5 Program Portfolio Management

5.1 Program Portfolio Management Process

The Building Technologies program manages R&D, Equipment Standards and Analysis, and Technology Validation and Market Introduction activities systematically to meet department and Office of Management and Budget (OMB) requirements. BT's planning and management activities are organized around the Department's and OMB's schedules, as shown in the table below.

Table 5-1 Building Technologies Portfolio Management Process and Schedule

	January March 2008	April – June	July – September	October – December	January April 2009
Multi-Year Planning (MYP) and Analyses	MYP Update *Outcomes:* Improved MYP that serves as basis for FY09 and FY10 budget, as well as the FY09 AOP		Program Review Period *Outcomes:* Program reviews that incorporate peer review findings and provide basis for MYP update	MYP Update *Outcomes:* Improved MYP that serves as basis for FY09 AOP; updated MYP may also suggest issues for FY10 budget formulation	
Budget Cycle	Nomination of issues to be considered in EERE budget development	• EERE FY10 budget development • FY10 Internal review budget formulation period • Draft budget to EERE/Chief Financial Officer	• Budget review and revision period • FY10 budget to OMB	• FY09 budget appropriation • FY10 passback from OMB	EERE FY10 budget development
Annual Operating Plan (AOP)		• Energy savings calculations for FY09 AOP submittals • AOP evaluation meetings • Completed AOP draft	AOPs revised to include corrective actions that respond to peer review criticisms	FY09 AOP implementation begins	
OMB PART Activity	BT expects to participate in OMB PART for FY09.				

The above schedule drives BT's portfolio management, in which BT follows EERE best practices as set forth in the Program Management Guide.[1] The operating principles set forth by EERE require each program to:[2]

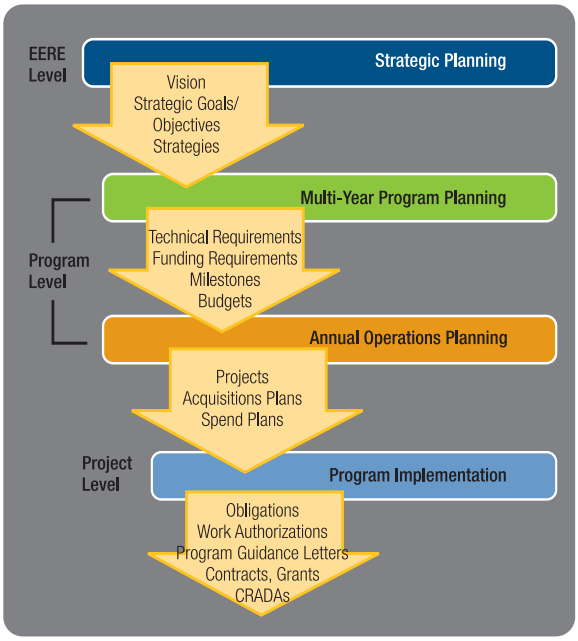
- Develop an explicit mission and a vision;
- Establish long-term and near-term goals and objectives to achieve the vision and mission;
- Determine strategies to achieve goals and objectives;
- Allocate scarce resources through the budget process among those strategies;
- Track progress and results to ensure that plans are being carried out and the desired outcomes are realized; and
- Review goals and objectives needed to ensure relevance and that BT is making sufficient progress towards achieving both.

As stated in the guide, the BT Program Manager, is responsible for producing a series of plans against which the Program is executed. These plans include:[3]

- Multi-year program plans (MYPP);
- Annual operating plans (AOP); and
- Approved funding programs (spend plans).

These plans fulfill the BT Program's management objectives as illustrated in Figure 5-1. BT believes that the process used to develop the plans is essential in creating functional plans that guide a project throughout implementation. Developing plans and executing against those plans is essential for good program management.

Figure 5-1 Program Management Overview[4]



5.1.1 Multi-Year Program Plan Development

Development of the BT Multi-Year Program Plan is the key tool used in the portfolio decision-making process. The key elements of the Multi-Year Plan are listed below:

- Discussion of the program logic, which links program outputs to achievement of objectives and ultimately to outputs in the market
- Schedule of key milestones to achieve objectives
- Identification of resources to achieve milestones
- Decision points for completion, graduation, or termination of projects within activities
- Identification of interrelationships between activities and projects
- Criteria for portfolio balancing and project selection

In developing the MYPP, BT begins with the goals, objectives, and strategies developed during EERE strategic planning. Within these strategies, annual targets and milestones are identified along the critical path to the program objectives and goals. The annual targets and milestones also represent key decision points for determining if the Program is on track toward achieving objectives. This allows the Program to facilitate timely adjustments to the strategies as needed. Targets are managed within and across projects through Stage-Gate methodology.[5]

1 *EERE Program Management Guide*, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, December 2003. Hereafter, PMG.

2 PMG

3 PMG, p. 2-22

4 PMG, p. 2-23

5 Winning at New Products (Third Edition), Robert G. Cooper, 2001.

The MYPP identifies baseline conditions, a schedule of key interim targets and milestones, and the final objective for each project. Targets are measurable against the stated objectives. In the Stage-Gate methodology, key decision points, gates, are identified and discussed based on pre-determined gate criteria. Fulfilling the must-meet gate criteria allows the project to proceed to subsequent stages while failing to meet criteria results in stopping the project or repeating the stage. Depending on the evaluation against gate criteria, plans are developed for graduation, completion, or termination of activities within projects, or projects themselves, as BT moves towards overall goal attainment.

Projects are more than a collection of similar activities focused on a particular objective; they provide continuity within a multi-year framework for achieving targets. The projects build to complement each other, achieving longer-term objectives and eventually outcomes that impact the marketplace. After completing the MYPP these projects are executed through the AOP.

5.1.2 Annual Operating Plan Development

To accomplish near-term goals and select projects, BT develops an AOP, which describes:

- Tasks to be pursued in the upcoming fiscal year;
- Resource allocations to performers;
- Outputs (annual targets and quarterly milestones) and delivery dates; and
- Causal linkage between program outputs and contributions to program goals and objectives.

The President's Budget Request forms the planning framework within which the AOP is developed. The Budget Request provides substantial detail as to planned activities and potential resources, and establishes the resource levels that constrain statements of need to which proposers respond. Until the budget authorization is complete, the AOP is considered a draft working document.

The Technology Development Managers (TDMs) determine the projects required in the upcoming fiscal year to achieve the near-term targets, using results from the multi-year planning process. While only Joule[6] targets are displayed in the Budget Request, all projects funded have targets and quarterly milestones. Some of the targets will be achieved by follow-on tasks, building on project activities funded in prior fiscal years, while others will require the initiation of new projects or new tasks within existing projects. All targets will require the identification of specific tasks, applicable funding requirements, and the timing of the funding obligations.

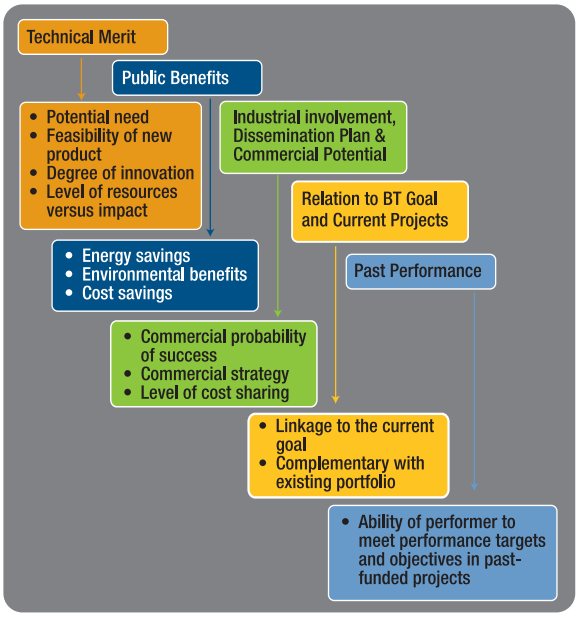
In some project allocations, work performers and/or procurement vehicles will already be identified, and congress directs some activities to be performed by specified entities. However, to the extent possible, BT uses a competitive process to solicit the best projects and most cost-effective methods for achieving performance targets along technical pathways. Competitive solicitations may be formulated as soon as the Administration's Budget Request is submitted in February. BT also encourages an informal "competition of ideas" among DOE laboratories and contractors to bring forth new ideas that address the needs of technical pathways contained in this MYP.

In implementing the President's Management Agenda, BT uses objective investment criteria for selection of individual project activities (project selection criteria) as well as for prioritizing and integrating the overall portfolio. These combined criteria focus the Program's portfolio on technologies that address National Energy Policy goals, provide clear public benefits, and that are unlikely to be developed by the private sector alone. The application of these criteria addresses the need for performance-based public-private partnerships, well-defined comprehensive program plans, and clear "off-ramps" or termination points.

The set of potential projects includes all ongoing R&D projects as well as all new project proposals. R&D resources include manpower, facilities, and financial resources. The allocation decision process is based on established criteria, illustrated in Figure 5-2. Each project must provide data and supporting analysis that allow the project to be evaluated against these criteria. The format, timing, and calculation of benefits of proposals are all part of a standard developed in BT. Incomplete or missing information, or late submission, means that the project cannot be part of the selection pool. Proposals are requested annually during a thirty day period in the April timeframe.

6 DOE corporate tracking system

Figure 5-2 Project Selection Criteria



In addition to management judgment and discretion, the projects are selected against the established selection criteria. After individual proposals are scored against the selection criteria (May timeframe), the next step in the process is to examine the selected candidates against the portfolio criteria, to assure adherence to established priorities and resource constraints.

The initial proposal selection process is completed in June, so that formulation of the draft AOP can begin. Actual project awards are not made until Congress passes the appropriation bill and the President signs it into law. Ideally, this happens in late August or early September; and at this point, the AOP is finalized.

Next, a spend plan is developed once the final tasks, performers, and resources are known. The spend plan is a simplified version of the AOP, primarily a management tool for procurement, but it provides additional detail regarding specific tasks, performers, and resources identified during previous planning stages. Projects are tracked and evaluated against the AOP, and it is also the source of information for generating Work Authorizations and Program Guidance Letters.

5.1.3 Stage-Gate Process Development

BT has adopted and adapted Stage-Gate Management to increase the pace and yield of its R&D portfolio.[7]

Stage-Gate, once fully implemented in both project and portfolio modes, will allow BT to:

- More effectively identify real opportunities;
- Commit resources appropriately;
- Assess progress;
- Maintain continued project relevancy to market and policy goals; and
- Act decisively based on appropriate technical, market, and policy information delivered in concert at pre-determined points in time.

This approach will eventually provide greater transparency, simplify and streamline fiscal planning, and allow BT to accelerate the achievement of clearly defined technical and market objectives that serve the Program's long-term goals.

In FY06, BT began the process of adapting Cooper's Stage-Gate product development process to the particular needs of a Federal applied R&D program. BT conducted Stage-Gate pilots on selected projects in FY07, and is using the lessons learned from conducting these pilots to refine the implementation of Stage-Gate in FY08. As of FY08, Stage-Gate principles are applied to the entire BT R&D portfolio.

The Stage-Gate framework for BT is essentially a formalized decision-making tool that ensures when DOE moves a concept from a scientific phenomenon to an actual marketable product, the dedication of scarce resources is justified. As a candidate technology advances through the continuum of stages, the TDM must demonstrate to the Gate Review Team that the technology attains the must-meet technical and market criteria at each gate *before* it advances to the next stage. The Gate Review Team may elect, on the basis of stated criteria and deliverables in support of those criteria, to continue the project, terminate it, or "recycle" the project for further consideration. Project funding is also dependent on stage, which ensures the most promising projects receive resources. By constructing this type of framework, DOE aims to ensure that the Department and its contractors are properly reviewing the R&D projects and analyzing criteria that lead to the successful commercialization of energy-saving technologies.

7 See Appendix C for BT's adaptation of the model developed by Robert Cooper, Winning at New Products (Third Edition), 2001.

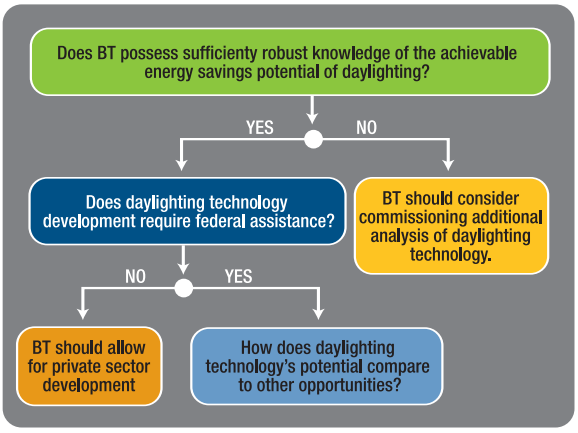
5.2 Program Analysis

Each step in the planning process (from definition of the technical energy savings potential to an evaluation of potential end-user requirements) requires some analysis, and planning invariably occurs with imperfect information. Further analysis can help to reduce or eliminate large unknowns with potentially significant impacts on the goals, objectives, or R&D portfolio. This in turn increases the confidence of technical and market decision-making, and consequently, increases the probability of BT program success. To improve the robustness of decision-making, BT has investigative analysis activities in the following areas as part of its multi-year planning process:

- Applying DOE/EERE risk assessment methods;
- Portfolio analysis, including technology pathways;
- Technology and market analysis; and
- Program benefits, including macroeconomic impacts.

BT is also conducting a crosscutting evaluation of its recent analysis as well as the significant knowledge gaps in its corporate understanding that additional analysis could improve. The objective of this analysis crosscut is to develop an analysis "multi-year plan" with clearly identified priorities that are tied to potential BT decision making. Figure 5-3 provides an overview of this process, using daylighting technology as an example.

Figure 5-3 BT Knowledge Gap Analysis for Daylighting Technology



5.2.1 Risk Assessment

The BT Program primarily addresses research that requires new types of equipment or materials, techniques for combining recent and existing technologies, or innovative design strategies to integrate efficiency and renewable energy features into new and existing buildings. Resulting technologies, designs, and practices must not only meet energy savings goals but function reliably in day-to-day building conditions without adverse effect on health, safety, comfort, or productivity. The need to meet these multiple and sometimes competing performance requirements substantially increases the technical and market risk of BT projects.

Additionally, the pursuit of a net-zero energy home or building will require technologies that do not exist today, and developing these technologies requires inherently higher risk than incrementally improving current technologies. One example of a high risk technology development program is solid state lighting R&D. Successful development of solid state lighting products requires significant technological breakthroughs in areas such as organic light emitting diodes in order to achieve DOE's aggressive energy performance goals.

5.2.2 Portfolio Analysis

R&D portfolio analysis provides guidance regarding key issues that need to be addressed then balanced while making investments. These usually include major R&D issues and gaps, timing of the investment payoffs, and other concerns that are important to management and stakeholders. The objective of R&D portfolio analysis management is to achieve and maintain the optimum balance of investments, which depends on the specific goals, competence, vision and culture of the BT Program.

In the upcoming year, BT will be considering whether additional portfolio characteristics or analytical approaches could be used to improve the R&D portfolio management or provide additional program insights. Such portfolio characteristics could include:

- Risk Assessment (see 5.2.1)—Understanding technical and implementation risks associated with the project is essential for balancing investments, particularly R&D investments, where the risks and uncertainties are significant. The portfolio should include a range of risks and the balance should reflect the nature of the required R&D and the strategy of the Program.

- Technology Pathways—BT is examining the results from various subprogram analyses, such as Building America's Building Energy Optimization Tool (BEopt), and comparing these subprogram analysis results with the performance and cost targets in its Emerging Technologies activities to identify any gaps that might exist. Based on this review, BT has adjusted several areas of research and development to support the long term goal of net-zero energy buildings.

  In FY08, BT will continue to refine and establish the technical pathways that lead to this level of performance. BT will also evaluate the technical needs for the integration activities, along with technical needs for pursuing various component, equipment and practice improvement.

- Technology Development Stage (coordinated with the Stage-Gate process)—Research, development, demonstration, commercialization, and information and data development are typical designations for stages of development. A portfolio should contain projects that focus on the areas of most importance to the Program. For example, some programs do not include upstream research, but instead focus on a mix of development, demonstration, commercialization and informational projects. Other organizations focus on leading-edge research and development and have few investments in downstream commercialization or informational projects.

- Value—The estimated potential value of the project is a key factor in making decisions regarding R&D investment. However, value is not captured by a single term. The value for BT R&D must be comprised of a mixture of elements, such as energy savings, environmental benefits, increased electric reliability, capital and operating cost savings, economic benefit, project alignment with the program's overall strategy, and additional factors that the program management team considers important. These are typically assessed separately and combined into a single value.

5.2.3 Technology and Market Analysis

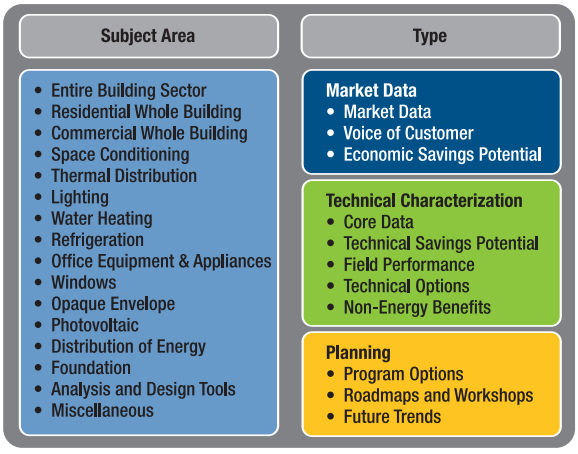
Past analyses have guided programmatic decisions regarding which R&D areas to pursue; examples include the reports submitted to Congress in response to Sections 127 and 128 of the Energy Policy Act of 1992.

More recently, a series of reports that examine the market for solid-state lighting are helping to suggest program directions for this important initiative. The BT Program Manager also uses tools, such as BEopt, to examine technology pathways and suggest optimized whole building technology packages with the potential of meeting performance targets leading to achievement of ZEB.

Technology and market analysis is the core of some programmatic activities. Appliance standards rulemaking and model building codes development both rely on analysis to determine economically justified levels of codes and standards. In both cases, the analysis determines the target levels for codes and standards, while the actual levels are set in an open and cooperative process with stakeholders and industry.

BT has a long history of conducting technology and market analyses to support program activity and then publishing results. In support of its multi-year planning process, BT is conducting a crosscut of its analysis activities. The goal of this exercise is to identify analysis, including market analysis, needed to provide a firm foundation for decision making regarding BT's R&D portfolio in FY08 and subsequent years. To aid in this process, BT has developed an analysis taxonomy which characterizes key market and technology assessments– either funded by BT or actively used by BT. Appendix D includes this taxonomy and it is also illustrated in Figure 5-4.

Figure 5-4 BT Analysis and Document Taxonomy



5.2.6 Program Benefits

Estimates of potential benefits resulting from achieving BT Program goals are shown in Table 5-2. In addition to the types of benefits quantified below, building efficiency and renewable technologies often provide non-energy benefits, such as improved lighting quality or improved comfort that then results in increased building occupant productivity. The benefits estimates reported in this table do not include any expected acceleration in the deployment of these new technologies due to the unique field partnerships that provide the basis for the Residential Building Integration R&D or synergies with the EPA ENERGY STAR Homes Program.

The assumptions and methods underlying the modeling efforts have significant impacts on the estimated benefits, and results could vary significantly if external factors, such as future energy prices, differ from the baseline case assumed for this analysis.[8] In addition, possible changes in public policy and disruptions in the energy system, which may affect estimated benefits, are not included in the model. External factors, such as unexpected changes in competing technology costs, could also affect the model's accuracy.

The results shown in the long-term benefits tables are preliminary estimates based on initial modeling of some of the possible Program production technologies. These estimates provide a useful picture of the potential change in national benefits over time if the technology, infrastructure and markets evolve in an orderly way; however, uncertainty increases as time increases. Estimated benefits assume that individual technology plans obtain results. A summary of the methods, assumptions, and models used in developing these benefit estimates are provided at http://www1.eere.energy.gov/ba/pba/pdfs/41347_AppG.pdf.

5.3 Performance Assessment

The basic types of performance assessments used by BT include results-based performance reporting using DOE's Joule Performance Measurement Tracking System, R&D Investment Criteria, and PART. The DOE Joule system tracks progress toward annual performance targets through reporting verifiable quarterly milestones tied to targets. Projects that are underperforming are put on a watch list and are required to address deficiencies

Table 5-2 FY2008 GPRA Benefits Estimates for the Buildings Technologies Program[9]

	Mid-Term Benefits					Long-Term Benefits			
Metric	2010	2015	2020	2025	2030	2035	2040	2045	2050
Economic Benefits									
Reduction in average delivered natural gas price (%)	0	1	1	1	2	1	2	4	1
Annual consumer savings (bil $2004)	2	5	8	16	27	60	72	84	71
Annual electric power industry savings (bil $2004)	1	3	7	12	18	16	19	20	17
Reduction in household income spent on energy (%)	0.1	0.2	0	1	1	1	1	2	1
Reduced energy intensity of economy (%)	0	1	1	2	2	2	3	3	3
Environmental Benefits									
Annual avoided greenhouse gas emissions (MMTCE/year)	3	10	32	47	57	72	79	78	77
Cumulative avoided greenhouse gas emissions (MMTCE)	7	44	150	348	621	1023	1404	1795	2181
Reduced cost of criteria pollutant control NPV (bil $2004)	ns	ns	2	4	5	nr	nr	nr	nr
Security Benefits									
Annual avoided oil imports (mbpd)	ns	ns	ns	0.1	0.1	0.1	0.1	0.1	0.1
Reduced oil intensity (%)	ns	ns	ns	0.6	0.6	0.5	0.5	0.4	0.4

ns = not significant relative to model error
nr = not reported or calculated by model

8 BT used the EIA "business as usual" outlook for components of the economy affecting energy use– this includes competing technologies.

9 Projected Benefits of Federal Energy Efficiency and Renewable Energy Programs, FY 2008 Budget Request.

through tracked action plans. Projects that have succeeded, or have reached a logical maturation, are considered for off-ramps (hand-offs to other governmental, non-governmental organizations or to the private sector). BT is building off ramps into its technical pathways by developing sustainable exit strategies to enhance technology transfer and transition to market.

PART, which incorporates key elements of the R&D Investment Criteria, is a guiding system for project evaluation. While these tools are applied at the program level, the data necessary for completing PART are gathered and evaluated at the project level.

BT uses peer reviews by outside independent experts of both program and subprogram portfolios to assess quality, productivity, and accomplishments; relevance of program success to EERE strategic and programmatic goals; and management.[10] BT also uses the peer review process to judge both the merit of individual projects as well as the technical soundness of the overall portfolio. At key intervals, comprehensive reviews are conducted, and supported by analysis, objective review and recommendations by panels of experts using a merit review and peer review system. The frequency, regularity, depth, and degree of independence of these reviews depend on the nature of the program, degree of technology change or evolution, program performance, demonstrated results and the interest among stakeholders. In response to peer review results, TDMs formulate Peer Review Implementation Plans that factor into planning, budget and execution decisions by the BT Program Manager. In accordance with EERE guidelines, the entire BT program is reviewed every two years.

The results of these reviews help complete the program management cycle by influencing the strategic planning and multi-year planning processes. Performance is also a criterion in project selections. Performance evaluation is used to reshape plans, reassess goals and objectives, and re-balance the overall portfolio. Performance data for projects (performance against milestones) must be provided by December of each year to ensure inclusion in the planning cycle.

10 *Peer Review Guide,* U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, August 2004.

5.3.1 Quality Assurance

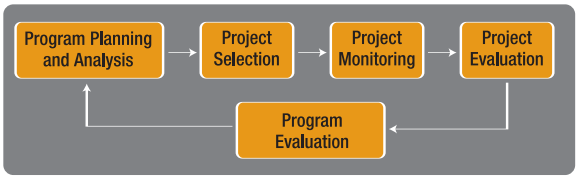
BT is developing an enhanced Quality Assurance (QA) plan that will incorporate the Stage-Gate approach. The objective is to establish a general QA framework for BT's R&D effort and a set of preliminary procedures which can be implemented immediately. The plan is intended to be an established, but evolving, BT document which will be updated periodically to add new procedures and refine the existing procedures, which reflect the experience of BT and other organizations that conduct QA in a research environment.

Research management activities in BT cover all of the following five functions:

- Program planning and analysis;
- Project selection;
- Project monitoring;
- Project evaluation; and
- Program evaluation.

The boundaries between these functions are relatively ambiguous, for example, between project monitoring and project evaluation. The essential relationships among these functions are shown in the framework in Figure 5-5.

Figure 5-5 BT Research Management Activities Framework



5.4 Stakeholder Interactions

Partnership and collaboration with industry, universities, and other government agencies are key aspects of the Program's management approach. By bringing together relevant stakeholders, BT has been able to achieve the collaboration necessary to address many of the barriers to increasing the energy efficiency of buildings and equipment, utilizing whole building design. As mentioned, a critical barrier is the fragmentation of the design, construction, materials, and equipment manufacturers and building operation and maintenance industries, making it difficult to reach a consensus on or implement new technologies and coordinate efforts.

The BT Program funds research, development, and demonstration activities linked to public-private partnerships. The current strategy is to concentrate funding on high-risk, pre-competitive research in the early phases of development. As activities progress through the stages of developing technology to achieving technical targets, the Program's cost share will diminish. Ideally, government-sponsored research and development will bring technologies to the point where the private sector can successfully integrate them into buildings and decide how best to commercialize these products. BT has worked with other DOE programs and offices to complement our research and to implement our strategies, as well as with Federal partners, including the Department of Housing and Urban Development, the Environmental Protection Agency and the National Institute of Standards and Technology, among others.

Additionally, through our competitive solicitation process, BT requires a significant amount of cost-sharing from our partners as part of awards. Building America activity forms teams of architects, engineers, builders, equipment manufacturers, material suppliers, community planners, mortgage lenders, and contractor trades to better integrate building design and construction. Partnerships and cost sharing arrangements with industry, universities, and other government agencies are a key aspect of BT's success in developing the technical capability needed for marketable ZEBs. Bringing together relevant stakeholders builds the critical mass necessary to address many of the barriers to increasing the energy efficiency of buildings.

One particular process used to ensure industry and stakeholder involvement is the development of technology roadmaps, which is a fundamental component of BT's approach (Table 5-3). Roadmaps are used to help align government resources with the high-priority needs identified by industry; they also facilitate cooperation among public and private researchers, State and Federal agencies, and others involved in achieving the technology goals. BT has been active in developing six technology roadmaps, as well as supporting two others, HVAC and Refrigeration with ARI and Residential Buildings with PATH.

Table 5-3 Technology Development Roadmaps[11]

Sector	Published Date
HVAC and Refrigeration (in cooperation with ARI)	1997
Residential Buildings (in cooperation with PATH)	2000
High Performance Commercial Buildings	2000
Vision 2020: Lighting Technology	2000
Window Industry Technology	2000
Building Envelope Technology	2001
Solid-State Lighting	2002
Window and Envelope Updates	2002

11 Roadmap documents are available online at http://www.eere.energy.gov/buildings/info/publications.html.

5.5 Crosscutting Issues

5.5.1 Communication and Outreach

The High Performance Buildings Database seeks to improve building performance measuring methods by collecting data on various factors that affect a building's performance, such as energy, materials and land use.[12]

The BT Program supports a range of activities designed to facilitate widespread adoption and use of energy-saving technologies and practices. Through building project profiles, developing enabling technologies, regulatory activities, awards and recognition, BT provides the information and assistance needed to help homeowners and business owners, architects and engineers, community planners and consumers all make smart choices about energy. Some examples are listed below:

- Building Projects: Building designers and decision-makers can learn energy technology and green building best practices by visiting the High Performance Buildings database. The Building America projects database provides information on energy-efficient homes built through Building America research projects. Zero energy building projects demonstrate the first steps toward designing and constructing homes that generate as much energy as they consume.

- Enabling Technologies: Building energy software tools help researchers, designers, architects, engineers, builders, code officials, and others evaluate and rank potential energy-efficiency technologies and renewable energy strategies.

- Regulatory Activities: The Building Energy Codes subprogram works with other government agencies, state and local jurisdictions, national code organizations, and industry to help develop improved national model energy codes. BT promulgates appliance standards rulemakings and product test procedures to improve the energy performance of products in the marketplace.

- Recognition: ENERGY STAR products and partnerships help businesses and consumers easily identify highly efficient products, homes, and buildings that save energy and money while protecting the environment. ENERGY STAR works with manufacturers, national and regional retailers, state and local governments, and utilities to establish energy efficiency criteria, develop product labeling guidelines, and then promote the manufacture and use of ENERGY STAR products.

In 2007, public awareness of the ENERGY STAR label exceeded 65% and more than 3,200 buildings earned the ENERGY STAR label. In addition, ENERGY STAR specifications for digital televisions adapters, commercial dishwashers and ice machines were announced.

Consumers saved $13.7 billion in energy costs in 2006 by utilizing ENERGY STAR appliances and equipment. [13]

5.5.2 Communications and Deployment

Internal and external communications is key to successful BT deployment efforts. To coordinate cross-program communications on a systematic basis, BT has created a communications team—as an adjunct to the TVMI team—that includes representation from key program focus areas and EERE.

Through these cross-program communications efforts, BT will:

- Facilitate increased information exchange with stakeholders and across program focus areas;

- Identify opportunities to cross-market BT products and tools to serve wider constituencies;

- Increase media coverage in coordination with EERE;

- Further public education through events, lecture series, and other channels in partnership with stakeholder organizations;

- Develop compelling high-level branding messages about BT and energy independence;

12 High Performance Buildings Database

13 ENERGY STAR and Other Climate Protection Partnerships, 2006 Annual Report.

- Reinforce consistent messages and formats in all BT public communications to heighten visibility of the Program, its purpose, and its achievements; and

- Develop high-priority communications projects, including the redesign of the BT website, based on stakeholder feedback.

Achieving the promise of ZEB must, by definition, include the integration of renewable energy technologies with ultra-energy-efficient building technologies. Strategic communications, in turn, must include collaborative efforts between BT and other areas of EERE. Supporting cross-EERE communications efforts—including Energy Towns, the Solar Decathlon, and the EERE public outreach campaign—will be an important focus of the BT communications team.

Significant work has been done in developing and institutionalizing communication protocols, maintaining priority action lists to keep deliverables and deadlines on track, and instituting regular meetings to ensure responsiveness to needs and opportunities as they arise. The communications team is also developing a shared library of communications products and tools (e.g., PowerPoint presentations, informational graphics, fact sheets, and backgrounders) for use by the BT staff, partners, and the EERE Information Clearinghouse.

Key audiences to be addressed in the cross-program communications efforts include States, utilities, Energy Efficiency Program Sponsors, local governments, retailers, manufacturers, financial institutions and banks, insurers, retailers, home builders, associations, universities, and commercial building professionals, as well as trade and mass media organizations.

An effective web presence is needed to support all BT deployment efforts. BT concluded three related web development efforts in 2007:

- Restructuring of the existing BT programmatic web site as a channel for reaching BT program partners

- Development of an educational web site (or sub-site) aimed at a wide range of audiences and encouraging investments in energy-efficient systems, products, and practices

- Development of a searchable library that will underlie both sites and that will contain all relevant BT tools and documents, including documents developed with BT funding by national laboratories and partner organizations. Search categories will be created that allow each audience to readily identify topics of interest without having a detailed knowledge of the BT program structure

The educational web site will elevate and consolidate all educational materials (Rebuild Solution Center, Building America consumer and builder information, Energy Solutions for Your Building, etc.) on the existing web site and will be the location of a wide range of special features of interest to end-users including topics like Disaster Recovery. The site will complement—rather than replicate—the consumer-focused information available on Energy Savers, the EERE Consumer site, and ENERGY STAR, providing links to these sites.