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CHAPTER 6

FINANCING DIRECT-USE PROJECTS

Work Group

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INTRODUCTION

The successful operation of any direct-use geothermal project will rely on the organization and implementation of a complete financing program. A major cause of failure of start-up business ventures is poor financial planning and inadequate capitalization. The developer must carefully determine and evaluate his geothermal project from several standpoints. Particular attention must be given to identifiable risk factors since the project's financial requirements will be defined not only by the characteristics of the resource, but also by the intended utilization and development program. The financing will be structured in such a manner as to allocate project risks and rewards appropriately to the different kinds of participating capital. Typically, the types of capital involved in a project will range from the highest-risk equity portion to the lowest-risk, fully secured or guaranteed loan.

To qualify for financing the developer must demonstrate to the prospective lenders and investors that the project in question is economically viable and well managed, as well as technically sound. Financial institutions and other potential investors must be informed fully so that they can ascertain the project's capability to sustain itself through time. A special consideration to be highlighted is whether the project is totally dependent on the continued use of geothermal, or if retrofitting to conventional energy sources is possible and economical should the resource fail.

The development of a financing program also depends on making satisfactory provision for a number of other aspects of the project such as construction budget (bonded contractors, cost overrun protection, etc.), well production rates, fluid quality, equipment life and product marketability. Although not themselves financial in nature, each of these aspects will affect the project's profitability and financial viability.

Financial personnel or consultants should participate fully in the earliest project planning and evaluation stages in order to assure a broad coordination of the financing aspects along with the plan's overall development. Such integration will accelerate the financing of the project by building in the information necessary to facilitate the project's evaluation from an investment point of view. In addition, tax and corporate attorneys are essential members of a project analysis and presentation team because of their expertise in tax benefit analysis and legal structuring. If the developer is retaining such consultants (especially finders and agents) from outside his own organization, their credentials and capacity to perform should be thoroughly verified before they become involved in the project. Money should be paid only for services rendered.

The following is a detailed outline of the various aspects involved in developing a financing program. Initially, potential projects are categorized by type. Risk considerations associated with the financing are identified and discussed. The sections first describe the range of available funding sources, both public and private, then define the different types of financing available from these sources. An overview of financial considerations precedes a practical guide on how to prepare a project presentation.

PROJECT DEFINITION

In approaching the financing of a project, we must first define the underlying business characteristics of the industry in question. Suitable understanding of one's starting point will avoid the "square peg/round hole" routine in trying to finance one kind of business on the format of another type.

Generic classifications

The capital structuring of an industrial, agricultural or utility business differs. Generally, agricultural businesses are the least capital intensive, utilities the most, with industrial projects falling somewhere in between. The capitalization and balance sheet characteristics of different types of businesses are compiled by a number of financial service companies such as Robert Morris Associates or Dunn and Bradstreet on their "Annual Statement Studies." Direct use of geothermal resources represents a new twist for agribusiness projects because more capital equipment is utilized thereby resulting in a corresponding reduction of non-depreciable land required. Whatever the business differences between traditional and intensive agriculture, it is important to know what institutions expect from a financial structuring point of view.

Start-up businesses

These ventures represent a more difficult financing challenge, especially if the total investment of the project is such that outside investors have to be brought in. Basically, many more unknowns and variables exist for a start-up company, no matter how established the industry itself is. For a start-up company, investors will want to find out whether the industry will continue to grow and prosper overall for as long as it takes them to earn a satisfactory return on their investment. They will want assurances as to the experience of the proposed management team. Technological, resource, environmental, marketing and regulatory risks will have to be defined from the viewpoint of a new business. Factors which may delay start-up or inhibit the commencement of cash flow will have to be analyzed as well. As a result, equity requirements as established by lenders to the project may have to be higher than for ongoing projects. The rate of return requirements expected by the equity investors will be higher as well.

Ongoing businesses

Established businesses fall into two categories.

Expansion projects. The expansion of a conventional facility by means of a geothermally powered addition may be an economically attractive investment for a company dependent on high-priced energy alternatives. The financing of such an addition may depend solely on the parent company's credit rating and proven track record. If the existing facilities are competitive based on conventional fuels, there would always be the possibility of retrofitting from geothermal should the resource fail. For these kinds of projects, financial participants will depend on the company's track record, financial strength, and the fall-back position.

Retrofits to geothermal. A conversion of the existing facilities to geothermal may be desirable for the cost-saving aspects thereof or because of an energy pinch where alternate energy supplies are becoming unavailable. The voluntary retrofit would most likely be financed on a similar basis to the expansion described above. The involuntary conversion may result in some disruptive financial pressures on the business and may require evaluating whether the business will discontinue its operations at the site or write off the existing facilities and install geothermal ones. Additional factors in evaluation are the company's ability to fund a significant part of the project internally, its present credit rating, and its prospects for future growth.

DEFINITION AND ASSESSMENT OF FINANCING RISKS

Having outlined the basic kinds of project scenarios, let us address the assessment of risk factors in such financings. The project developer should be aware that many viable projects have been denied financing due to a lack of information or a poorly conceived risk management

program. The goal is to educate the prospective financial participant in every phase of the project's business, leaving no questions unanswered. The fact that a project is based on a geothermal energy supply does not alter that project. Fundamentally, including geothermal only adds one more dimension of risk to be quantified. Some questions may arise concerning the following aspects of geothermal energy.

The geothermal resource

The geothermal resource, as the proposed energy source of a business, is of particular concern regarding its availability, the feasibility of its use, and its reliability as well as its economic competitiveness with alternate fuels. It will be easier to raise capital for a project which is dependent on a proven or operational fuel source rather than a new source. Even if the proposed application differs from the current utilization of that resource, the geothermal reservoir will benefit from the credibility which results from knowing its historic performance (flow and drawdown rates) and temperatures. Potential problems such as scaling, corrosion, and pumping requirements should be outlined as well as the methods necessary to overcome them. If operating history for the site in question is not available, it would be useful to note examples of resources possessing comparable temperature, pressure and salinity which have been successfully utilized elsewhere as well as furnishing all reservoir test and evaluation data available to date. In summation, the resource description should include its extent, its physical properties, longevity, problems encountered and solutions applied.

Process and technological risks

Process and technological risks should also be fully identified. The proposed technology should be clearly and concisely explained. The developer should specify whether the technology has a long history of commercial use or whether it is basically an unproven approach. Risks associated with the functioning of the plant are as important as those associated with the performance of the resource.

The overall economic viability

The overall economic viability of the project must be demonstrated to the potential financial participants. This phase will include market assessment for the production output of the project, and analysis of operating costs as well as incorporation of the cost benefits of the geothermal energy source. The economics of the geothermal energy source should be compared with the most appropriate alternate fuel available to the project. It should also be specified whether the project is economical solely as a result of geothermal resource use, or whether a backup system of electric, gas, fuel oil, etc. could be economically installed in the case of reservoir failure. In the latter case, geothermal would simply offer added internal profitability incentives to proceed with the project by reducing fuel costs and increasing the tax benefits available to the business with resource risk being a lesser consideration.

Management capability

The management capability of a project dictates the success of any business endeavor as much as technology, energy source, and product. A prospective investor will want to know about the key principals in the business, their background and qualifications, and, especially, their related business experience. The level of management commitment is most clearly exhibited by factors such as their own investment in the business, employment contracts they may have, or their status as simply talented "free agents." The concerns with management include not only technical experience but also managerial and financial expertise.

The business structure

The business structure can also make a difference in various financial options. The choice of structure (partnership, limited partnership, corporation, sole proprietorship, etc.) will depend, to a great extent, on the financial requirements of the major equity investor(s). It should be determined whether the assets need the protection of a corporate structure or if the investors prefer the greater tax flexibility of some types of partnership. This question, in particular, requires the advice of tax and legal experts.

SOURCES OF FINANCING

Because geothermal development proposals represent the utilization of an alternate energy source, financing is available not only from the usual source of capital, the private sector, but also from the public sector. In the private sector, financing is generally obtained from various debt and equity sources. Funds from the public sector may be in the form of debt, guarantees, or outright grants. This section outlines the different kinds of financial sources potentially available to the developer of a geothermal project. Some of the financing sources described can handle geothermal risk, but others can not. Since the actual portion of any direct-use project actually involving geothermal risk may be quite small, conventional financing sources might be utilizable for the remainder of the project. It is quite probable, however, that lending sources will view the geothermal risk as affecting and, in effect, classifying the entire project.

Private sector

Commercial banks. These banks typically finance automobiles, houses, working capital requirements of ongoing businesses, capital equipment, some project financings, etc. and are, generally, the most conservative lending institutions in the group of available sources. Loans are generally made over the short and medium term, i.e., under eight years. Interest rates will generally be charged at a fixed or variable spread over the bank's prime rate, i.e., the rate offered to the most credit-worthy clients. Fixed-rate lending was more common during periods of stable money market conditions and is, therefore, presently difficult to obtain. Currently, with prime in the double digits, money is both tight and expensive. Banks also have lending limits which means that they cannot lend more than 10% (generally) of their total capital to any single customer. Depending on the relative size of the proposed project and the bank's capital, a bank could be limited in the size of the loan it is able to fund by itself. This constraint does not limit the bank's ability to handle the project inasmuch as a bank can syndicate (offer participations in the loan to other banks) the project so that several banks would become involved. This approach also spreads the risks associated with the project. Banks are also the usual source for unsecured short term working capital lines of credit. However, an operating track record is necessary in order to demonstrate the ability of the business to pay back the entire loan at least once a year. Commercial banks vary in size and function. Some are full service banks in that they can arrange in-house private placements or leveraged leases and provide a variety of other financial services. Other banks simply engage in direct-loan and deposit transactions. For any type of business transaction, it is generally advisable to approach a full service bank in order to have a wider range of financing choices. The lending officer of the commercial bank will explain any financial requirements.

Savings banks. These banks invest primarily in local residential mortgages of modest size. Although their rates are competitive with those of other mortgage lenders, their terms (down-payments and loan periods) tend to be slightly more conservative than those of savings and loan associations, and about equal to those of insurance companies and a bit more liberal than those of commercial banks. They are generally smaller in size and more local in nature than savings

and loan associations.

Savings and Loan associations (S&L). These S&L associations lend primarily on residential and commercial property in the form of real estate loans secured by land and buildings. An S&L might be approached for the mortgage financing of new geothermal construction as well as retrofit to geothermal space heating or air conditioning of existing structures. This type of project fits well in the S&L portfolio since they will lend for periods up to thirty years. The down payments and loan periods on conventional mortgages granted by S&L's are typically more liberal than those granted by either commercial banks or life insurance companies on similar mortgage loans. On the other hand, mortgage rates charged by S&L's are usually higher than rates charged by other institutions. This is partly a function of accepting riskier mortgages, but it is also linked to the fact that the associations pay higher interest rates on savings accounts. The advantage of fixed-rate financing is that the cost of money is known for the life of the loan. A disadvantage is that taking on such financing at periods of high interest rates will result in high fixed interest costs over the life of the project. In that case, the loan should be structured so that it could be paid off and refinanced at a lower rate at a more favorable moment in the money market. S&L's always take a secured position in the real property or a first trust deed. Financing inquiries are handled by the local S&L lending officer.

Insurance companies. Insurance companies make both mortgage loans and business loans. Most investment is long term, ranging from ten to twenty-five years, since the insurance companies' long-term cash requirements are fairly predictable. The fixed rates offered by insurance companies are higher than mortgage-type rates since the level of risk accepted is somewhat higher. An insurance company can be approached through a commercial or investment bank, mortgage banker or investment broker. Local offices of the insurance companies may also be staffed to handle inquiries.

Trusts and pension funds. Trusts and pension funds are similar to the insurance companies in that they will make loans up to thirty years, because they do not have to disburse their funds for quite a number of years after the premiums are paid. Funds have been known to take greater risks than any of the lenders previously discussed. They lend at relatively high fixed rates of interest. However, recent rulings on the liability of fiduciaries have made all money managers more cautious. Although some trusts and pension funds answer direct inquiries, many are not staffed to handle requests for financing except for those referred from other financial institutions.

Commercial finance companies. Commercial finance companies specialize in lending to high-risk commercial customers through a wide range of short- and long-term debt arrangements. The interest rates charged by commercial finance companies are higher than most other lenders and are as varied as those of commercial banks, but their overall lending capability is much smaller. A commercial finance company can be expected to monitor the borrowing company's performance very carefully during the term of the indebtedness.

Personal finance companies. Personal finance companies are the most flexible of all lending institutions but they also charge the highest rates of interest. In addition, the size of the loans does not usually exceed \$25,000. The loan is made personally to the entrepreneur for the use in his business and depends on his credit rating. For a small business without an established credit rating, this may be the only means of obtaining a loan.

Mortgage bankers. Mortgage bankers usually act as brokers, packaging a deal and selling it to a large investor for a fee or sometimes making the investment themselves. Occasionally, they refinance first mortgages on projects with an existing equity investment and where the security is a subordinated interest in the asset. This type of financing is more readily available once the project has an operating history. Refinancing the first mortgage may be a source of operat-

ing funds if the debt restructuring takes place at a time when interest rates have decreased since the original loan was granted.

Investment banks. Investment banks, while not a source of funds in themselves, are a vehicle for obtaining funds. In general, investment bankers perform three basic functions: (a) financial counseling, (b) underwriting and (c) marketing and distribution of corporate securities. It is the first and third functions that are pertinent to the entrepreneur of a geothermal business. We have already identified the importance of qualified financial counsel. With regard to the marketing of corporate securities, investment bankers come into contact daily with investors and have first-hand information on the availability of funds. These services are provided for a fee.

Equity investors. Equity investors provide "at-risk" capital, usually through the purchase of common stock in the company or, alternatively, through making a loan or purchasing preferred stock, either of which may, at some time during the company's life, be converted to common stock. Equity investors generally prefer to control the operation since they bear the greatest risk.

There is no set rate of return or interest rate on common stock. Equity investors anticipate that the stock acquired will increase in value in addition to earning dividends.

One of the requirements an equity investor may have in investing in a start-up project is the utilization of available tax benefits. Tax considerations assist greatly in attracting equity capital, especially since the National Energy Act of 1978 has enhanced the tax benefits for investors in geothermal projects. Most investors are in high income-tax brackets and the available benefits such as immediate deductibility of intangible drilling costs, a 20% investment tax credit on "geothermal" equipment and a depletion allowance of 15%-22% are very attractive incentives. Depending on the structures of the investment, an investor could recover a significant portion of his investment through tax benefits alone. It is critical that tax counsel be requested for advice on these matters.

Traditionally, the primary method of identifying equity investors has been to work through a reputable investment banking house. To date, however, there is only one specializing exclusively in geothermal activities. Your financial advisor should be able to give guidance on the reputations and capabilities of these firms.

Small business investment companies (SBIC). Small business investment companies represent a special class of equity investors and lenders. SBIC's are generally privately owned investment companies which provide financing to small businesses that meet the specific criteria of the government's Small Business Administration (SBA). They are licensed by the SBA and given incentives to specialize in this type of investment, such as low-cost loans to supplement their capitalization. Most financing from an SBIC is supplied through the purchase of stock or "convertible debentures" (loans which can be converted into stock at a later date). Although this type of equity participation is preferred, SBIC's do make some loans at moderate rates of interest. The first step in approaching this source of funds is to contact the Small Business Administration's local office to determine if the business meets the criteria for eligibility and, if so, to obtain from them the published directory of licensed SBIC's. It is then necessary to contact the SBIC directly.

Leasing companies. Leasing companies represent another form of financing, specifically for the acquisition of capital assets. It is an alternative to purchasing the asset, making a down-payment or initial equity investment, and financing the remainder of the purchase price with debt. In lease financing, another party acquires, finances and then leases the assets to the users. A financial lease is a non-cancellable contractual commitment by the lessee to make a

series of payments to a lessor for the use of an asset. The lease period of a lease generally corresponds to 80% of the economic life of the asset. The total payments the lessee agrees to will exceed the purchase price of the asset. Assets eligible for lease property are generally limited to equipment and buildings.

Leasing offers the advantage of flexibility and essentially 100% financing of the assets as well as tax deductibility of the lease payment. One disadvantage is that the residual or terminal value at the end of the basic lease period goes to the lessor. However, it may be possible for the lessee to obtain an option to renew the lease or purchase the asset at the end of the basic lease period. Another disadvantage is that the interest cost is usually higher than the interest cost of debt when the amortization of the cost of the asset and the tax benefits is taken into consideration.

There are leasing companies which may be contacted directly and leasing services offered by most large financial institutions.

Public sector financing

Federal, state and local government agencies offer a variety of financing programs to private individuals and developers for energy projects. A project which can visibly benefit society, such as one which replaces scarce fossil fuels or attracts new business to an area, is a good candidate for government financing. By supporting these projects, government agencies can not only attain their chartered goals, but can also maximize the benefits which accrue to society in general.

Persons or entities seeking partial or complete funding for geothermal projects will have to apply to the appropriate government agency. Of all the federal, state, and local agencies, only one, the Department of Energy (DOE), has programs designed specifically for geothermal use. These include the Geothermal Loan Guaranty Program (GLGP) and other programs that are periodic in nature. Unequivocally, these programs will have the most bearing and relevance to one's project needs. Other public agencies, also described here, are tailored more to conventional business and agricultural operations. Their applicability and availability to geothermal projects will vary on a case-to-case basis. In all other cases, no geothermally related financing precedents appear to exist so that an approach to such an agency will be breaking new ground.

In some cases, two or more public programs might be combined to finance different portions of a geothermal project. The GLGP could fund the resource side and the Farmers Home Administration could fund the land and buildings, for instance. It is strongly recommended to check first with the Department of Energy to determine the fit between its financing programs and one's project needs. Contrary to any other assertion, it is best to contact GLGP personnel in the Oakland office directly with questions. Inquiry can also be made through the state or local Department or Chamber of Commerce for agency programs which might be available. Local agencies will often provide funding for small projects but will have neither the capability nor the funds to assist in larger projects.

Several important characteristics of public financing and government agencies must be borne in mind, particularly since these factors can result in delays before one's project gets off the ground:

1. Some of the public agencies only give assistance after all private lending sources have been approached. Valuable time is required to keep returning to private lenders, one after another as the agency dictates.
2. Public lending agencies may take from six months to a year or more to make their decision

If all the necessary paper work initially submitted is correct. Corrections require even more time.

3. Related public agencies (environmental agencies, local government planning agencies, county governments, law enforcement, councils of government, etc.) may be required to review and approve the project. This review may require additional time to satisfy the specific concerns of these outside agencies.
4. Budgets to the government lending agencies can be interrupted without notice, especially direct loan funds. Their programs are, in most cases, funded by quarterly committed money amounts.
5. Public agencies tend to require very tight fiscal control and audit procedures and almost every management decision regarding expenditures can be questioned. If government agency cost analysts don't agree with management approaches to problems, they interrupt or delay the funding.
6. Almost all agencies require formal equal opportunity employment practices to be instituted in the business.
7. Consistency in interpreting loan criteria may vary from one office to another or from person to person within the agency.

GOVERNMENT FUNDING DEPARTMENTS

Some of the departments with financing programs are listed below.

Department of Energy

The Geothermal Loan Guaranty Program. This program will guarantee up to 75% of total allowable project costs to the lender against loss of principal or interest in loans made to the borrower. Eligible projects may vary in nature, ranging from resource development to the construction and operation of facilities. Applications take between four months to one year to process depending on the type of project and the extent of environmental impact statements to be prepared. Terms and conditions for loan guarantees are specified by DOE. A fee of no more than 1% annually on the average outstanding loan balance will be charged to the lender and will be passed on to the borrower. Reasonable and prevailing loan rates are allowed on a basis as determined by the Secretary of the DOE in consultation with the Secretary of the Treasury. Loans are guaranteed for up to thirty years depending on the project. Contact the Loan Guaranty Program, Department of Energy, 1333 Broadway, Oakland, California 94612, (415) 273-7151, for program information.

The Small Business Administration (SBA, Department of Commerce)

This agency is set up to assist small businesses with counseling, management and/or funding. To qualify for funding assistance, a business must meet SBA requirements and demonstrate that funds were not available through normal channels. There are two funding approaches offered by the SBA:

Loan Guarantee Program. Up to 90% of a bank loan not exceeding \$500,000 will be guaranteed by the SBA. Interest rates on loans are determined by the participating bank and will generally be at the prevailing rates for similar types of federal guarantees plus a servicing charge. Should the applicant's bank have denied the project funding, it might be willing to reconsider

financing with an SBA guarantee, if asked.

Direct Loan Program. On low-risk projects, up to \$50,000 will be loaned directly. However, the amount tends to vary from region to region. Interest rates are lower on the SBA direct loans than on those secured from private sources.

The local state SBA representative should be contacted with regard to the geothermal project in question. Since the SBA is not chartered to fund geothermal risk, per se, funding availability will depend on the overall applicability of the project to SBA guidelines.

The Farm Credit System (FCS)

This system is divided into three major banking units. Individually, each is designed to meet specific borrowing needs as their names suggest: farm mortgage loans from the Federal Land Banks; production and intermediate term working-capital loans through the Federal Intermediate Credit Banks; and credit for cooperatives from the Banks for Cooperatives. Loans from these farm credit banks are made for periods ranging from a few days on commodities to forty years on land. They are secured by solid collateral, including land, buildings, equipment, livestock, and other agricultural assets. Details and eligibility requirements are provided by the Fiscal Agency Farm Credit Banks, 90 William Street, New York, N. Y. 10038.

The Farmers Home Administration (FmHA, Department of Agriculture)

This agency aids small operators needing assistance for a great variety of projects. Each state usually has at least one office which can determine if one's project is eligible for FmHA financing. Unlike the Small Business Administration which has lending limitations, FmHA has no limit. Among its financing programs are the following: (a) Farmer Program (Farm Operating Loans and Farm Ownership Loans); (b) Business and Industrial Loan Program; and (c) Loan Guarantee Program. Washington or the state FmHA office has needed details. Neither the FCS nor the FmHA are designed specifically for financing geothermal development per se but could be utilized for the financing of land and structures in agribusiness projects. Several hurdles exist, however, in both qualifying the project under USDA guidelines and in structuring the terms of the financing.

The Economic Development Administration (EDA)

This agency, like the FmHA, has a variety of funding programs depending on the specific need and nature of one's project. Most projects, however, must show the promise of increasing employment opportunities in the community. The EDA will assist in planning and give technical advice to public sector and non-profit organizations. Specific financing programs for these entities and for the private sector are by means of direct loans and loan guarantees. Specific eligibility requirements and detailed information, are available from the agency in Washington or from the state EDA representative.

Other public agencies

There are numerous smaller and larger agencies and programs on all levels which can provide loans, grants or guarantees. The appropriate state Department of Commerce should be contacted for the most up-dated list of these agencies and contacts should also be initiated at the local, municipal level as well as with Washington. In addition, one's financial advisor may be able to furnish advice and reference to some of the lesser-known but applicable programs.

FINANCING STRUCTURES

Each source of financing described thus far may be active in providing funds in a number of dif-

ferent formats. A structure that is appropriate to the specific needs of the project may be selected from some of the following:

Private sector debt financing

Secured lending. Secured lending may be available to firms that have little or no business experience track record or whose ability to service debt is not regarded as adequate by bankers. In this case a lender will require a security interest in the collateral of the borrower. Sufficiently marketable collateral may include buildings, accounts receivable, inventory, equipment or other assets of the borrower.

Project financing. Project financing makes funds available to a project based on a commitment of a credit-worthy customer to purchase the output of the project once it is operational. This arrangement, in effect, transfers most of the credit risk to that of the established entity.

Lease financing. Lease financing is a contractual arrangement under which the lessee agrees to pay the owner of certain equipment a fixed fee for its use. This agreement usually extends for approximately 80% of the life of the equipment and is non-cancellable.

Mortgage lending. Mortgage lending is a form of secured lending. In this case, the loan is usually secured by fixed assets, such as buildings and land, of the borrower. The property securing the loan is described in the mortgage or first trust deed, a legal document giving the lender first claim to the property in the event of a default by the borrower.

Term lending. Term lending provides funds in return for a loan agreement obligating the borrower to repay the amount of the loan plus interest over a specified period of time. The loan is made based on the credit of the borrower:

- (a) Long-term loans are repaid over a period of time longer than seven years.
- (b) Intermediate or medium-term loans are repaid over a one- to seven-year period.
- (c) Short-term loans are repaid in less than a year.

Working capital lending. Working capital lending provides cash for current operating needs and is usually both short-term and unsecured. These loans are typically regarded as "self-liquidating" in that the funds are utilized during periods of time that the company is "cash-short" and repaid when the company is "cash-rich", generally on a cycle of less than one year.

Private sector equity sources

All equity is known as "risk capital" because it does not warrant a specific return but it shares in the earnings of the business.

Venture capital. Venture capital is equity provided by investors, either singly or in groups for direct private investment in smaller start-up or development companies judged to have high growth potential. In most cases, the risks are judged to be high and the rewards, or share of the hoped-for profits demanded, are high as well. Venture capitalists are sure to become very involved in the business. In spite of these constraints on the project, the demand for venture capital far exceeds the supply. Only the "most-likely-to-succeed" projects are able to attract this type of funding.

Tax-shelter money. Tax-shelter money is capital made available by individuals in high

income tax brackets with significant tax exposure. They are able to invest in projects that, by means of tax benefits such as investment tax credit, depletion allowance, and depreciation, will result in a decrease of their tax liability. However, the project has to be economically sound and yield a positive cash flow.

Stock placement. Stock placement involves the sale of a specified amount of ownership in a business--usually one having a history of earnings. It may be accomplished either privately with selected investors making substantial purchases or publicly to any number of investors. Typically, stock owners are more passive than venture capital investors. The stocks placed may be either common or preferred, depending on the requirements of the investors. Preferred stock receives a fixed dividend each year but does not normally have voting rights. Common stock has voting rights and receives a dividend as declared by the elected board of directors.

Convertible securities. Convertible securities are either bonds or preferred stock which receive a specified return but can be converted, at the option of the holder, into common stock. Usually the interest rate on convertibles is somewhat less than the same securities without the convertible feature. Convertible securities give the holder the advantage of receiving interest in the present and having the opportunity to participate in the earnings potential of the company in the future.

Public sector programs¹

Because of the great variety of public-sector financing options as yet largely untried in the geothermal context, we have restricted ourselves to outlining in this section the three basic types of programs available.

Direct loans. Numerous government programs extend loans to private and/or public sector entities for the financing of agricultural, industrial or residential facilities, although not specifically for use with geothermal resources. Each agency has differing interest rates and conditions attached to their loans. In general, direct loans from public sources will have longer terms and lower interest rates than those from commercial sources. If the proposed geothermal project qualifies, the federal, state and local agencies listed in the preceding section should be contacted.

Loan guarantees. On government-guaranteed loans, a government agency will guarantee up to 90% of a secured bank loan. The Geothermal Loan Guaranty Program, designed specifically for the commercialization of geothermal development, will guarantee up to 75% of total allowable project costs at a charge of no more than 1% per annum on the guaranteed loan balance outstanding. Other agency programs offering loan guarantees will generally have the capability to guarantee loans up to thirty years in length, will charge a guarantee fee, and will require the securing of the bank loan by the assets of the project.

Grants. Grants may be available for studies as well as demonstration projects. Cost-sharing is generally required. In this case, funds are advanced by the government agency but need not be repaid.

The Intermediary Risk Assuming Company (IRAC)

The Intermediary Risk Assuming Company is the first financing vehicle designed specifically to handle reservoir and utilization prove-out risks both for electric and non-electric geothermal developments, including industrial, space-heating and agribusiness projects. The IRAC structure

¹ For more information on agencies, refer to SOURCES OF FINANCING, Public sector financing or REFERENCES CITED.

is used when a developer has indentified a potential resource for utilization, but cannot afford the financial risks involved in building a plant on a previously unutilized reservoir. In this situation, the IRAC financing would supply the risk capital to develop required production levels from the reservoir, would finance the utilization facilities, and would maintain ownership of the development. The developer could contract with the IRAC to operate and manage the plant or maintain a fully arm's length posture. In any event, the developer would agree to purchase the product output of the facility. After reservoir prove-out, the developer could exercise a pre-arranged option to buy out the entire project. Developers interested in this financing arrangement should first contact risk financing groups or venture capital sources. A feature of major importance in the IRAC financing structure is that it can combine, with great flexibility, both public and private sector financing options.

FINANCING CONSIDERATIONS

In addition to the basic business plan, there are various other considerations of interest to prospective investors/lenders. Some points that may be relevant are the following:

Debt/equity ratios

The ratio of equity to debt financing varies among various industries depending on capital investment required per dollar of sales, established industry-wide pattern, classification of assets, etc. An industry comparison should be the guide for evaluation. A further consideration is whether the project under consideration is a start-up venture or not. For a financing where there is no prior experience or history, it is unlikely that financial institutions will lend to the project unless the debt to equity ratio approximates 1:1. For established businesses, where equity is commonly more highly leveraged, banks may be willing to lend on as much as a 2:1 basis. Higher leverages are possible if project financing structures or IRACs are utilized; thus, equity as low as 10% of the total project may be acceptable. This kind of structuring is dependent, however, on the shifting of the credit risk away from the borrower to the contracted customer(s) for the production resulting from the project.

Regional vs. money center funding

Local banking relationships are of major importance to a project in terms of short-term borrowings, receivables financing, credit lines, etc. A company should first attempt to secure any of its financing requirements from local sources. In some cases, however, local financial institutions may not be in a position to finance an otherwise desirable project because of local tight money conditions; therefore, contact should be made with financial institutions in major money centers, such as New York, Chicago or Los Angeles. Generally, a local bank would be able to take up the matter with its correspondent banks. In addition, a money center bank may provide funding to the local bank (a loan to the local bank for a loan by the local bank--at its risk--to the borrower).

Contingency planning

In predicting project performance, the likelihood of obtaining desired performance and profitability objectives under actual operating conditions is not very high. Contingency planning should be approached in two distinctive ways. In the first, a sensitivity analysis should be performed to identify the key performance and profitability variables. Performance projections should be prepared, evaluating both downside and topside outlook. The second approach should involve the identification of major potentially problematic areas and the development of specific management responses to resolve these problems.

Economic outlook

An overview of the economic setting, for the region as well as for the industry of which the project is a part, will help determine the willingness of financial institutions to lend to that economic sector. Loans and equity investments are traditionally harder to raise for declining industries than for growth sectors.

Multi-purpose facilities/retrofit applicability

Although these topics could also fall under the aspect of contingency planning, their importance to the basic structuring of a geothermal financing is such that they deserve separate mention. For a lender seeking security in real property as opposed to the indicated cash flow potential of a project, the multi-purpose nature of a given facility should be clearly demonstrated. For example, if the project originally conceived fails because the food processing market disappears, then the building itself will still be an excellent investment (no added expense necessary) for grain-sprout production. The greater the perceived security for a lender, the greater the likelihood of obtaining higher levels of more favorable financing. Likewise, if it can be demonstrated that economic use of the facilities can still take place even after the retrofitting of the facilities to a conventional fuel source should the geothermal resource fail, the attractiveness of the project to potential lenders is also enhanced.

Scale of project

Economic production levels vary from industry to industry with the scale of a project. Greenhousing and prawn farming can be conducted economically on an investment threshold of as little as \$100,000 to \$250,000. It is hard to imagine the establishment of a financially sound dehydration facility or an environmentally controlled meat production facility of less than \$3-\$5 million. A large-scale heating system may require minimum investments in excess of \$10 million for it to be economic. The scale of the project in question should incorporate consideration of viable economic units of scale. The project should not be too small, thereby limiting reasonable profitability, or too large, thereby taking too much risk at the front end or development stages. Tailoring a project to a viable economic unit size is an important consideration in the arranging of a financing program.

Availability of tax-oriented incentives

In attracting equity capital and maximizing project profitability, it is necessary to ascertain the extent and availability of enacted tax legislation to a given project. Included in these are the basic tax credit, the alternative energy tax credit, accelerated depreciation, depletion, intangible drilling cost deduction, new job credit, etc. Legal opinions or rulings may be necessary to confirm the availability of such. They should be obtained at the appropriate time.

Payout

Risk or equity capital have to determine an acceptable time frame and extent of payout resulting from their investment. The range includes returns on capital from 100 to 400%, with and without inflation adjustment, or some combination thereof, and will vary from project to project. Competition for venture capital from other sources (such as the stock market which is depressed at present) and high interest rates will determine the pricing in each specific instance.

Regulatory considerations

The amount of present or proposed government regulation, standards, environmental, reporting

requirements and other interfaces will, to some extent, affect the amount of capital available to certain projects. This situation may arise from local as well as federal regulations.

Completion guarantees .

One of the major cost components in any project is the construction of the facility and equipment installation. It is essential that the maximum protection be obtained with regard to the control of such costs and the warranty of the equipment to be installed. This protection can be accomplished by: fixed price construction contracts, overrun cost sharing, force majeure insurance, use of bonded contractors, construction audit routines, etc.

Operating experience

The best-known method to date for the assessment of the reliability of resource/reservoir performance is the accumulation of operating experience. It appears that some combination of resource testing, commercial utilization, and initial size of development will permit the early accumulation of operating experience under revenue-producing circumstances. Expansion and refinancing under more favorable terms and conditions can thus be accelerated once the commercial production characteristics of the resource are known.

Growth potential

Opportunities for future development of the project site for expanded or related utilization technologies will enhance its overall attractiveness.

Over-engineering

The technical aspects of the project should incorporate as simple and direct operating systems as possible until performance capabilities can be established. To the maximum extent possible, innovations and refinements should be added after a suitable debugging period or upon plant expansion, thereby reducing technological risk at start-up.

FINANCIAL PROGRAM STRUCTURING AND PRESENTATION GUIDE

Because capital markets function under the theory that an investor/lender should be adequately compensated with respect to the degree of risk taken, a developer/entrepreneur must make every effort to quantify and analyze the risks associated with the project. Such a detailed evaluation of a business venture is usually drawn up in a business plan or placement memorandum which will present all of the information necessary for a critical assessment of the investment proposal. It will then be possible to approach financial institutions, government agencies or private investors since any credible source of financing will insist on reviewing the proposal in depth before considering any investment seriously. Therefore, a business plan must be concrete, comprehensive and clear in setting forth the potential of the business.

The package should develop (1) the business objective of the project, (2) its overall economic viability including an analysis of the proposed market, (3) the technological process and facilities, (4) the business structure, (5) management capability and (6) all of the perceived business risks and available counter measures associated with the project, dealing especially with the reliability of the geothermal resource. Financial information will be required and will include the investment contributed by key principals; detailed pro-forma income statements and balance sheets; a summary of financial assumptions utilized; and the proposed sources and uses of the fund requested.

As with any utilization of numbers in finance or in statistics, accuracy is of primary concern.

This concern is particularly acute in a start-up business situation where the numbers are based on a given set of assumptions rather than on historical performance. If the assumptions are not defensible, the pro-forma projection will be a useless exercise. A sensitivity analysis may be helpful in identifying key variables of the proposed business. Accountants and bankers or other financial advisors might be helpful in determining the extent of information required and the best possible format for presentation of the business concept. A list of references for use in the preparation of such material is attached in Exhibit A.

Above all, investors/lenders must be convinced that the entrepreneurs have developed a plan carefully and that the management is skilled and experienced enough in the chosen business area to manage effectively, seize opportunities, solve problems, and make profits.

GLOSSARY OF GENERAL BUSINESS TERMS

Balance sheet - a list of the measurable assets owned or controlled by the firm on a specific date equal to the liabilities and owners' equities listed in the firm at that time.

Capital equipment - physical equipment, the acquisition and installation of which represent major outlays of funds.

Capital structure - combination of debt and equity that make up the firm's total funding.

Cash flow - cash receipts and disbursements over a certain period of time.

Credit rating - evaluation of the credit risk or credit standing based on previous payment history.

Equity - amount of cash or assets that owners have invested in the firm at risk.

Guaranty - contract making a party responsible for repayment of a debt to a lender or some other performance.

Leverage lease - the process by which the leasing company (owner-lessor) purchases equipment by providing only a percentage of the purchase price and pledges the equipment to the supplier of the additional funding (e.g., bank) on a non-recourse basis.

Liability - legal requirement to make payment or provide services in the future in return for assets or services acquired.

Operating statement - see profit and loss statement.

Profit and loss statement - accounting statement summarizing the income for a particular period, including revenues and expenses.

Retrofit - Process of adapting one form of resource technology to apply and fit on another resource.

Subordination of debt - agreement that requires a borrower to repay some lender before other lenders.

Working capital - money which is used for the firm's immediate operations. Working capital is computed by subtracting current liabilities from current assets.

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- Small Business Administration, 1441 Avenue L, Washington, DC 20416, (202) 653-6848.
- U.S. Department of Agriculture, Farmers Home Administration, 14th Street and Independence, Washington, DC 20250, (202) 447-7967.
- U.S. Department of Commerce, Regional offices:
Atlantic Office: William Greene, 600 Arch St., Suite 10424, Philadelphia, PA 19106.
Midwestern: 32 West Randolph St., 1025 Civic Tower Building, Chicago, IL 60601.
West: Lake Union Building, 1700 Westlake Avenue, North Seattle, WA 98109.
Rocky Mountain: Title Building, 909 17th Street, Suite 505, Denver, CO 80202.
Southwestern: American Bank Tower, 221 W. Sixth St., Suite 600, Austin, TX 78701.
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