

You Never Know Until You Try: An Independent Evaluation of the EnVINTA One-2-Five[®] Energy Program

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ABSTRACT

The EnVINTA pilot, sponsored by the Northwest Energy Efficiency Alliance (the Alliance), tested the efficacy of a diagnostic tool developed by Energetics and marketed by EnVINTA. Energetics developed the *One-2-Five[®] Energy* software program as a front-end service to clients, a proprietary software that guides a firm through a series of questions that serve as a diagnostic to detect management opportunities to reduce facility energy use.

This product differs from more familiar energy services such as technical audits, consulting services, and energy accounting software and services.

The *One-2-Five[®] Energy* diagnostic was delivered using two different approaches: one, a two-hour interactive workshop format with a management team for a facility; the second, a two-day facilitated investigation, including the two-hour interactive workshop and interviews to enable the development of an action plan.

The software is designed to adjust for different types of facilities, be they commercial or industrial, and to be responsive to different business types, sizes and managements.

The Alliance contracted with EnVINTA to conduct diagnostics at four sites and diagnostics with plan development at six sites. These were conducted between fall 2001 and summer 2002.

The evaluation addresses the following questions about the product and services:

- Would management practices be influenced by the diagnostic?
- Would any facility follow-through on the five critical elements?
- How much savings were achieved from implementing the recommendations?
- Would management practices be influenced by the diagnostic and additional plan development services?
- Would the plan development services provide long-term energy savings?

Introduction

The Northwest Energy Efficiency Alliance (the Alliance) is a non-profit group of electric utilities, state governments, public interest groups and industry representatives committed to bringing affordable, energy-efficient products and services to the marketplace. In September 2001, the Alliance contracted with Research Into Action, Inc. to conduct an assessment of the Alliance EnVINTA *One-2-Five[®] Energy* Pilot Program (the EnVINTA Pilot). This introduction will discuss the nature of the EnVINTA Pilot program and the approach taken to assess the pilot effort.

The EnVINTA Pilot

The EnVINTA Pilot program was set up to test a unique product offered by Energetics, an Australian engineering company, and their American subsidiary EnVINTA. The following describes the service and the pilot.

Alliance interest. The Alliance learned of the EnVINTA *One-2-Five*[®] *Energy* program in summer 2001. EnVINTA and Energetics indicated that the diagnostic session using the trademarked software program was very effective in informing firms of opportunities to manage energy more effectively and had been used successfully in Australia; it had recently been adopted by many utilities in the United States as a service for their industrial and large commercial customers. In the summer of 2001, it also became an EPA ENERGY STAR[®] qualified service.

Alliance interest in the *One-2-Five*[®] *Energy* program arose because it appeared to have a unique approach targeted at identifying barriers to efficiency in management structures. However, because this approach seemed unique, and the EnVINTA product had not previously been subjected to a third party objective evaluation, the Alliance determined that the best way to assess the true value of the program was to engage a few large industrial customers in a “pilot” test and conduct an evaluation of the effort.

The service. Energetics developed the *One-2-Five*[®] *Energy* program as a front-end service to clients. The program is proprietary software that guides a firm through a series of questions that serve as a diagnostic to detect management opportunities to reduce facility energy use and greenhouse gas emissions.

This product differs from the more familiar services, such as technical audits of facility equipment and envelope conditions, consulting services that provide assessment of energy management capability, and energy accounting software and services that look at energy usage practices. There is no known comparable product offered at this time in the U.S. market.¹

The *One-2-Five*[®] *Energy* diagnostic takes two hours and is conducted in an interactive workshop format with the management team for a facility. It is often preceded by a brief walk-through of the site, if there is time. The software is designed to adjust for different types of facilities, be they commercial or industrial, and to be responsive to different business types and sizes, as well as different types of management.

The diagnostic process concludes by identifying five critical activities for the facility to undertake to move in the direction of best practices in energy management for their industry or business type. These activities are identified in a report that is delivered to the firm’s contact within a few days following the diagnostic. This usually includes an in-person presentation of the results by the EnVINTA facilitator.

The approach described above is the standard diagnostic service provided by EnVINTA. Usually this service is offered by a utility to their customers. EnVINTA staff members normally facilitate the diagnostic with an additional follow-up conducted by the utility.² The follow-up can take a variety of forms, but program offers and consultation on system optimization are the most common.

¹ Personal communications with Leland Keller of E-Source and Lynn Fryer of Primen Consulting.

² In some cases EnVINTA trains the utility staff to conduct the diagnostic.

The pilot. As part of the Alliance EnVINTA Pilot, EnVINTA conducted the diagnostic and provided follow-up services for six facilities of a food processing company. This package of diagnostic and plan development services is similar to the approach used by Energetics in Australia.³ The services occur over a two-day period of investigation, beginning with an initial walk-through of the plant by the EnVINTA facilitator on the first morning, followed by a two-hour diagnostic session in the late morning or early afternoon. The facilitator then holds meetings (in their work settings) with each individual that attended the diagnostic to discuss the five critical activities and to identify opportunities for implementing them. These discussions take place over the first afternoon and most of the second day. At the end of the second day, the facilitator meets with the facility implementation lead to develop an action plan for projects that can address the five critical activities.

The Evaluation Approach

The evaluation had the following objectives:

- observe and comment on participating facility response to the diagnostic workshop;
- assess facility response to the diagnostic results after the presentation; and
- make recommendations to the Alliance about the diagnostic as a market transformation service.

To accomplish these objectives, Research Into Action attended three of the five diagnostics in-person, conducted follow-up discussions within one to three weeks after the presentation with each of the lead contacts for the four corporations, and attended meetings with Alliance staff to discuss the EnVINTA experience. In addition, Alliance staff attended four diagnostics in-person. These results were presented in a *First Follow-Up Report* (Peters 2002).

In winter 2003, Research Into Action conducted additional follow-up interviews with each of the four corporation lead contacts, as well as with EnVINTA and Alliance staff. The results of the second follow-up are discussed here and will be available from the Alliance in late 2003.

Results

This section is divided into two parts. The first part discusses the findings from conversations with corporate contacts, EnVINTA and the Alliance; the second discusses the types of projects being implemented as a result of the diagnostic.

Results from the Diagnostic Service Without Plan Development

The conversations with the corporate energy managers for each of the four firms involved in the pilot found that their initial reaction to the diagnostic was generally positive. Most of the corporate energy managers thought the diagnostic had served to point out

³ Interview with EnVINTA staff.

opportunities for improvement and in all but one case, it appeared that there was a possibility that some effort would be made to try and address one of the five critical elements.

At the same time, two of the energy managers were having discussions with the Alliance to pursue its offer to provide assistance in developing an action plan. The other two companies were, however, unlikely to pursue further efforts for their own unique reasons.

The microelectronics firm was facing a downturn in the market, as well as a corporate merger. As a consequence, they had no intention of pursuing the recommendations from the diagnostic in the short-term. However, after the diagnostic they included an energy goal in their Environmental Health and Safety Policy, which was signed by the CEO, addressing the corporate commitment critical element.

The privately held pulp and paper company had found the diagnostic was not particularly suited for their approach to business. The diagnostic is grounded in a corporate financial management approach; the privately held pulp and paper company had developed their own business management practice which, rather than setting budgets, compared current year to past years' performance. A tension developed during the diagnostic because the management team could not attain higher levels of recognition in the software, primarily because their management practices were different than the more corporate approach used in the software. This left the management of the company feeling that the diagnostic could not meet their needs.

Though two of the corporations entered negotiations with the Alliance for assistance in developing action plans, only one signed a contract. The privately held pulp and paper company's energy purchasing manager was unable to obtain a commitment from the mill managers at either of their two facilities. In neither case had the mill manager participated in the diagnostic. The energy purchasing manager felt this reduced the mill managers' commitment to conducting additional activities. Furthermore, at one facility, the management team became involved in installing a new paper machine, which could have been implemented using *One-2-Five*[®] *Energy* principles, but the mill manager did not see this as useful. For the other facility, a new mill manager was hired shortly after the diagnostic and he saw no value in it at all.

The corporation that did pursue action plan development, the privately held food processing company, was very enthused about the diagnostic. They requested, and the Alliance agreed, to conduct five additional diagnostics and to pursue action plan development at all six facilities. To do this, the company agreed to cost share the service with the Alliance, which until this time had funded all diagnostic activities.

Table 1 displays information on the four corporations and their general reactions to the EnVINTA *One-2-Five*[®] *Energy* diagnostic service.

Table 1. EnVINTA Pilot Participants

Industry Type and Number of Facilities	Type of Service	First Follow-up	Second Follow-up
Pulp and Paper: Privately Held Corporation – 1 facility	Site specific diagnostic	Good for team, ideas will be considered, but not likely to pursue	We already are doing many of the recommendations did not really need it
Pulp and Paper: Publicly Held Corporation – 2 facilities	Site specific diagnostic for each facility	Good for team, plan to try and implement some ideas, perhaps develop and action plan	Good for team, did not have time or ability to commit time to implement ideas
Microelectronics: Publicly Held Corporation – 1 facility	Corporate level diagnostic across three facilities	Conducted at too high a level, might conduct at site level in future	Conducted at too high a level, might conduct at site level in future, too busy with recent merger
Food Processing: Publicly Held Corporation – 6 facilities	Site specific diagnostic with follow-up plan development service	Good for team, plan to try and develop action plan and implement ideas	Good for team, did develop action plan and have done some implementation, more depends on funding
Three Industries: Four Corporations – 10 facilities	—	—	—

Results from the Diagnostic with Plan Development Service

The diagnostic with plan development service appears to have resulted in a high level of involvement on the part of the facilities. It also engaged the corporate energy and operations managers in an on going effort to work with their facilities to ensure energy management projects were considered at the facility level. It did, however, occur as a result of substantial involvement at the sites by the EnVINTA staff, as compared to that provided for the diagnostic service alone.

Table 2 displays the type of projects developed in the action plan and the estimated capital costs and savings value for each project.

The projects are largely O&M efforts, with little capital outlay required. The one project with capital costs was in the planning stages at the time of the diagnostic. The action plan that emerged after the diagnostic was to apply the *One-2-Five*[®] Energy principals to the project and thus attempt to ensure that the energy use for a new blancher was well managed. Total program costs for the EnVINTA Pilot are less than \$100,000, which is substantially less than the estimated value of the savings.

Table 2. Implementation Projects at the Food Processing Corporation

Facility	Project Description	Capital Costs	Estimated Value of Savings
Idaho 1	Optimize dryer operations	0	\$60,000
Washington 1	Reassess upgrade and optimize blancher operations	\$115,000	\$149,000
Idaho 2	Optimize boiler operation	0	\$80,000
Oregon 1	Optimize refrigeration upgrade and operations	0	\$80,000 – \$105,000
Washington 2	Optimize compress air operations	0	\$10,000
Idaho 3	Improve operational performance with COP algorithm	0	\$60,000
Total		\$115,000	\$439,000 – \$ 913,000

Lessons Learned

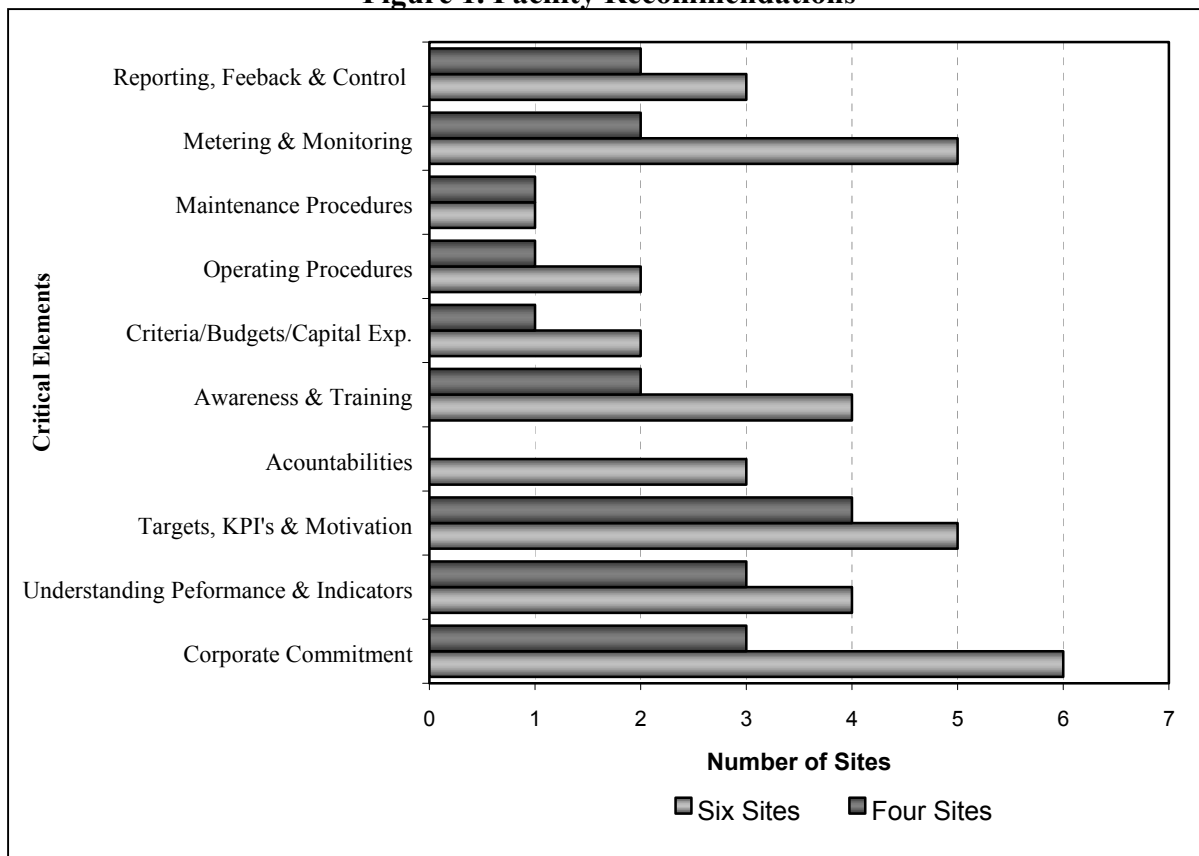
The key lesson learned from this pilot is that the diagnostic on its own is unlikely to result in changes in energy management practice. Although three of the four facilities that had the simple diagnostic were enthusiastic about it and thought that they would implement some of the critical elements, a year later the diagnostic had had no measurable effect.

At the same time, the corollary to this finding is that the diagnostic coupled with action plan development can lead to changes in behavior, at least relative to specific projects and perhaps (though not yet demonstrated) to overall energy management practices. There are, however conditions that must be in place for this to happen:

- The facility manager needs to be committed to, and probably even a participant in the diagnostic.
- The facility needs to commit the time and assign a lead person to develop an action plan with the diagnostic facilitator.
- The diagnostic facilitator needs to be skilled in facilitation, in understanding where opportunities for energy management and optimization exist and needs to be an effective coach with the facility lead.

Another key lesson learned concerns the recommendations that emerged from the five critical elements for the ten sites. These show some interesting patterns as displayed in Figure 1.

Figure 1. Facility Recommendations



The bar for “six sites” represents the results for the single food-processing corporation and the bar for “four sites” includes the results for the three pulp and paper and one microelectronics firm. Four of the critical elements that emerged for seven or more of the sites are: corporate commitment; understanding performance and indicators; targets, KPI’s and motivation; and metering and monitoring.

Three of these elements deal with the process of determining performance targets for individuals and for the processes at the plant: setting, monitoring, and adjusting goals. In talking with the corporate energy managers it became clear that, while they would like to have performance measures to monitor and track their processes, they in fact are not sure what information would really be useful or essentially how to assess its value relative to the investment required to purchase and install the necessary equipment.

While the EnVINTA’s *One-2-Five*[®] *Energy* software can point energy managers to the need for this information, indeed for the need for a variety of different management practices, it does not identify the steps that must be taken to achieve them. Additionally, facility and corporate energy managers noted to us that they are uncertain what type of measurement and monitoring information will be most effective in helping them manage their energy use. Thus, the lack of clear steps becomes even more challenging, as firms are hesitant to make investments to improve their information because they are concerned the value of the information will be less than the cost of obtaining it. The development of an action plan is a key step that can assist the firm is focusing their efforts on specific systems

and thus incrementally test the value of additional information for management of a specific process.

Program Recommendations

At a utility or agency program level, these lessons learned translate into some specific preconditions before implementing a program (especially a market transformation program), based on the EnVINTA product:

- There should be cost sharing with the industrial facility, to increase commitment to the diagnostic and development of an action plan.
- There should be an entity (with knowledge of industry processes and skills in facilitation) to provide follow-up services to participating facilities and help:
 - identify opportunities for actualizing the five critical elements;
 - develop an action plan that prioritizes the opportunities and proceeds with implementation;
 - coach the facility in their efforts to measure and monitor and implement the plan; and
 - document actions implemented as a result of the action plan.
- There is also a need for a more general demonstration of the value of different levels of energy information. Monitoring and measurement of energy performance is a common critical element in the EnVINTA *One-2-Five*[®] *Energy* diagnostic, yet the energy managers commented that they do not know how to fully assess the value of different types of energy information relative to one another, when is it enough to just know the load profile for their plant and when and where is spot metering the best option. Some demonstration efforts of this kind could be very effective in helping energy managers make decisions about making the most cost effective investments in energy information.

Conclusions

Products that promise to help utilities and energy agencies assist customers to change their energy usage practices are very attractive. At the same time, those who seek to promote a product will focus on the benefits and successes of the product without necessarily exploring what is fully required to enable the product to achieve those successes. A pilot test with a third party objective evaluation is a means to explore the effectiveness of a new product in a variety of real customer settings.

In the case of the EnVINTA *One-2-Five*[®] *Energy* program, the results of an evaluation of a pilot test demonstrated that the program could only be effective if it is offered with sufficient support and coaching to ensure that the participating firms develop action plans to implement the recommendations of the diagnostic service.

References

Peters, Jane S. 2002. *First Follow-Up of EnVINTA Pilot*. (E02-097) Portland, Ore.: Northwest Energy Efficiency Alliance.