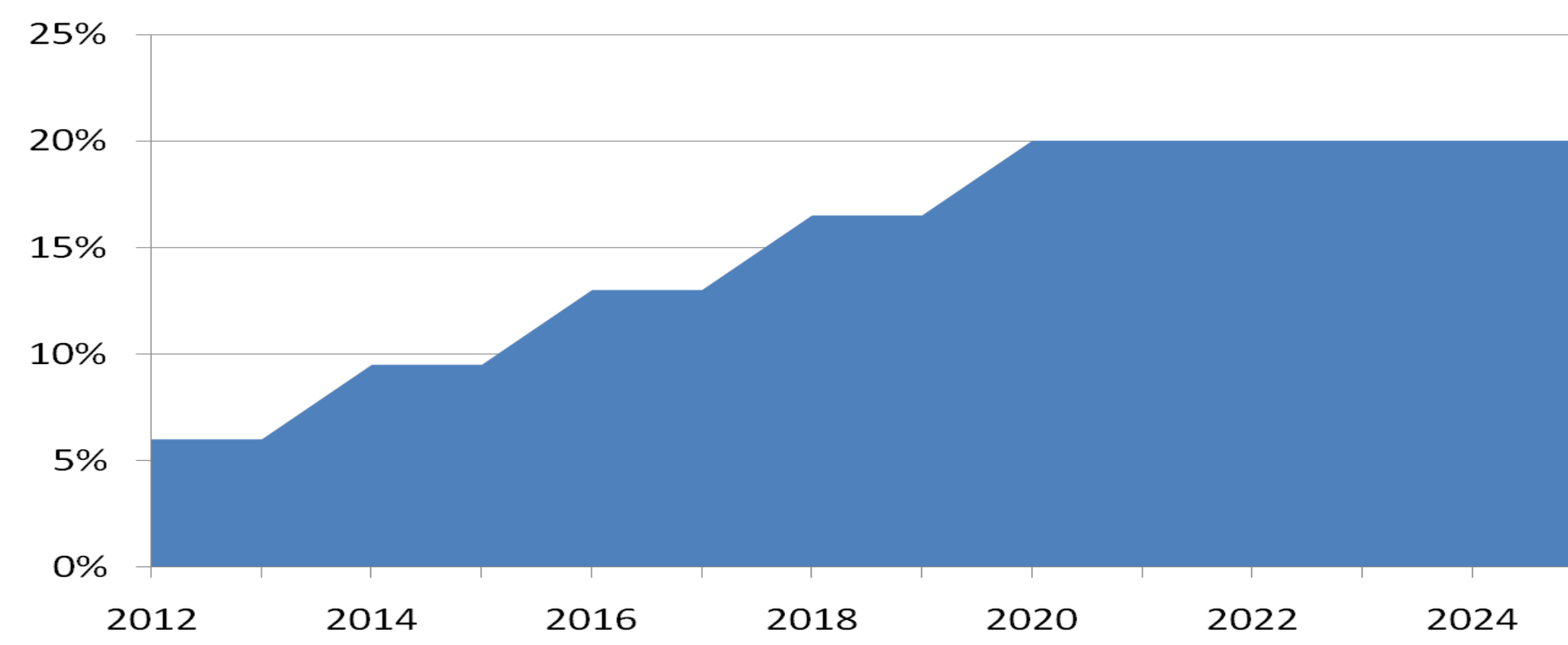


Demand Side Management Needs are Increasing Substantially

Utilities need new approaches to identify technologies that will make significant contributions toward aggressive demand-side management (DSM) goals in the coming years. Many factors are driving the need to expand DSM capabilities:

- **State Mandates:** California, New York, Washington, and Minnesota (among others) have already instituted rules and regulations that require load-serving entities (often utilities) to increase acquisition of DSM.
- **Federal Clean Energy Targets:** The proposed American Clean Energy and Security Act (ACES) establishes aggressive targets for acquisition of renewable energy and DSM resources (Figure 1).
- **Greenhouse Gas Reduction Regulation:** Proposed regulation of greenhouse gases will significantly increase the cost of conventional generation, making DSM more cost competitive.
- **Increasing Supply-Side Construction Costs:** The cost of new supply-side resources increased considerably in 2007 and 2008; DSM is a more cost-effective resource for meeting customer energy needs.

Figure 1. Federal Requirements for DSM and Renewables, as a Percent of Total National Energy Needs



Source: American Clean Energy and Security Act of 2009, as passed by the House

Managing Market Traction Risk with Value Propositions

An approach that is best practice in selecting investments in innovation in the private sector is used to inform the utility context. Corporate product development teams, venture capital firms, and private equity investors use the development of a well-researched value proposition when selecting technologies and services in which to invest. The form varies from one user to another; for the purposes of the ETP evaluation, the value proposition takes the following form:

For _____ (target customer)
 who _____ (statement of customer need)
 the _____ (product) is a _____ (recognized product category)
 that _____ (statement of key benefit).
 Unlike _____ (primary competitive alternative),
 this product _____ (statement of primary differentiation).

Value propositions are considered along with other utility-specific criteria when selecting technologies for assessment. It is one tool that concisely captures the business case for the product, facilitating review by program management.

Table 1 (right) provides guidance on the types of information needed to complete each of the fields in the value proposition.



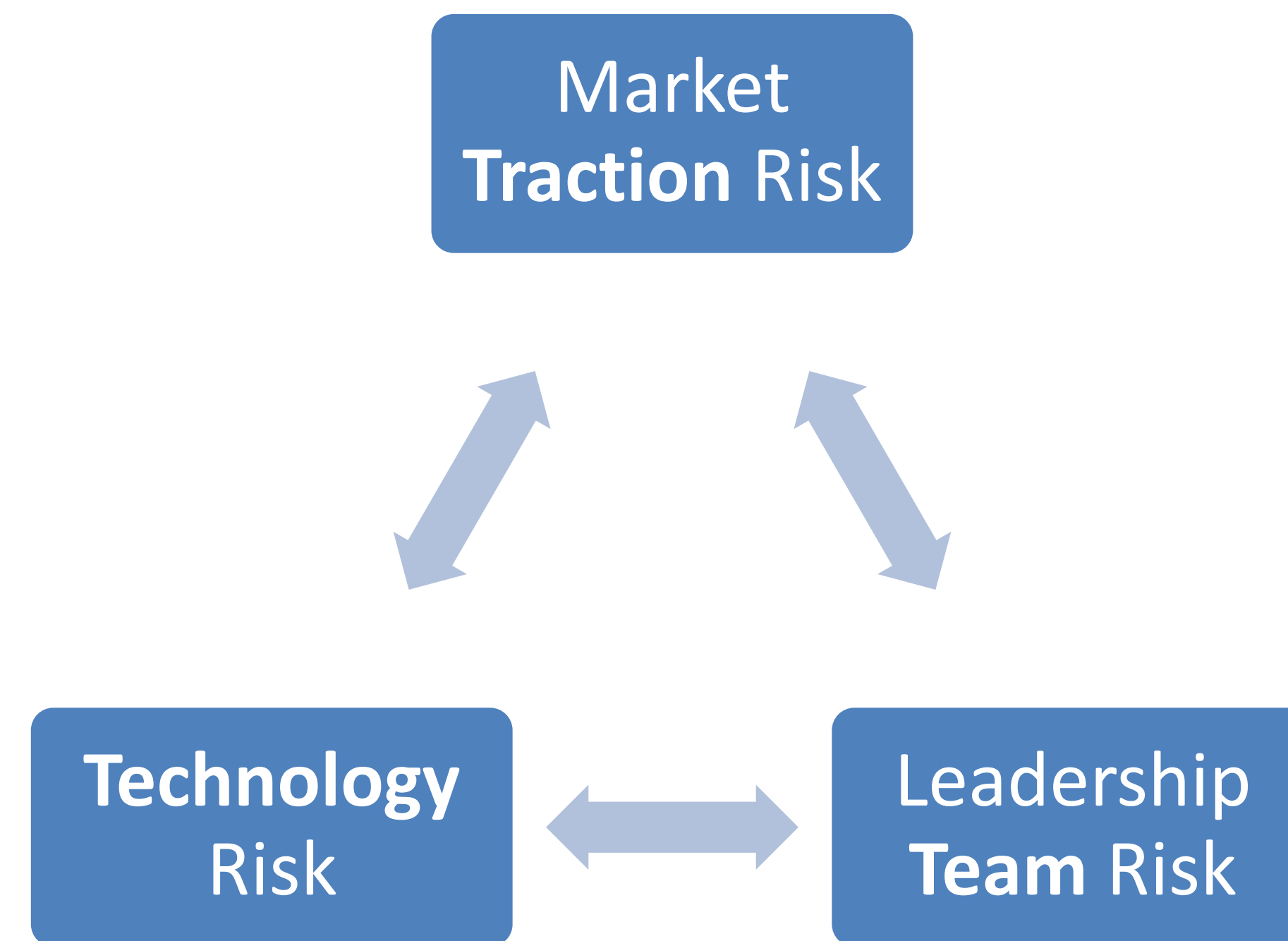
Feeding the Pipeline: An Approach to Assessing the Market for Emerging Technologies

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Developing effective strategies for assessing the market's receptivity to new products will be a critical factor in the future success of emerging technology programs. As part of the evaluation of the 2006-08 California Statewide Emerging Technology Program (ETP), the authors have developed a methodology for applying a practice that is common in private sector to the utilities' investments in assessments of DSM technologies. Value propositions are an effective tool for summarizing information needed to make informed resource commitment decisions.

Selecting Emerging Technologies for Investment Requires Risk Management

Figure 2. Main Classes of Risks Faced by Investors in Emerging Technologies



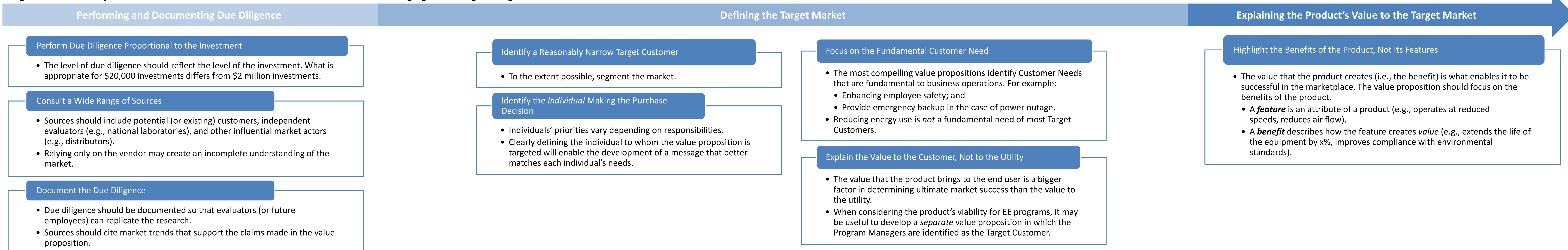
Committing resources to identifying promising emerging technologies comes with a set of inherent risks. Utilities and other entities that invest in emerging technologies must carefully evaluate the risks and determine which ones are palatable.

Two of the main types of risks can be managed through concrete actions. Technology Risk and Leadership Team Risk can be reduced by conducting laboratory tests and demonstrations; this was the core focus of California's Emerging Technologies Program (ETP) during the 2006-08 program cycle. Leadership Team Risk can be reduced through the placement of executives with entrepreneurial experience.

The third type of risk poses the most significant barrier to a successful venture. Market Traction Risk is the risk that a technology fails to achieve widespread market adoption. Market Traction Risk has a higher level of risk associated with it because it relies on a factor external to a firm: the target market's response to a product or service. Managing this risk is the focus of the value proposition approach.

Recommendations for Developing Effective Value Propositions

Figure 3. Preliminary Lessons Learned from Evaluation of California's Statewide Emerging Technologies Program



Using Value Propositions to Evaluate the California Emerging Technology Program

The authors employed value propositions in the evaluation of the 2006-2008 California Statewide Emerging Technology Program (ETP). The approach is designed to provide interim feedback on the likelihood that technologies in ETP's portfolio will make a tangible net contribution to California's energy efficiency goals. Many of the technologies assessed by ETP are still in the development stage or in the early stages of commercialization, making it difficult to determine how well they will be adopted by the market and, as a result, how much they will contribute to California's energy efficiency goals. ETP staff's preparation of value propositions enables the evaluation team to address this challenge by examining how well the program considers fundamental market characteristics in the selection of technologies for assessment.

Creating Value Propositions that Summarize the Business Case

Table 1. Information Needed to Craft a Value Proposition

Value Proposition Component	Definition	Examples	Questions to Answer
Target Customer	The individual(s) making the purchase decision who has/have budget responsibility and go/no-go authority on the actual purchase decision. The individual(s) may be a consumer or represent a business.	<ul style="list-style-type: none"> IT purchasing manager at a manufacturing company Residential occupant focused on reducing energy bills 	Who would be the individual(s) that would purchase this item?
Statement of Customer Need	An expression of a perceived gap between the current state of affairs or the current system of use and what would be desirable. The gap falls somewhere along a spectrum of mild (not much of a gap) to acute (a significant difference that demands attention).	<ul style="list-style-type: none"> Ability for IT manager to remotely access work stations when powered down to update software 	What is the gap in performance of the current system that is perceived by the target customer?
Product	Any physical good or intangible service (or a combination of goods and services) that serves as a solution to the customer need.	<ul style="list-style-type: none"> Tankless water heaters Window shading 	What is the good or service with which you are proposing to meet this customer need?
Recognized Product Category	A set of goods and services that are widely recognized in society as being appropriate for a particular type of need.	<ul style="list-style-type: none"> Software Home insulation Power storage batteries 	What is the broader category of commonly used goods and services to which this product belongs?
Statement of Key Benefit	The way in which the features of that product are appropriate to satisfy a stated customer need.	<ul style="list-style-type: none"> Increased foot traffic and number of repeat customers lead to higher sales Broader customer base Reduced energy bills (if this is a purchase motivation for the target market) 	How do the features of the product serve to meet the customer need?
Primary Competitive Alternative	The system that the target customer would use to meet their need in the absence of this product. This can appear in several different forms: <ul style="list-style-type: none"> Pre-existing system of use A competitive alternative that is in the market today An alternative, which is believed to be coming on the market relatively soon A drastic change in the way things are done; a shift to some other method 	Consider the example of an individual who owns a gas-guzzling SUV in today's market with elevated gasoline prices: <ul style="list-style-type: none"> Keep the gas guzzler and keep paying for the gas Buy a Prius Wait until next year's (improved) model of the Prius is released Keep the gas guzzler, but drive less. Take the bus two days per week. 	What are the principal options available to the target customer that would provide the same or similar benefits?
Statement of Primary Differentiation	The ways in which a given product can be readily distinguished from the primary competitive alternatives.	<ul style="list-style-type: none"> Reduces production time by 30% Adjusts classroom lighting based on real-time lighting needs 	How does this product uniquely meet the needs of its target customers in a way that its competitors do not?

Preliminary results of the ETP evaluation identified strategies for improving resource commitment decisions in three categories: performing and documenting due diligence, defining the target market, and explaining the technology's value to the target market. Figure 3 provides detail.