

Approaches to Building Efficiency Businesses

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ABSTRACT

Efficiency policymakers in the U.S. are increasingly emphasizing the importance of developing sustainable markets for efficiency. Some opportunities to help build such markets can be addressed by conventional channels (e.g., suppliers and designers), but others require new business structures or product types to reach the market (business building). This paper helps potential sponsors of “business building” projects find approaches that match both the needs and conditions in specific markets and their own capabilities as sponsors. The merits, limitations, requirements, and best niches for following types of initiatives are discussed:

- *Technology Research and Development* (discussed only briefly in this paper).
- *New Enterprise or Business Initiative Development.* New ventures and new product types for existing businesses are discussed. A magnetic-coupled drive system co-funded by the Northwest Energy Efficiency Alliance is used as an example.
- *Broad Market Support.* Examples include efforts to support electronic ballasts and performance contracting.
- *Definition, Branding, and Promotion of a New Market-Wide Product Class.* Examples discussed include building operator certification and standards for quality of motor repair.
- *Creation of Sustainable Institutions to Support Efficient Products and Services.* An institution established in the Northwest to support quality residential weatherization services is discussed.
- *Help for Power Marketers to Incorporate Efficiency Into Their Product Lines.* This is a special type of business building that can incorporate elements of the above strategies. Initiatives by a utility and an environmental foundation are discussed.

Introduction

In the last several years, utilities, governmental organizations, industry associations, and regional alliances (hereafter collectively called *sponsors*) have undertaken initiatives to help build sustainable markets for energy-efficient products and services (i.e., transform markets). While not all cost-effective efficiency can be achieved through market transformation, a variety of market transformation approaches have proven to be successful (Suazzo and Thorne 1999).

Some market transformation opportunities can be addressed by working exclusively with pre-existing manufacturers, designers, suppliers, installers and service firms (hereafter called *market actors*). However, the best development and delivery system for efficient products and services is not always that which already exists. Sometimes businesses need to

re-organize, add new entities, coordinate in new ways, or even be replaced, to achieve higher levels of energy and economic efficiency. Such changes are commonplace when products change or improve in the private sector. To be effective, sponsors sometimes need to work with business to encourage these changes. In this paper, these types of market transformation initiatives are referred to as “business-building.”

This paper categorizes and describes a variety of business-building strategies used by project sponsors, based on the market situations in which they are effective and the requirements placed on sponsors. It is intended to help prospective sponsors develop projects that match both market needs and their own capabilities. The six major types of business-building initiatives described in the paper are summarized in Table 1, along with the market circumstances where each works best, and the unique demands each places on sponsors. For each strategy listed in Table 1, the following sections describe these strategies in more detail and provide examples of projects.

Technology Research and Development

Research and development (R&D) is a major business-building activity, but is not a focus of this paper due to its complexity and diversity. In an overview as broad as this, it would not be possible to do R&D justice. It is important, however, to acknowledge that many of the activities described below follow or begin with applications-oriented R&D.

New Enterprise or Business Initiative Development

Sometimes sponsors can aid in establishing an efficient product or service by helping to create a new venture, either as start-up firm or as a new project of an existing business. The objectives of the sponsor are to: 1) enhance and complement the knowledge, financial, and human resources of the private sector venture participants; and 2) establish a sustainable project that can achieve significant market share.

This strategy is useful in situations where it is more feasible or effective to support one venture than to provide broad support to multiple players in a market. This can be the case if a firm has a proprietary innovation, or if there is a need for one firm to succeed in order for competitors to become interested in a product or service.

Types of Help

The degree and types of help required depend in part on the resources of the private sector venture participants. Often the sponsor provides funding and credibility to help attract more private or parent corporation financial support. Technical help may be needed in refining the product and the marketing approach (R&D, field testing, related market research), and in creating a business plan that leads to profitability. Intermediate milestones to gauge success are often critical to a productive sponsor/entrepreneur relationship. Evaluations can provide feedback on market effectiveness and business development.

Table 1. Business Building Strategies

STRATEGY	SETTING	SPONSOR NEEDS BEYOND MONEY
<p>Technology Research and Development</p>	<ul style="list-style-type: none"> • Need new technology • Someone can build it 	<ul style="list-style-type: none"> • R&D goals (roadmaps) • R&D management capability • Delivery plan
<p>New Enterprise or Business Initiative Development</p> <p><i>(New startup or new project limited to a firm or team of firms)</i></p>	<ul style="list-style-type: none"> • Product is not now on the market • Need a trailblazer or one firm controls technology • Project or firm needs help to proceed 	<ul style="list-style-type: none"> • Willingness to take risks • Knowledge of which risks fit mission and resources • Knowledge of what sponsor needs out of venture • Business assessment and development skills • Willingness to support individual firms • Ability to keep secrets
<p>Broad Market Support</p> <p><i>(Demonstrations, marketing, financing, rebates, etc.)</i></p>	<ul style="list-style-type: none"> • Product is in the market • Multiple firms will deliver • Efficient products already have clear market identity 	<ul style="list-style-type: none"> • Ability to distinguish market transformation from short-term promotional activities • Market planning skills
<p>Definition, Branding, and Promotion of a New Market-Wide Product Class</p> <p><i>(Available to any firm willing to meet efficiency and quality standards)</i></p>	<ul style="list-style-type: none"> • Efficient product available • Multiple sources, but there is no market-recognized identifier (e.g., label) for efficient products 	<ul style="list-style-type: none"> • Credibility and skills to facilitate industry coordination • Knowledge of what is needed from a quality product • Ability to work with some market actors and exclude those who do not meet standards
<p>Create Sustainable Institutions to Support Efficient Products and Services</p>	<ul style="list-style-type: none"> • Need for sustained coordination to market • Need for setting and policing of quality standards • Need for coordination of information, etc. 	<ul style="list-style-type: none"> • Ability to distinguish market needs from empire-building • Nonprofit business development skills • Ability to enlist appropriate support
<p>Help Power Marketers Incorporate Efficiency Into Their Product Lines</p>	<ul style="list-style-type: none"> • Firms who market power wish to integrate efficiency into their offerings 	<ul style="list-style-type: none"> • Ability to balance regulatory efficiency goals with power marketing goals

Example

The Northwest Energy Efficiency Alliance (NW Alliance) is contributing to the market development of Magna-Drive (NW Alliance 2000a). This is a magnetic-coupling technology for large, high-torque motors that allows for speed control. Conventional variable speed drives cannot be used for this type of motor application. When the NW Alliance became involved, there was a small firm dedicated to the product. They had some demonstration experience and limited financing. The NW Alliance provided financial and technical support for further demonstrations and marketing, further business planning, and feedback from evaluations. A key initial step in the project was research to assess whether a significant potential market exists. Other important interim steps included documentation of energy and non-energy benefits, product fabrication, and product placement and marketing. While the venture would like to develop and dominate the specialized market for this technology, the NW Alliance would also consider the project a success if it spurred successful entry into the market of competing efficient technologies.

A variant on this strategy involves support for a new initiative (product, service or marketing approach) sponsored by established businesses. For example, the NW Alliance also funded a project whereby Siemens Solar improved the efficiency and productivity of their silicon crystal production methods (Reed, Oh & Hall 1999). While Siemens had developed the initial concept and had the corporate resources to pursue the project on their own, it was not an internal priority until the NW Alliance provided matching funds. The resulting technology improvement may increase efficiency of silicon crystal production for both solar panels and semiconductors.

Key Considerations for Funding Organizations

Is the sponsor allowed to make exclusive alliances in the market? Many regulated utilities cannot directly support one market actor in competitive industries, even if it leads to increased efficiency. However, sometimes they can support third-party market transformation organizations that can make such investments (such as the NW Alliance).

Can the sponsor keep trade secrets? Strategic, proprietary information is at the heart of many new ventures. For a project to succeed, sponsor obligations with respect to proprietary information must be clear at the outset and compatible with the business plan. Sponsors may wish to keep proprietary information from potential competitors in some circumstances. In others, they may wish to give the venture a “head-start” with jointly funded technologies and strategies, but provide some information to other firms in later years to help build a competitive market. However, many public entities have legal requirements to make certain information public. Sponsors must understand their disclosure obligations and choose projects and methods that balance these obligations with the venture’s need for secrecy.

Does the sponsor have the resources, flexibility and competencies to help start-up enterprises thrive? New businesses call for a different mix of skills and experience than are required by many traditional efficiency programs. Sponsors may need new staff skills, contracting arrangements, or relationships with expert organizations to support ventures. Business planning and risk assessment skills are crucial. Government entities and regulated utilities often need to deal with political appearances and multiple stakeholders. This can

constrain or slow down financial decision-making. The sponsor must be nimble and unencumbered enough not only to “get in” to the right projects, but also “get out” if a project no longer looks viable.

What are the criteria for a good venture? For example, the NW Alliance initially looked for projects which could not go forward quickly without them, had significant business, profit, and energy savings potential, and which were backed by teams that had the technical and market capability to proceed. They were willing to invest in ventures with a modest return, as long as other criteria were met. With experience, the NW Alliance is moving toward a more structured process for requiring and assessing business plans. That may place more front-end development requirements on proponents, and may in turn create an environment where staged funding is important to developing projects.

What level of risk is the sponsor willing to take? With how much funding? Are there situations where this level of risk and funding can make a difference in the success of efficient start-ups? Some sponsors have the support from their funders and overseers to “strike out” on some projects as long as they hit “home runs” on others. For example, regulators in the Northwest states have chosen to judge the NW Alliance’s cost-effectiveness on their portfolio of ventures, not on each individual project, so long as the Alliance strives for cost-effectiveness on each one. Other sponsors are politically vulnerable if any project fails, so they can take few risks. In addition to knowing what is an acceptable risk, the sponsor needs to help overseers understand and buy into risks as they are taken. One way the NW Alliance balances risk is with a portfolio of projects having different types of exposure.

There are a wide variety of private-sector funders (banks, venture capitalists, the stock market, etc.) However, efficiency sponsors can bring unique perspectives and objectives to funding which can result in projects that would not succeed based on offerings in the private financing market. Sponsors may focus on viable opportunities that were too small-scale for other funders, but have big efficiency payoffs or significant local economic benefits. Efficiency experts working for sponsors have at times seen benefits from certain technologies which were missed by general financial analysts working for other funders and internal budgeters at large corporations. Sponsors may have a longer timeframe for financial returns and may be willing to encourage otherwise financially-marginal projects. If the potential energy benefits are good, they may be willing to take risk positions that others will not. The NW Alliance, for example, invested in Magna-Drive early, and then private financiers followed.

What benefits are in turn expected? Must the new venture create a more efficient product than market actors currently offer? Sometimes a new player can potentially increase the market share of efficient products or services by marketing better, selling cheaper, or reaching additional market niches, but they may also take business away from existing market actors and products. For example, while Magna-Drive may result in speed control in some completely new applications, the product could also conceivably compete in applications where higher-efficiency variable speed drives are already selling. The NW Alliance staff and board concluded that the potential benefits were greater than the risks, and they proceeded. Each sponsor must consider whether their charter allows them to invest in such situations.

In some cases, sponsors may also ask for a share of the profits in return for early investment in a venture or product. The NW Alliance, for example, has created such arrangements in their agreements with Magna-Drive and Siemens. This type of profit sharing is negotiated at the start of a project. The duration of the agreement and the basis for profit-sharing (gross or net profit, etc.) have varied from project to project, based on the level of sponsor investment and the nature of the product.

Are the private sector partners committed to establishing an energy-saving product or service? Some businesses may ask for sponsor support, but offer little evidence of their own long-term commitment to the project or to marketing efficient products.

Broad Market Support

This category covers a grab bag of tools to directly help multiple firms succeed in markets with efficient products or services. The strategy is employed in situations where:

- an efficient product or service exists (although it may require some refinement or a marketing boost);
- it can be clearly identified by the market; and
- multiple parties can provide it.

This approach is not exclusively a “new business” approach; it often focuses on expanding the market share of efficient products and services delivered by existing providers. However, as some of the examples below show, it sometimes brings new players into a market and results in changes as to how the market is structured.

Types of Help

Sponsors can fund or provide market research and planning, technology or contract demonstrations, training, case studies, program projects, financing, and cash incentives. Help is provided to all businesses wishing to promote efficient products or services.

Examples

Electronic ballasts. Many utilities have promoted electronic ballasts through rebates, demonstrations, marketing, endorsements, quality control oversight, direct installation, and a variety of other programs. While these efforts predate the term “market transformation” they helped build both a specialty manufacturing industry (new ballast manufacturers) and integration of electronic ballasts into the lines of existing manufacturers. The product is sufficiently accepted today that there is a consensus between the federal government and manufacturers that electronic ballasts (or equipment with equivalent efficiency) will be required under federal appliance standards by 2005 (Energy Users News 2000). Market evaluations have confirmed that utility and government programs have significantly accelerated the market share of electronic ballasts (Rosenberg 1998). This in turn has contributed to the acceptance of the standard.

Performance contracting. Public Service Electric and Gas’ Standard Offer program (operated in the mid-1990s through 2000) was intended to build a sustainable energy services business sector in New Jersey. It offered payments for savings measured over many years,

utilizing consistent, regulator-approved, measurement protocols. When the level of incentives paid under this program was cut back, all but a few Energy Service Companies left the program (Edgar, Kushler & Schultz 1998), and it appears that most became inactive in the state. Seemingly, this program did not meet its goal because the business model required to work with the statewide verification and metering requirements, quality control system, etc., does not resemble the model employed by those performance contractors who are well-established outside of utility programs (e.g., Johnson Controls). The program requirements created an industry built around those requirements, not the needs of the market. In a recent joint statewide utility program settlement filing (NJ Utilities 2000), New Jersey utilities have proposed a different approach to building the performance contracting industry. This process targets the markets where performance contracting is typically most successful – schools and government – and provides technical assistance to help those entities understand and enter into performance contracts with confidence. It remains to be seen if this approach will be more successful.

Key Considerations for Funding Organizations

Broad market support can be politically popular because it provides benefits to many businesses. However, it can lose its focus easily. It is much easier to create an active project than a detailed plan for how a new product or service will achieve a stable market share. Therefore, sponsors must ask: *“Do I know what I’m selling? Is it defined clearly enough that a customer can find it off the shelf? Will the support we provide make purchase sufficiently compelling once the support is gone? Do we know how to surmount key market barriers?”*

Financial commitment from private businesses is not sufficient evidence to warrant funding by itself. Not all businesses do good market planning. They may be looking to the sponsor for the foresight they lack, or have different motives than the sponsor, or be willing to make a short-term commitment to spend the sponsors’ money.

There also must be a delivery system, or “supply chain” that can respond to the increase in demand.

Definition, Branding, and Promotion of a New Market-Wide Product Class

This strategy is one response to a situation where there may be efficient services or products available, but customers don’t know how to identify them among the available choices. A label, standard, or brand is created, demonstrated, and marketed. By “market-wide” we mean that the new label is available to numerous competitors, as long as their products or services have specified efficiency features. This market-wide focus is in contrast to New Enterprise or Business Initiative Development, where the focus is on one venture. In some cases, the new “label” does not even refer specifically to efficiency, but to other appealing product features such as comfort, utility, durability, and so on. Efficiency can sell as a byproduct.

Types of Help

This strategy often is used in tandem with the types of market support described in the previous section. In addition, sponsors can provide a neutral place and facilitator to help competing providers agree on the need, criteria, and procedures for qualifying efficiency-

branded products and services. Sometimes there is also a need for research to help test and demonstrate benefits as well as refine the quality standards behind the label or brand. Sponsors can also help plan promotions, evaluate, and (as discussed further below) establish a permanent, self-funding organization to maintain and promote the brand. Additionally, the sponsor can sometimes enhance the credibility of a new efficient brand through their direct endorsement.

Examples

Building Operator Certification (BOC). The NW Alliance funded development and provided initial operating subsidies for a building operator training and certification program (BOC) operated by a Northwest energy-efficiency trade group, the Northwest Energy Efficiency Council (Peters, Baggett & Robison 1997, 1998, 1999). Additional assistance included NW Alliance endorsement and promotion, evaluation, development of case studies, and business development feedback. Beyond building a market for certification itself, the NW Alliance hopes that the BOC will help managers understand the bottom-line benefits of good O&M and select and/or train staff to be “resource-smart” operators. The course addresses operation of buildings to maximize efficiency, but also targets comfort, safety, equipment life, and compliance with codes.

After three years, the Northwest Energy Efficiency Council (NEEC) is operating the program on a near-break-even basis, and is franchising it nationwide. While there are other certification programs in the U.S., the BOC is finding a niche among operator certifications based on geography, types of operators, and types of training. This example serves to demonstrate that niches for programs are not always neat; markets sometimes need a family of related products to maximize efficiency for different consumers.

Motor repair specifications. Under funding from the Department of Energy, Washington State University has developed a model specification for efficient and effective repair of motors (Douglass 1999). The Consortium for Energy Efficiency and several member organizations are considering promotion of this specification. This is a case where the impetus for the new “brand” had to come from outside the affected industry, because of complex relations between trade groups and rewind shops. However, without support from at least the more ambitious shops, the specification could become politically contentious and thereby ineffective. For this reason, local utilities in at least two regions are now testing the specification with select vendors to make sure it will not meet with undue resistance. Efforts to promote the brand will follow enlistment of industry support.

GOOD CENTS®. GOOD CENTS® is a nationally-franchised promotional name for efficient housing that has been used to promote market demand. It differs from the above efforts in that standards vary by region. They are determined by sponsors, sometimes in consultation with builders. The NW Alliance in recent years has sponsored a version for manufactured housing called Super GOOD CENTS® (Hewitt, Pratt & Smith 1998, 1999).

Key Considerations for Funding Organizations

Potential sponsors need to consider whether they have the right skills, authority, longevity, and political position to take on the “neutral third party” role or whether they

should finance another organization to do this. Some utilities have awkward relationships with various vendor groups because their unregulated subsidiaries are buying or competing with firms in the same market. While customers ultimately need to decide if the product is credible, vendors can hurt the credibility if they believe the initiative is biased.

Sponsors may need to coordinate with an industry organization to work out the details, but also need to assure that the new “brand” is sufficiently efficient to warrant their support. The vendor involvement must be crafted to allow the appropriate balancing of sponsor and vendor objectives.

Perhaps the most complex part of this type of business building is deciding how aggressive, in terms of energy efficiency and other features, the new standards should be, and how broad to make the initial constituency among service providers. For example, the efficient motor repair specification entered a market where different specifications were already offered by quality-oriented suppliers, high-end shop certifiers, and trade groups. However, each existing specification was either too expensive or demanding for most shops to meet (and for most customers to pay for), or did not provide a clear way to verify compliance. The Washington State University specification is intended to create a level of quality repair that is verifiable and can aid efficiency, but that does not require major capital investment. This may open up additional markets to quality repair.

Create Sustainable Institutions to Support Efficient Products and Services

This is described as a separate “category” in this paper, not because it is a stand-alone approach, but because it is a tool which may be useful in other approaches, and which has unique advantages and complications. Sometimes broad or brand-based marketing strategies need to be pursued on a sustained basis, but there is no organization positioned to provide training, certification, qualification, coordinated promotion, or other industry-wide services. Sometimes an existing organization can do this, but they lack the funding base to sustain the initiative. In these situations, a sponsor can help foster a self-sustaining organization.

This differs from establishing a new venture in that the role of the new institution is focused on making *other* businesses successful and profitable at selling efficiency. Their role is a support role. Usually, this role is played by a non-profit institution or an educational or government entity.

While creation of new institutions is often valuable, it is easily subverted and perverted if the charter is not clearly defined and justified, or if personnel lose sight of it. There is a tendency among some project developers to fall victim to “edifice complex,” whereby concrete goals take precedence over broader, but more strategic goals for market change. It is easier to plan a building than an organization, and simpler to plan an organization than a self-sustaining market change agent. It is critical that any new institution have a clear and appropriate role in a plan for market change.

Types of Help

Sponsors can provide all the services described above for the other market-wide strategies, depending on the need. A common role is to provide seed or start-up money until revenues from services cover costs.

Examples

Performance Tested Comfort Systems. This NW Alliance initiative is intended to expand the market for residential duct-sealing and other residential efficiency HVAC technologies in the Northwest (NW Alliance 2000b). An independent organization has been established to coordinate, test and certify retrofits of residential systems, and to train and certify contractors to provide high-quality services. The organization will ultimately be supported by the market (i.e., contractor-funded). Key interim steps include establishing a business plan, setting up the organization, training and certifying contractors, and marketing to establish customer demand. It is important to note that this is an example of branding as a strategy, but development of a new institution for delivery and quality assurance is required to make it work.

Key Decisions for Funding Organizations

Potential sponsors must determine if there is a need and a plan for the organization. Is there no existing vehicle for the needed services? The new institution must at least potentially have the support of the vendors and service providers that it is serving. To do this, it cannot be in direct competition with them. It also must provide good service to its constituents while achieving sufficient revenues to cover costs and support itself.

The defined scope of services must be sufficiently broad to create a meaningful new market. This often requires a broader strategy of which the institution is *a component*.

Help Power Marketers Incorporate Efficiency Into Their Product Lines

This is a special type of business-building that can incorporate elements of the above strategies. It is discussed separately because power marketing creates unique opportunities for efficiency business-building.

Some power marketers are exploring opportunities for melding efficiency marketing with power marketing. Efficiency can lower overall power costs, making a power provider appear more competitive. For example, one power marketer (PG&E Energy Services) has set up a joint venture with the nation's largest property management firm to market both power and efficiency services to their clients (Schick 2000). Other power marketers are selling power as a commodity, but using their entrée with the customer to promote efficiency services as separately priced products. Still others are not focusing on efficiency at all.

Some regulated utilities have made special efforts to make their regulated efficiency programs accessible to energy service companies and power marketers. This can help the regulated utility meet their efficiency goals while aiding power marketers in learning how to use efficiency in their business development. One example is Conectiv Power Delivery (CPD), of New Jersey. A significant number of 1999 projects under Conectiv's Power Smart program for C&I construction have come from ESCos, many from affiliates of power marketers. CPD helped increase the efficiency of equipment upgrades beyond the level that ESCos would have provided on their own. As another example, Massachusetts Electric recently established a series of program provisions for their Design 2000 Plus and Energy Initiative programs to ease use by and coordination with ESCos, including power marketers.

At least one advocacy group has taken an unconventional route to assure integration of efficiency into power sales. For the new Boston Convention Center, the cooling system

was initially specified as a large number of package HVAC units, a very inefficient but low-cost solution for a large building. Bids were solicited for provision of power to the facility. The Conservation Law Foundation of New England (CLF) contacted some of the bidders to see if any were willing to propose an HVAC design upgrade to an efficient chiller system as part of the power sales package (Kennelly 2000). As a politically influential entity, the CLF could both help create a receptive environment for such a bid, and also help garner the attention of a bidder that such an opportunity existed. As of the date of this paper, the results are not yet known.

Another initiative pairing utilities with power sales organizations (which is too early in development to be identified) involves efforts of a utility to work with a quasi-governmental institution that aggregates government and school entities to buy power. The utility is exploring working with the power broker to provide Resource Conservation Manager (RCM) support to their buyers. This involves guaranteeing the salary, if an institution will hire an RCM, then providing technical support and backup (Coleman 1996). The hope is that the power-brokering agency can eventually fund this type of support out of a fee to be assessed to the agencies served (perhaps a portion of the savings). This could create a sustainable organization to foster RCM services over the long run.

Conclusions

This paper shows the superabundance of efficiency business-building opportunities and of approaches. Business-building strategies can help meet the key conditions of market transformation:

Condition 1: Lastingness in the market

Condition 2: Independence from utility funding

Condition 3: Integration into the market with active market actors

Condition 4: Viable, competitive, and eventually the market norm.

However, business-building cannot address all conservation opportunities, and is not a good fit for all sponsors. Careful market and business planning is essential. Each type of business-building project places different demands on the sponsor. Potential sponsors should consider both their own strengths and their market goals when selecting approaches to employ. Sponsors must build the right sets of skills, alliances, and procedures to effectively manage each selected strategy.

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