the two companies are discussing a business association. Further, trade links were established with a US supplier of equipment, from whom UPL is purchasing its part of its expansion equipment.

A suitable strategy to move away from dependence on Shell and to add new customers in quality conscious market has been devised, and is under implementation. The plan is to achieve a reduction in dependence on one customer over the next 12 - 18 months, and to

have a diversified customer base. Suitable suppliers for components have been worked out, and the purchase processes, along with the supply chain arrangements, are being streamlined. Other business and currency risks were also identified and mitigation measures are being put in place, to ensure that the company can operate with minimal external intervention.

On the finance facilitation side, arrangements for extension of working capital financing and modification of facilities with its bankers have been arranged, to meet UPL's enhanced working capital arrangements, with a suitable provision for fund and non-fund based limits, linked to UPL's fresh needs.

ARECOMM Financing

Project finance of Rs 3.8 mn from ARECOMM helped UPL implement an Rs 8.1 mn expansion, and more importantly part finance a much-needed certification for expanding exports. The interest rate was low, compared to that of its bankers. The four-year principal repayment in quarterly installments provides sufficient cushion for the build up of the cash flows required for repayment of the loan in a gradual manner until 2007.

Importantly, external financing came with useful assistance to help address the challenges and risks associated with rapid growth, and the deliberations of the ARECOMM team in areas of strategy, market, quality/certification, and supply chain are expected to help the company address these issues suitably. The company's bankers have also drawn comfort from the involvement of another external funding agency in UPL.

Summary

UPL is an emerging exporter of modules, wanting to grow to address market opportunity in exports, and sought financial assistance through long term low cost financing, and some strategic involvement from the ARECOMM team. UPL has faced initial challenges in a high-tech market, but is looking to grow and expand markets.

The ARECOMM team's inputs helped improve processes, address the challenges of growth and focus on mitigation of risks in crucial areas. Apart from important strategic inputs from the ARECOMM team, trade links were established with a US firm, a business association with an SPV integrator is being discussed, and finance facilitation has helped arrange for additional working capital. The ARECOMM loan is expected to help UPL achieve a much-needed expansion and quality improvement, an emerging bottleneck to growth.

M. Venkatarangaiya Foundation

Introduction

M. Venkatarangaiya Foundation (MVF) is a not-for profit organization, registered in 1981 and works with a thrust area in Andhra Pradesh (AP). Its primary objectives are to create awareness among the disadvantaged sections regarding their social, economic and political rights, and to facilitate processes towards building of a civil society collective action participation and community based initiatives. The organization has been functioning as both a facilitating and a training agency.

With advice from the ARECOMM team at Winrock International India (WII), the society innovated the idea of obtaining financing on behalf of small self-help groups (SHGs) and arranging for their training and loan repayment, to help the latter overcome market financing barriers. The ARECOMM team also provided several other enterprise assistance services in the area of business planning, marketing and financial management.

Overview

MVF has done significant work in the areas of Natural Resource Management, Food conservation, and other community mobilization measures, including income generating activities with women self-help groups in the Ranga Reddy district of AP over the last over 15 years. MVF has recently been involved with WII and other AP based organizations in the Ranga Reddy district in large-scale awareness and demonstration campaigns on renewable energy (RE) products and their use in productive applications, as well as associated improvements in health and environment, under a UN funded program, Commercializing Renewable Energy in India (CREI).



Figure 19 Energy Plantation site

The villages in the proposed project area have either no/ very little/ erratic supply of electricity through the existing grid supply. The possibility of these villages getting regular and uninterrupted supply of at least 8 hours a day of conventional/ grid electricity is very remote for the next 8-10 years. The power, though available in some villages, is not available during peak times when economic activity is in full flow.

An alternative source of energy is the only option these villages have to power their needs. The communities believe that solar lanterns could effectively replace the kerosene lamp. The economic conditions of the SHGs and community make it imperative to explore cost cutting and environment friendly options. One such is the use of firewood for cooking, including community cooking or mid-day meals that could be replaced with solar cookers. Further, there are opportunities for drying of vegetables and farm produce that can be

economically done with solar dryers. In addition, the communities owned vast tracts of wasteland; but with limited water availability, agricultural incomes were low.

Project Background

The pre-dominant economic activities in the target area are drying of spices, chilly powder, etc, community cooking for the mid-day meal program of the government, and firewood collection and sale. The villages were widely dispersed and each financing need was not more than Rs. 100,000 at most, in several cases one fifth the figure. Further, although the SHGs had managed some savings, facilitated through MVF, the income levels were insufficient to meet the desired need for financing through external financing. There had thus to be a surplus generated which could only be through energy for productive applications and appropriate financing.

Interactive brainstorming sessions with the communities were organized and sought feedback on the impact these technologies could have on their livelihoods, as well as the various options these people have in improving their income levels by way of productive uses of energy. The outcome of the above with the communities culminated in the production of a proposal for the various self-help groups (SHGs). Since the requirements of each SHGs was small for them to go the lender individually, it was mutually agreed that MVF, who has been actively working with these SHGs in the development of the business proposition and conceptualization of the proposals, would submit a consolidated proposal on behalf of these communities that could meet the criteria of ARECOMM, manage the project, and repay the proposed financing. There was another more important role that MVF would play, namely in providing assistance for marketing, development of processes and systems, and in generally inculcating and strengthening the 'commercialization' approach being fostered by the ARECOMM project.

A project was therefore, conceived, involving the communities and the SHGs, as well as MVF. The project is based on two broad energy applications- energy plantations, purchase, and deployment of RE products such as solar lighting systems, biogas plants, cookers, solar dryers, etc. The communities agreed to contribute in both cash and kind.

The project for energy plantations, included inter-cropping, to provide for income (to service the interest) during the period of the first 2 ½ years when the plantations would not yield surplus. The one for purchase and deployment of RE products included lighting systems, cookers, solar dryers and related equipment. The innovative concept of replacing kerosene lamps with the solar lanterns for hire/lease was mooted; to generate a 'surplus' required financing the proposed loan. Many agro products need drying in order to reduce the moisture content for a variety of purposes, and to provide sustainable additional income and an improved livelihood, a solar dryer was proposed. Similarly for mid-day meals, solar cookers were added.

ARECOMM Inputs

The ARECOMM team spent several months with MVF and with the WII CREI team (who in turn were working with the SHGs through MVF) conceptualizing and developing the proposal, and converting it into a commercial proposition, to ensure fitment with the ARECOMM project. The issues that needed to be addressed were wide ranging- from commercialization, to investment size, to security for the loan, to enterprise assistance services required related to capacity building of the SHGs, project monitoring, financial discipline, etc. It was able to convince MVF to take a lead on an important role that the society would need to play to consummate the opportunity. Since MVF had never taken on such a responsibility, there were some challenges to overcome here with regard to organizational commitment and preparedness to take on this role.

MVF has also chipped in with some financial assistance and more importantly with ensuring smooth implementation, facilitating and supporting a growing savings habit, ensuring financial discipline, monitoring and ensuring prompt repayment. Specifically, MVF would facilitate and be responsible for the following project components:

- Assist in building capacities in business management, product usage, operation and maintenance, entrepreneur skill development, market linkages, etc.
- Project monitoring and evaluation, for which a mechanism has been agreed
- Savings and Loan repayment

To make that possible MVF has organized the rural poor especially the women. The emphasis has been on building processes and systems, which strengthen community initiatives for collection action, and in facilitating loan repayment.

During the implementation phase of the project, the ARECOMM team has provided inputs on a 'commercial' approach in general (by helping re-structure the project to reduce the earlier bias on energy plantations, and thereby improve chances of timely loan repayment), procurement (and helped source quality products with associated service from another ARECOMM investee entity, Svam Electronics Pvt Ltd), marketing (of likely produce from the energy plantations), and other aspects such as organizational and loan repayment, as well as, through the WII CREI team, in helping build capacity of MVF to manage the project and the ARECOMM loan.

Although the initial proposal approved by the Investment Committee of the ARECOMM was larger at Rs 7 mn, during initial implementation the project faced some challenges, and was downsized. The SHGs were unable to bring in their matching contribution in time, and the scale of the project had to be down-sized. Accordingly, the aggregate cost across 10 odd proposals was reduced to just over Rs 2 mn.

In order to address the ownership issues, the proposals included a significant community contribution. There were well-documented initiatives, which indicate that these women SHGs have a good record of accomplishment, and a 100% loan repayment history. This gave confidence to MVF to 'sponsor' the cause of the SHGs.

Considering the backward nature of the district, the project structuring to include

productive use of energy and the significant community contribution is credible. WII is supporting capacity building initiatives through CREI, which is also providing some risk capital. MVF will maintain a separate account head for this project. In fact, MVF is endeavoring to bring in a commercial bank to have SHGs deposit their matching contribution and monies directly for loan repayment and link it to the overall repayment schedule. All this ensures good account management and smooth loan repayment, as well as importantly building in financial sustainability at an early stage of the project.

ARECOMM financing

On the revised project, the aggregate loan was Rs 1.034 mn, with a matching contribution from various sources. Within the limitations of structuring of the project, the ARECOMM loan was provided with a 1-½ year moratorium on principal, to provide for the lack of initial cash flows, especially from the energy plantations and the slow deployment of the solar RE products.

Further, the repayment period for the ARECOMM loan was fixed at 5 years (longer than for other proposals funded under the ARECOMM project) with a review after 4 years to explore if an extension of the loan is required, in view of the elongated cash flows presented in the Investment Committee proposal. This was due to the longer gestation period for returns for both the energy plantations as well as the solar lanterns. A review was also considered necessary in view of the need to review the experience of working with commercialization of SHGs, something that had not been attempted before.

Summary

The real benefits of the MVF project are the availability of fuel-wood and biomass, improved quality of air and provision for means of sustainable livelihood. Though the loan is being routed through MVF, it would actually used by and paid for by the SHGs. MVF plays a significant role in aggregating small loans which otherwise could not have been financed, by providing a suitable 'vehicle' for the transaction. It worked as a facilitator by helping the communities create capacity, and is helping repay the loan, which is structured with a suitable moratorium and a long repayment of principal, to match the cash flows.

With good planning, help of the local people, a waste to energy solution is possible besides proving incremental incomes to growers. SHGs who would not get loans from the regular lending institutions on account of small size, lack of collateral and borrowing history, among other issues, are now able to aggregate their lending requirements and avail financing in an innovative manner. The comfort of ownership issues addressed through both large community contribution and a buy-in from the SHGs provides the "real" sponsor contribution. SHGs with the assistance of MVF and WII have put together a structure where they are able to pay back the loans, a habit, which MVF is facilitating. Based on the experience with this proposal, the MVF project could be a potential case for replication.

Tide Technocrats Private Limited

Introduction

Tide Technocrats Private Limited (TTL), a Bangalore based company promoted by technocrat professionals, provides consultancy in micro-hydel. Effectively a new enterprise, TTL decided to implement renewable energy (RE) projects in Karnataka in two discrete segments - installation of micro-hydel facilities in remote locations, using a dealer model to scale up, and biomass processing for supply to a energy producer who would burn these in an industrial boiler and supply the resultant power to the grid.

Project Background

Collection, processing and supply of excess fronds of coconuts are the first opportunity. Fronds of coconut are found in large quantities in Karnataka and though poor people use a small amount of fronds as cooking medium, huge quantities litter the rural landscape as waste. Fronds have high calorific value and have use as fuel for industrial boilers, which TTL intends to explore.

The micro-hydel opportunity focuses on providing energy to meet largely productive and the consumption needs of farmers mostly in off-grid locations. It involves identification of suitable locations, conducting feasibility analysis, procuring turbines, generators and controllers, installation of these equipments, providing guidance in civil works and commission the unit, whilst also ensuring a maintenance and upkeep plan.

Project

As mentioned above the project consisted of two discrete opportunities, biomass processing and micro-hydel, which are described briefly.

Biomass fuel for power generation is a low entry barrier operation. Biomass based independent power producers like the 6 MW Malivalli Power Pvt Ltd (MPPL), with whom TTL has entered into a fuel supply agreement, making use of local agents and farmers to collect biomass.

An innovative concept, however, logistics to procure the required quantity of biomass would require extensive farmer level co-ordination and is always a deterrent to development of a commercial business. Efficiency of operation is likely to be a key determinant of success. There are no proven commercial models, although potential appears high.

The micro-hydel projects have a capacity from 2.5 kW to 20 kW, electrifying between 7 to 33 households. Several technical and managerial innovations have been adopted while implementing the projects due to which these projects have become models for further replication. However, without financing support, TTL would not be able to sell this equipment, which while superior to competition in terms of output efficiency and maintenance, are costlier.

TTL's approach is market driven and customer-centric. The biomass business has a supply contract in place. The logistics arrangements for procurement and especially the efficiency of operations (such as the mobile chipper and the dryer) are key to success. In the case of micro-hydel, the initial development efforts will be done through direct selling agents in a manner that minimizes TTL's initial upfront costs. Despite this, the micro-hydel business is cash flow negative for the first 12-15 months at least. Hence, the biomass business will initially subsidize the micro-hydel business.

The project cost of Rs 3.7 mn was financed by debt of Rs 1.7 mn and equity of Rs 1.9 mn, of which the sponsors had only Rs 0.5-0.6 mn. Hence, the balancing funding for the matching contribution had to come from external sources, which was facilitated by the ARECOMM team. There were other inputs facilitated by the ARECOMM team, as discussed subsequently.

Challenges

TTL has a wealth of experience in micro-hydel consulting – with seven-village electrification projects implemented over the last 5 years. However, it had no experience of running and managing a business in this area. Besides, the gestation period for the micro-hydel business was 18 months, and TTL had no way of sustaining large initial negative cash flows. In addition, the biomass processing, while promising, was new, involves considerable logistics and is intensive on working capital management.

TTL, a near start-up company, was thus unable to procure bank finance for its proposal. The bank needed collateral, and an assurance for repayment, which TTL was unable to provide. Further, the entrepreneurs being professionals had limited capital, and needed risk capital as early stage finance especially for the micro-hydel business. This was not forthcoming. There was also the attendant challenge of managing a business with such a risk profile, which traditional financiers were uncomfortable with. In addition, as mentioned earlier, risk capital was needed, with socially responsible investors who would also play an important management role, and help TTL's team especially in the early stages.

ARECOMM inputs and financing

Initially, the project was for micro-hydel only, and ARECOMM team's inputs were limited. It helped conceptualize the overall strategy for micro-hydel, and facilitated the preparation of the business plan. An Rs 0.9 mn loan was sanctioned under the ARECOMM facility. As the sponsors proceeded to obtain risk capital financing, they came across challenges in obtaining working capital finance. Besides, detailing of the project showed the long gestation period of the micro-hydel business. This led to the discussion on inclusion of the more attractive biomass processing business.

After discussions on how to manage both businesses, structure the revenue and business model, TTL managed to obtain funding for additional debt, and long term equity from a Venture capitalist, Aavishkaar India Micro Capital Fund (AIMVCF), which was facilitated by the ARECOMM team. The financing will enable TTL to build a sizeable and

sustainable business using early stage financing, and overcome the lack of critical working capital finance from banks. Further, the gearing was kept at a reasonable level, in view of the business risks.

The debt from ARECOMM comes at 9% p.a., a tad below market related interest rates, but is structured to provide cushion through a moratorium during the implementation phase and a repayment schedule that is linked to the periodic income stream of TTL. AIMVCF brings both management inputs and committed financing to support TTL's business and management needs. The challenges associated with the business are cushioned by the significant equity financing, and the resultant lower advantage for the company as a whole.

Summary

In both projects, TTL is using 'free' resources to generate clean energy. Waste from agricultural residue is being processed and supplied to feed an industrial boiler application to power the grid, and micro-hydel provides a unique decentralized off-grid solution for the farmer community's productive energy needs.

RE financing is thus facilitating an improved life style in an environment friendly way. Both the sale of micro-hydel through direct selling agents and collection and transportation of fuel from local farmers provide employment. Micro-hydel for farmers provides the much-needed power for both consumption as well as (more importantly) productive applications, enabling faster adoption and commercialization.

The innovative financing package, provides financing for productive applications

Debt funds, which are linked to the cash flows of TTL's bio-mass business - initial moratorium for set up time and a 5 year repayment linked to cash inflows, and Risk capital from a VC fund, AIMVCF, to support the back-ended micro-hydel business - where cash flows come in after the 18 months in an ascending manner, and are better serviced through a predominantly risk financing structure.

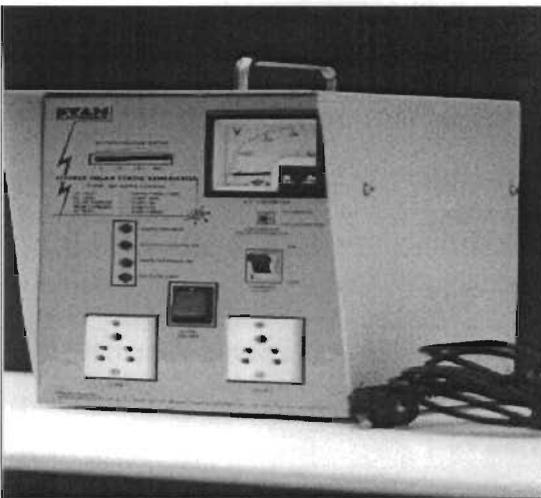
The financing mix and structure – a gearing of 50% - leaves sufficient cash flow for TTL to plough surplus monies into development.

SVAM Electronics Pvt Limited

Introduction and Company Background

SVAM Electronics Pvt Ltd (Svam) is an existing Pune based company in the renewable energy (RE) field whose business is largely as an integrator the area of solar products.

Svam was promoted by a technocrat, Vilas Erande, and is now managed by him and partly by his son, Aniket Erande, a RE professional by training. Although a 15 year old company, Svam is relatively new in the RE field, and has only over the last 4-5 been focusing on this area. Its market to date has largely been Maharashtra and the western region.



The company's product range includes a wide variety of solar photovoltaic (SPV) and solar thermal products for a wide range of applications, with the former contributing the bulk of SVAM's revenues.

In terms of customer mix, government and public sector orders contributed the bulk of the company's revenues. Quality, reliability and prompt after-sales services have given SVAM a reputable client base largely across public sector units in Maharashtra and near by areas.

Figure 20 Solar Power pack – A SVAM Product

Project Background

Svam has experienced some challenges as it attempted to grow. These include dependence on the subsidy market and government programs, low profit margins, large working capital requirements emanating from the long receivable cycle, expensive borrowings (short term finance at 15-16% p.a., that too against collateral), limited availability of early stage long term finance at appropriate terms, etc.

The ARECOMM team sought out Svam through a reference. The team discussed with the management the company's plans over various meetings over a 2-3 month period. Svam was looking for more than just an entity to meet its long-term credit requirements. It was looking to ARECOMM for some strategic advice; help with marketing, and guidance.

ARECOMM inputs

The ARECOMM team noticed the need for new infusion in the top management and expansion of geographical areas of operation for the company, along with diversification of product portfolio. Improving marketing strategy and collection policy of the company was given due consideration.

Collections of receivables were poor. The product portfolio was also concentrated. Marketing was not a focus. There were insufficient efforts on planning and forecasting, and the growth was therefore likely to stumble at some point. There was a need for infusion of risk capital to strengthen the balance sheet.



Figure 21: Solar Battery charger

Accordingly, the ARECOMM team worked on the above-mentioned aspects with Svam over several months, both before and after the sanction of the loan. The ARECOMM team helped the company draw up its business plan, based on the strategy to diversify its customer base- especially to add private sector non-subsidy clients, increase its value added products through integration rather than mere supply of assembled products, improve product quality, improve working capital management and to strengthen the balance sheet.

The ARECOMM team focused on a diversification approach, which the management had thought about but not implemented fully. As a result, business with ITC showed growth even before sanction of the ARECOMM loan. Quality came into sharper focus, because of having to supply a demanding institutional customer.

Further, the ARECOMM team has been helping Svam with access to new markets, initially domestic markets. For example, it was able to get Svam to provide quality SPV lanterns (and associated service) to self help groups in Andhra Pradesh- part of another ARECOMM funded project- MVF, which were procured through a competitive process. In addition, Svam and USL Photovoltaics Ltd (UPL), another ARECOMM assisted enterprise are discussing a possible relationship where Svam would buy modules from UPL regularly.

The company also began to focus more clearly on better working capital management. The ARECOMM team pushed for collection of receivables and a greater focus on marketing. The diversified mix is helping SVAM maintain a balanced product and customer portfolio, and its cash flow is better with some improvement in collections. Backed by a mandate from the Investment Committee, the ARECOMM team impressed upon the sponsors the need for conversion of unsecured loans from promoters and associates into equity.

At another level, the ARECOMM team also discussed with the main promoter his management and succession plans. One of the key issues in small enterprises is the risk of

continuity. Aniket Erande, who was involved partly, has agreed to commit to spend all his time with Svam, and to focus on aspects of quality, collection of receivables and new business, especially with private sector institutional clients

Such experiences are not without implementation challenges. Because of a delay in the placement of orders by ITC to Svam for supply of products for the former's e-choupal initiative, the originally envisaged investment plan of Svam had to be cut back, leading to a parallel reduction in the sanctioned ARECOMM loan from Rs 2.3 mn to Rs 2 mn. This is also likely to affect the company's financial performance for FY2004, but a more important goal- sustainability and sharper business focus- along the way, is no small achievement. One of the unfinished agenda items is to swap costly working capital finance from the company's bankers, Rupee Co-operative bank, with a cheaper and possibly more structured offering from another source.

Project and ARECOMM financing

Based on the business plan, the company's aggregate financing requirements, largely for a line of credit to facilitate growth of business came to Rs 5-6 mn. As mentioned above, because of a delay in the growth of business from institutional customers, the original project was scaled down.

The revised financing requirement was pegged at Rs 4 mn. On this basis, the promoters brought in additional interest free unsecured loans and committed funding from internal accruals for the project. Further, the promoters converted existing unsecured loans into equity capital, thereby strengthening the capitalization of the enterprise.

Based on the revised financing requirement, the loan was scaled down to Rs 2 mn. A long term line of credit from ARECOMM meets Svam's requirements, and would help meet its incremental financing requirements, giving it cushion to build up cash flows for repayment. As with several other cases, financing came with useful assistance to help address the challenges to growth.

Summary

SVAM's business is now becoming more diversified, and the balance sheet is stronger, providing some risk mitigation. Despite the setback from a drop in sales in the last quarter of FY2004, it has been able to grow and remain profitable. The ARECOMM team identified various critical success factors, which along with the much needed and timely financing support, is expected to help the enterprise. The initial impact of attempts to look at value added products, enhanced customer base, top management involvement, improve collections, focus on working capital management, improve product quality, are expected to take considerable time, but the initial results are encouraging.

DLI Power International Pvt Ltd and Ascent Hydro Projects Ltd

Introduction

DLI Power International Pvt Ltd (DLIPI) and Ascent Hydro Projects Ltd (Ascent) are two companies engaged in setting up micro-hydro projects in Himachal Pradesh and Madhya Pradesh respectively, and have been part funded by an ARECOMM loan for early stage development assistance.

Since both these projects have been promoted by, the same US based entity, are both in the same sector, viz. micro-hydro, and were considered at an early stage, they have similar characteristics, as such. Accordingly, they have been discussed together for the purposes of this note.

Overview and Project Background

DLI and Ascent are entities formed for development of hydro-projects in India by DLZ Corporation, USA (the sponsor) through its subsidiary Dodson- Lindblom International Inc., USA (DLI). The sponsor group is an engineering and construction entity in energy, water and infrastructure, with particular emphasis on hydroelectric power.

The group already is already operating a small hydro project in Maharashtra at Bhandardara for the last few years, which has been financed by OPIC and IREDA, under a subsidiary of DLI, Dodson- Lindblom Hydro Power Pvt. Ltd. Ascent and DLIPI are two other subsidiaries of DLI in India.

Ascent is implementing a 2.2 MW small hydro project at Birsinghpur in Madhya Pradesh, which has been part financed by ARECOMM. The project, part financed by IREDA, with advice and support from the ARECOMM team, is expected to complete implementation and start operations within the next 3 months.

The new Electricity Act makes it easier for generating firms to sell power anywhere, although discussions were initially held by Ascent with the state distribution utility, and the South Eastern Coalfields Ltd. This benefit is also enjoyed by DLIPI, the other subsidiary of DLI in India.

DLIPI is implementing 11 projects in Himachal Pradesh, for which it has received clearance for 4 projects, including the 4.5 MW Sechi project, which is being part financed by ARECOMM. It has recently approached IREDA (and other agencies parallelly) for an Rs 170 mn term-loan, with support from ARECOMM. Ascent is expected to achieve financial close soon, start full-scale civil work thereafter, and commence operations by August 2005, selling power to the state distribution entity.

ARECOMM financing

As mentioned earlier, both enterprises were considered by the ARECOMM at an early stage, viz. development stage, and the projects that these entities are developing are similar in nature. Both projects were sanctioned assistance of Rs 2.3 mn as a project development assistance loan from ARECOMM, disbursed in stages based on achievement of milestones. Both loans have been completely utilized and interest repayments are in order. Recognizing the long gestation such projects require, principal repayments were structured to commence at the earlier of 3 months from first sale of power or 3 years from the first disbursement.

ARECOMM inputs

These projects were different from the other ARECOMM projects in several ways. They were from a US based sponsor, were infrastructure projects, rather early stage, seeking project development (as opposed to project financing) assistance and were in essence new entities. As such, therefore, there were a number of development and business risks associated with the projects and the enterprises. As mentioned above, this was reflected in the structuring of the loan also.

The ARECOMM team provided critical first level analyses and inputs in helping structure and develop the initial projects, which were being formulated at a time when the environment for development of infrastructure projects in general and small hydro projects in particular was going through an evolutionary phase. These two were the first projects to be approved by the Investment Committee, which provided valuable guidance and support.

The ARECOMM team was accordingly able to provide much needed direction and assistance to these projects, which were at an early stage of development, after they were sanctioned assistance. For example, it provided some risk analyses that helped these entities mitigate some of the risk associated with project financing, which is what ARECOMM also helped advise these entities on. The ARECOMM team supported the second stage financing from Indian financing agencies, specifically IREDA.

At another level, the ARECOMM team also supported the trade links that these projects provided with the US. Given the strong sponsor links that both Ascent and DLIPI had with their US parent, it was natural to expect trade links between the US and India.

ARECOMM acted in a supporting role in this regard, facilitating the strengthening of an existing relationship between a subsidiary and the sponsor group, by enabling the flow of technology, design, engineering, project management and project financing expertise, as well as specialist equipment where required, to both these enterprises. These trade links are expected to continue as the projects are implemented, and accelerate as other projects are implemented by DLIPI in Himachal Pradesh.

Summary

The first two enterprises sanctioned by ARECOMM were for early stage development assistance to small hydro-projects. Both entities were sanctioned and disbursed loans of Rs 2.3 mn each. Support provided by the ARECOMM team included strengthening of US trade links and second stage financing assistance for project finance. One project has achieved financial closure and the other expects to do the same soon. Loan repayments moratorium were suitably structured, so as to match the long gestation period upto start of commercial operations.

The spin-off development benefits, including employment generation, green power, and the sheer availability of power in a deficit country, as well as enhanced trade links between the US and India, are but some of the several advantages that these projects and enterprises would provide, and which have been facilitated by ARECOMM.

Lending terms and conditions

The terms and conditions for each loan will vary depending on the credit worthiness of the borrower and the proposed investment opportunity. However, some proposed general baseline conditions for a loan under the proposed facility are outlined below:

1. The minimum loan amount will be \$ 10, 000 and the maximum loan amount will be \$ 50, 000. The ARECOMM team may recommend extension of the upper limit based upon the merits of the specific cases.
2. Loans to any one portfolio company and its affiliate shall not exceed 20% of ARECOMM's total committed capital
3. The moratorium period will be up to 6 months. However, the ARECOMM team may decide to extend this period in special circumstances where longer lead times exist.
4. The repayment period will be of maximum of 10 years.
5. The rate of interest will be negotiated on a case-to-case basis but will most probably fall to 1 to 3 percentage points below the applicable commercial rate.
6. The loan will not exceed 50% of the total project cost.

Security

1. Hypothecation of all movable and immovable assets acquired/ to be acquired out of the facility's loan
2. Deposit of Post dated cheques (PDCs) in accordance with the repayment schedule of principle and interest, or
3. Bank guarantees from a scheduled bank
4. Other security as may be required by ARECOMM team

Details of the Reflows

The project expects to generate Reflows of Rs.24.114 mn over 6 year period since its closure. The details of the Reflows for each of the project are summarized below. The ARECOMM project generates 25% return on investment of Rs. 19.223 mn.

(Rs. In '000)																				
Year	Andromeda		DLIPI		UPL		AHPL		MVF		NEST		TIDE		SVAM		Expected Inflows		Total Recd	
Loan Amount	3789		2300		3800		2300		1034		2300		1700		2000					
	Intt./ Other chrgs	Prin.																		
2003																				
31-Mar																		0	0	
30-Jun																		0	0	
30-Sep																		0	0	
Receivables upto 31-Dec	0	0	78	0	0	0	292	0	0	0	23	0	17	0	0	0	411	0	411	
2004																				
31-Mar	38	0	0	0	38	0	0	0	13	0	22	0	26	0	39	0	175	0	175	
30-Jun	87	105	115	0	73	253	114	0	19	0	54	0	38	0	50	0	551	359	910	
30-Sep	76	316	0	0	80	253	0	0	19	0	55	0	38	0	50	0	320	569	889	
31-Dec	70	316	115	0	74	253	116	0	19	0	55	192	38	106	50	118	538	985	1522	

Year	Andromeda		DLIPI		UPL		AHPL		MVF		NEST		TIDE		SVAM		Expected Inflows		Total Recd
Loan Amount	3789		2300		3800		2300		1034		2300		1700		2000				
	Intt./ Other chrgs	Prin.																	
2005																			
31-Mar	62	316	0	0	67	253	0	0	19	0	49	192	35	106	46	118	280	985	1264
30-Jun	56	316	114	0	63	253	114	0	19	52	45	192	34	106	44	118	490	1036	1526
30-Sep	50	316	0	0	57	253	0	0	19	52	41	192	31	106	42	118	240	1036	1276
31-Dec	43	316	115	0	51	253	116	575	18	52	37	192	29	106	39	118	446	1611	2058
2006																			
31-Mar	35	316	0	0	45	253	0	0	16	52	31	192	26	106	35	118	189	1036	1225
30-Jun	29	316	115	575	40	253	86	575	15	52	27	192	24	106	32	118	369	2186	2555
30-Sep	23	316	0	0	34	253	0	0	15	52	23	192	22	106	30	118	146	1036	1182
31-Dec	16	316	86	575	28	253	58	575	14	52	18	192	19	106	27	118	266	2186	2453
2007																			
31-Mar	9	316	0	0	22	253	0	0	12	52	13	192	17	106	23	118	97	1036	1133
30-Jun	2	211	57	575	17	253	29	575	12	52	9	192	14	106	21	118	161	2081	2242
30-Sep	0	0	0	0	11	253	0	0	11	52	5	192	12	106	18	118	57	721	777
31-Dec	0	0	29	575	6	253	0	0	10	52	0	0	10	106	15	118	69	1104	1173
2008																			
31-Mar	0	0	0	0	0	0	0	0	9	52	0	0	7	106	12	118	28	276	303
30-Jun	0	0	0	0	0	0	0	0	8	52	0	0	5	106	9	118	21	276	297
30-Sep	0	0	0	0	0	0	0	0	7	52	0	0	2	106	6	118	15	276	291
31-Dec	0	0	0	0	0	0	0	0	6	52	0	0	0	0	3	118	9	169	178

Year	Andromeda		DLIPI		UPL		AHPL		MVF		NEST		TIDE		SVAM		Expected Inflows		Total Recd
Loan Amount	3789		2300		3800		2300		1034		2300		1700		2000				
	Intt./ Other chrgs	Prin.																	
2009																			
31-Mar	0	0	0	0	0	0	0	0	5	52	0	0	0	0	0	0	5	52	57
30-Jun	0	0	0	0	0	0	0	0	4	52	0	0	0	0	0	0	4	52	56
30-Sep	0	0	0	0	0	0	0	0	3	52	0	0	0	0	0	0	3	52	55
31-Dec	0	0	0	0	0	0	0	0	2	52	0	0	0	0	0	0	2	52	54
2010																			
31-Mar	0	0	0	0	0	0	0	0	1	52	0	0	0	0	0	0	1	52	53
Total	595	3,789	826	2,300	710	3,800	924	2,300	294	1,034	509	2,300	444	1,700	589	2,000	4,890	19,223	24,114

* Company's Name:

1. Andromeda – Andromeda Energy Technologies (P) Ltd.
2. Ascent- Ascent Hydro Projects Limited
3. DLIPI – DLI Power (India) Private Limited
4. MVF – M Venkatarangaiya Foundation
5. NEST – Noble Energies Solar Technologies Limited
6. SVAM – SVAM Electronics Private Limited
7. TIDE – Tide Technocrats Private Limited
8. UPL – USL Photovoltaics (P) Limited

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