

Propane Safety  
and Training



# Propane Safety and Training

ROADMAP 2009

## About this Report

This report was sponsored by the Propane Education & Research Council (PERC) and prepared by Energetics Incorporated. Fred Hansen and Ross Brindle, both with Energetics, are the principal authors of the report. Stuart Flatow, vice president, safety and training, at PERC; Mike Walters, Amerigas, Chairman of PERC's Safety & Training Advisory Committee (STAC); and the entire STAC provided valuable guidance.

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# Executive Summary

**Propane is a versatile fuel that is used as a feedstock, heat source, and energy source in sectors ranging from agriculture to transportation to residential construction.**

Each year, billions of gallons of propane are sold to millions of consumers. These numbers continue to rise as propane's benefits are increasingly recognized and as new applications are developed and made available to consumers.

In addition to the development and commercialization of new propane-fueled technology, the industry has experienced shifting workforce and consumer demographics, new market realities, and increasing regulatory constraints. The Propane Education & Research Council (PERC) has responded to these changes by establishing a new strategic plan covering the years 2008 through 2012. This plan specifies goals, objectives, and metrics for the activity of its advisory committees and directs each committee to update its roadmap or other guidance methodologies.

The Safety & Training Advisory Committee (STAC) took the strategic plan's new safety and training goal as a call to assess its own achievements over the past seven years, re-evaluate industry needs, and look for ways to expand its contribution. This 2009 Propane Safety and Training Roadmap is the result of these efforts. Figure 1 depicts a high-level picture of the structure and content of the 2009 roadmap.

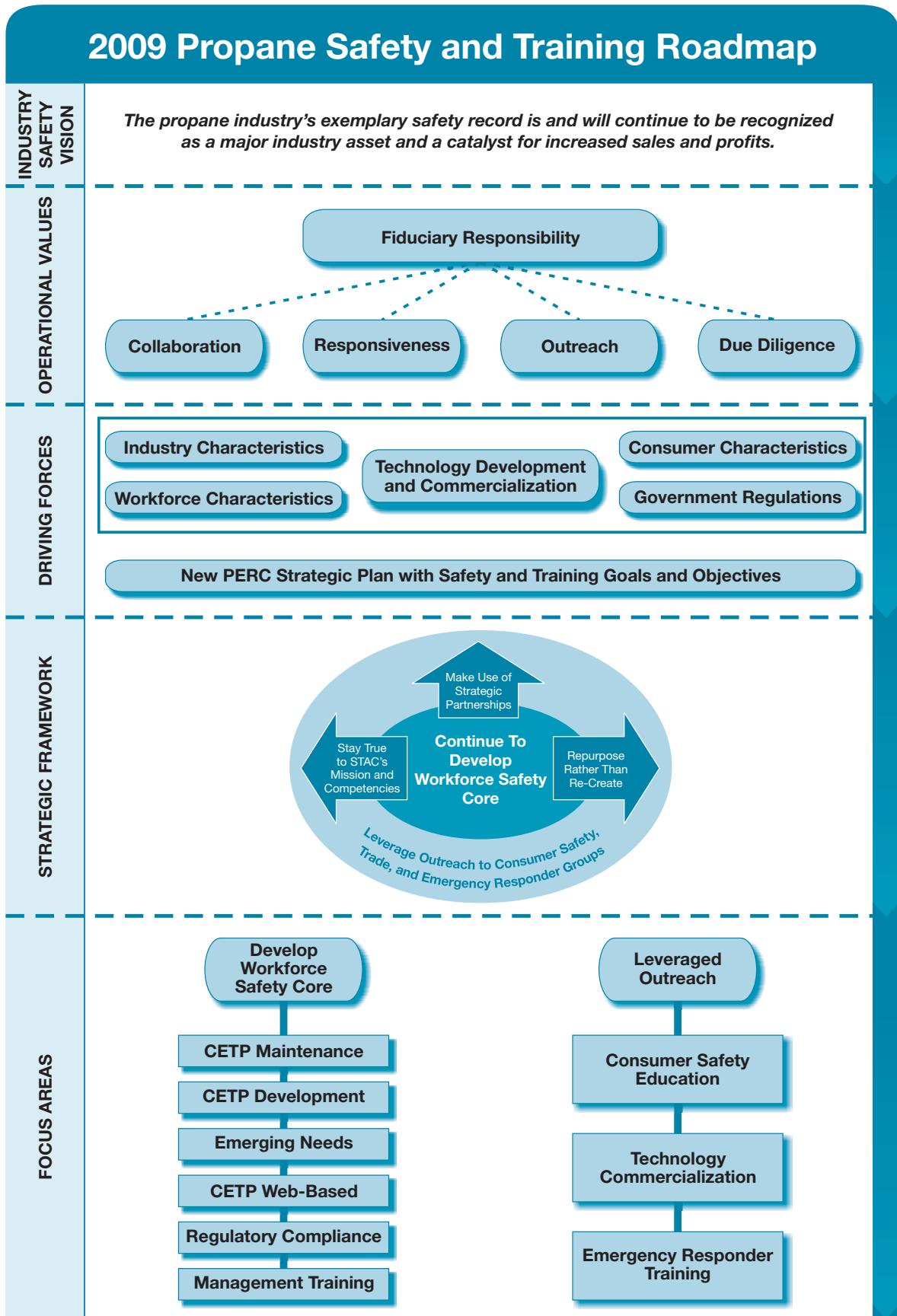
## Propane Industry Vision

Consumers, employees, regulators, and the public expect the fuels they handle to be safe, reliable, and clean. Propane is all of these, but at the end of the day, customer confidence in its safety is what most drives propane use. The safe delivery, storage, and handling of propane by both propane workers and consumers are therefore essential to the industry's integrity and growth. The propane industry continues to be committed to and guided by a safety vision in which the industry's exemplary safety record is and will continue to be recognized as a major asset and a catalyst for increased sales and profits. The health and safety of propane workers, consumers, and the general public remain of paramount concern and a core value of the propane industry.

As the advisory committee for PERC's safety and training mission, STAC represents the propane industry and provides the means by which the industry pursues this vision. STAC depends on industry assessment dollars and the time and effort of industry volunteers. Thus, STAC has a fiduciary responsibility to the industry and the public for the effective and prudent deployment of these resources to achieve the highest levels of safety training for propane workers. STAC recognizes that a well-trained propane workforce is essential to maintaining the health and well-being of propane consumers and the general public. In short, effective workforce safety training serves the greater good of both the industry and society.

To meet this responsibility, STAC has adopted an operational approach based on a commitment to collaboration, responsiveness, outreach, and due diligence. It is an approach that is designed to effectively utilize the broadest range of expertise and ensure the highest quality of work in the fulfillment of its fiduciary duty.

Figure 1: 2009 Roadmap Structure and Content



A review of STAC's performance in recent years indicates that it has been both productive and effective in serving the propane industry and responding to the growing needs of propane marketers. Originally developed by the National Propane Gas Association (NPGA), STAC expanded and updated the Certified Employee Training Program (CETP) into a comprehensive multimedia safety-training curriculum for the propane workforce. CETP is now a well-respected and widely recognized brand name, and the propane industry has come to rely on STAC as a key resource for workforce training. Through its hard work and commitment to the propane industry, STAC has established a solid core of unique competencies and value-adding products and services in the area of workforce safety training. Now, as previously, STAC is responsible for maintaining and developing this core.

## Strategic Framework for Safety and Training Activity

STAC has adopted a strategic framework to guide its activities and allocation of resources until the end of 2012. The framework enables STAC to maintain a balance between meeting the growing needs for workforce safety training and answering the call to expand the scope of its contribution in accordance with PERC's new strategic plan.

The strategic framework identifies two imperatives. The first imperative is to continue the development of STAC's core of expertise and value with respect to workforce safety training. The second imperative is to leverage this core to extend STAC's outreach to consumer safety organizations, trade groups, and emergency responders.

The framework also incorporates a set of three outreach principles:

- **Make use of strategic partnerships** — leverage efforts and resources by capitalizing on partnerships, collaborations, and network relationships, particularly with other PERC advisory committees, marketers, secondary market contacts, agencies, associations, and industry groups.
- **Repurpose rather than re-create** — look for ways to meet outreach needs by adapting and repurposing its current programs, before considering solutions that entail the development of entirely new programs.
- **Stay true to STAC's mission and competencies** — exercise care to stay true to the scope of STAC's core competencies and mission when reaching out to meet the needs of those outside the propane industry.

These three principles will help STAC to expand its contribution by capitalizing on its strengths. In other words, they provide a prescription for leveraging STAC's outreach. The principles will help STAC to make the most of its limited resources, guard against overextension, and avoid undue liability risk as it reaches out to meet safety and training needs of those outside the propane industry workforce.

## Focus Areas for Action

STAC has identified nine focus areas through which it will implement the two strategic imperatives. These focus areas represent distinct, but interrelated, areas of activity and planning where STAC will deploy effort and resources. For each area, STAC has determined a commitment to action. In essence, these commitments outline initiatives and actions to be undertaken in the furtherance of the strategic plan and the advancement of propane safety.

The first imperative for STAC's activities is to continue to develop its core competencies, products, and services. STAC has developed a strong foundation of expertise, experience, and know-how in helping the propane industry to ensure the safety of its employees. Workforce safety training is what STAC knows and does best and is the essence of its service and value to the propane industry. Many propane marketers depend on STAC's training to give their employees the knowledge and tools they need to protect both themselves and the public and assure that propane remains a safe, clean, and effective fuel. Continuing to refine and monitor this highly successful core of expertise, activities, and programs is therefore STAC's first imperative. STAC has identified six focus areas for this imperative: CETP Maintenance, CETP Development, Emerging Needs, CETP Web-Based, Regulatory Compliance, and Management Training.

The second imperative is to expand STAC's contribution through leveraged outreach to meet the needs of populations outside the propane industry. STAC has identified three focus areas for this imperative: Consumer Safety Education, Technology Commercialization, and Emergency Responder Training. It is in these areas that STAC will operate according to the three outreach principles.

## Path Forward

STAC's commitments in the nine focus areas provide a picture of its path forward for the next four years. To a large extent, this path forward is a continuation of the activities and efforts that have made STAC successful in the past. At the same time, this roadmap emphasizes STAC's pivotal role in the furtherance of PERC's new strategic plan. Thus, the path forward is consistent with the goals and objectives of the strategic plan and responds to the growing needs of propane marketers. A key requisite of STAC's path forward is the ongoing commitment and effort of its volunteer members. Without their active participation, STAC would not have achieved its current success and would be unable to carry out its function. As STAC moves forward on this roadmap, it will continue to require the support of active and dedicated volunteers.





# Introduction

In 2002, the Propane Education & Research Council (PERC), in collaboration with NPGA and various industry leaders, published the 2002 Propane Safety and Training Roadmap. That roadmap outlined an integrated strategy for achieving the highest levels of safety for any fuel source and supporting the industry's vision that propane's exemplary safety record would propel increased sales and profits. Since publication, the 2002 roadmap has been used to guide PERC's safety and training efforts. These efforts, carried out primarily by PERC's Safety & Training Advisory Committee (STAC), have resulted in a number of new programs, publications, and other resources, which have had a significant impact on the awareness, attitudes, and practices of propane workers, emergency responders, and consumers.

Since the publication of the 2002 roadmap, most industries have faced significant changes. The propane industry in particular has confronted new market realities, shifting consumer demographics, and increasing regulations. Whereas the overall safety vision — that the propane industry's exemplary safety record is and will continue to be recognized as a major industry asset and a catalyst for increased sales and profits throughout the industry — is still relevant, the changes of the last few years have altered the landscape significantly enough to prompt an update to PERC's strategic plan.

Given STAC's own efforts, the changes in many variables affecting propane safety, and the emergence of the new PERC strategic plan, STAC has updated the 2002 roadmap with a focus on priorities for the next four years. Whereas much of the original roadmap remains valid, the roadmap update process has offered the opportunity to assess STAC's safety and training achievements, re-evaluate industry needs, and ensure that STAC's action priorities reflect the new strategy. The results of this effort are presented in this 2009 Propane Safety and Training Roadmap.

The remainder of this roadmap update document is organized as follows:

- **Chapter 2** describes STAC's role within PERC and overviews its values, structure, and processes.
- **Chapter 3** reviews the 2002 roadmap's action priorities and STAC's accomplishments with respect to each.
- **Chapter 4** describes what the changing safety landscape and PERC's new strategic plan will mean for STAC's upcoming action priorities.
- **Chapter 5** describes the new strategic framework that will guide STAC's efforts and resource allocation over the next four years.
- **Chapter 6** discusses STAC's continued commitment to develop its core programs over the next four years.
- **Chapter 7** discusses STAC's commitments to expand its role through leveraged outreach over the next four years.
- **Chapter 8** outlines key considerations for the path forward.

## Propane Industry Safety Vision

The propane industry's exemplary safety record is and will continue to be recognized as a major industry asset and a catalyst for increased sales and profits.



# II. STAC's Role and Operational Approach

PERC established STAC to focus its substantial safety and training efforts and to carry out the PERC safety and training mission. This chapter will discuss STAC's role, values, approach, and activities to provide a background for the upcoming discussion of new industry realities and PERC's new strategic plan for action.

## STAC's Role

STAC represents the propane industry and serves as a vital resource for the industry's safety training efforts. STAC works with marketers, NPGA, and state associations to provide leadership, vision, and resources for ongoing safety and training efforts, focusing on the following measures:

- Education and training.
- Leadership resources.
- Communication.
- Information technologies.

Since propane is a clean, high-energy, low-impact fuel, its growing application and increasing preference make the health and safety of propane workers, consumers, and the general public of paramount importance to the propane industry. STAC is continually striving to make propane's exemplary safety record a major industry asset and a catalyst for increased consumer confidence and benefit.

## STAC's Operational Approach

Many documents guide STAC in preparing its recommendations to the Council, including the Propane Education and Research Act of 1996, PERC's strategic planning documents, and the PERC Policies, Rules, and Procedures. In addition, STAC draws on documents that predominantly reflect the input of propane marketers (of all sizes) from across the country and of gas processing industry representatives, propane suppliers, and insurance representatives. These documents include its 2002 Safety and Training Roadmap, the 2003 Liability Task Force Report, and its 2006 Consumer Safety Education Action Plan report.

As the advisory committee for PERC's safety and training mission, STAC acknowledges a fiduciary responsibility to both the propane industry and society. A well-trained propane workforce is essential to maintaining the health and well-being of propane consumers and the general public. STAC has adopted an operational approach that reflects its commitment to collaboration, responsiveness, outreach, and due diligence in the execution of its fiduciary responsibility. It is an approach that is designed to effectively utilize the broadest range of expertise and ensure the highest quality of work.

## Operational Values

Fiduciary  
Responsibility

Collaboration

Responsiveness

Outreach

Due Diligence

## Committee Structure

STAC has consistently maintained a minimum marketer membership rate of 70 percent, and the committee includes small, midsize, and large marketers from across the country. This helps to ensure that the projects it recommends and ultimately releases to the industry have value to a large cross section of the industry. For example, in the case of the Certified Employee Training Program (CETP), STAC implemented a rule requiring that all conference calls conducted by the CETP task forces include at least two major marketer and two independent marketer representatives. This diversification helps to ensure that STAC's work on CETP (its largest investment) is a joint product of both major and independent representatives. STAC also maintains on its roster two state executives, an NPGA regulatory staff member, a gas processor representative, a supplier, and two insurance representatives. This helps STAC to obtain input from these entities and helps to ensure coordination with NPGA's regulatory and code initiatives.

In an effort to further reach out to propane marketers, STAC also permits marketers who want to work temporarily on a specific project task force to serve as auxiliary committee members. Auxiliary membership allows these marketers, who otherwise would not participate, an opportunity to share their expertise and experience.

Finally, STAC makes an effort to hold its meetings in different regions of the country and invites the area's state executive to attend with a member from that state, thus promoting cross-country collaboration.

## Work Processes

STAC maintains various ongoing processes and procedures pursuant to and beyond those required by the above-referenced documents that shape its operational approach.

### *Request for proposals*

STAC seeks request for proposal (RFP) authority from the Council every time it plans to recommend a new project or is seeking to replace a current vendor that has worked on a similar project. Following Council approval to release an RFP, staff members draft the RFP and send it to the appropriate task force for review and comment before it is sent on to the full committee. The RFPs are published on PERC's website, communicated via The PERC Update, and sent directly to various potential vendors. All responses are vetted through the appropriate task force for review, comment, and recommendation before being sent on to the committee for a vote. Staff members then prepare a funding request that follows the usual process through the committee.

### *Team approach to project development*

STAC develops its workforce safety and training and consumer safety education initiatives (as well as other projects such as incident data) by deploying a team of individuals who maintain particular expertise in their given fields as appropriate for the project. These industry task force volunteers provide constant project oversight and input. The industry task force makes final recommendations regarding the documents before they go to the full committee for review and comment.

STAC has teamed up with the Consumer Education Advisory Committee (CEAC) to form a consumer safety education task force. This partnership provides for the cross-pollination of

technical and marketing skill sets while at the same time ensuring that both STAC and CEAC are coordinating their efforts, and avoiding the formation of “silos” of effort and responsibility.

### *Prepublication comments*

Approximately two years ago, the Council instituted a policy whereby members of NPGA's Marketer/Director Committee, with the exception of CETP E-Learning, would be given the opportunity to review and comment on any new or substantially revised projects prior to publication. This was done to keep the industry informed of what STAC was developing and to allow for as much industry consensus as possible. Additionally, all CETP E-Learning DVDs have been, and will continue to be, beta-tested by a group of at least 100 industry representatives, including instructors, to check for functionality and technical accuracy. Feedback received from the beta test group has been critical in the success of this project.

### *Industry feedback*

PERC staff members provide outreach to the industry through project feedback forms, including forms for most of the workforce safety and training programs and all of the CETP programs. Those who submit comments are notified when their comments are received and are informed of the resulting action. STAC maintains a dedicated industry task force to evaluate such comments. Once the task force agrees on recommendations, any changes required are cataloged for a next printing and/or are communicated directly to the industry, depending on the nature of the change(s).

## **Additional Activities and Procedures**

In addition to the above processes, STAC has established activities and procedures that are designed to keep the organization up to date with regulatory changes and ensure that it remains responsive to emergent needs.

### *Updates*

The PERC and NPGA staffs work closely to identify changing codes or regulations that require program updates.

### *Unanticipated projects*

Committee volunteers usually bring projects that are not specifically provided for in either the 2002 Safety and Training Roadmap or the 2006 Consumer Safety Action Plan (such as cathodic protection and static electricity programs) to STAC's attention. The committee often carefully debates these issues before the funding requests are developed. In the instances of the cathodic protection and static electricity programs, presentations were made to the NPGA Technology, Standards and Safety Committee and to the NPGA Marketer/Director Committee as a means of keeping these committees informed and soliciting their feedback.



# STAC's Achievements: 2002-2009

This roadmap is designed to serve as a bridge to the future, a bridge that realigns the Safety & Training Advisory Committee's safety and training efforts with the new PERC strategic plan. This chapter reviews and analyzes STAC's safety and training accomplishments since the 2002 roadmap — accomplishments that will shape and enable the committee's future work. The analysis illustrates where STAC has focused its efforts and helps to reveal the logic and assumptions behind its choices. Examination of past actions and priorities will show how the organization must realign its efforts both to respond to the emerging influences affecting the safety landscape and to fully support and implement the new strategic plan.

## 2002 Roadmap Implementation Priorities

The 2002 Propane Safety and Training Roadmap outlined an integrated strategy that would enable propane to achieve the best safety record of any fuel source. The 2002 document established a safety vision, safety goals, and the safety and training implementation priorities that were most critical to achieving the goals and vision. In particular, the roadmap identified 11 safety and training priorities across four focus areas. The priorities and focus areas are listed in Figure 3.1 (See the 2002 roadmap for an in-depth discussion of the focus areas and priorities.)



Figure 3.1: 2002 Roadmap Priorities and Focus Areas

These focus areas and priorities formed the basis of the 2002 roadmap's implementation strategy and recommendations. They were the framework that guided STAC's safety and training initiatives over the past seven years. Accordingly, they now provide the frame of reference against which to compare STAC's activities and accomplishments during this time.

Table 3.1: STAC 2002-2009 Score Card

	Implementation Priorities from 2002 Roadmap	Completed Products, Projects and Activities	Planned Products, Projects and Activities <sup>1</sup>
<b>Employee Training</b>	Formal Employee Training	<ul style="list-style-type: none"> <li>✓ Cathodic Protection Program</li> <li>✓ Static Electricity Outreach Brochure</li> <li>✓ Dispensing Propane Safely</li> <li>✓ Revised Gas Check</li> <li>✓ CETP E-Learning and Text (Basic Principles and Practices, Delivery Operations and Cylinder Delivery, Bobtail Delivery)</li> <li>✓ Safety and Training Administrative Recordkeeping System (STARS)</li> <li>✓ Updated CETP Books: 5 – Designing and Installing Liquid Transfer Systems and 7 – Applying Basic Electricity to Service Propane Appliances</li> </ul>	<ul style="list-style-type: none"> <li>✓ CETP Vapor Distribution 4.1, 4.2 E-Learning</li> <li>✓ CETP 4.1, 4.2, 4.3 Revised Textbook Curriculum Alignment</li> <li>✓ CETP Plant Ops E-Learning</li> <li>✓ CETP Liquid Dist Sys E-Learning</li> <li>✓ Static Electricity Training Program</li> <li>✓ Composite Cylinder Guidance for the Propane Workforce</li> <li>✓ Customer Service Representative Training Program</li> </ul>
	On-the-Job Training		✓ Refresher Training
	Train the Trainer	<ul style="list-style-type: none"> <li>✓ National Trainer Database</li> <li>✓ Communication and Facilitation Training Workshops</li> </ul>	
<b>External Training and Education</b>	Secondary Market (Trades) Training	<ul style="list-style-type: none"> <li>✓ Dispensing Propane Safely</li> <li>✓ Workforce Training</li> </ul>	
	Consumer and Customer Education	<ul style="list-style-type: none"> <li>✓ 2006 Consumer Safety Education Action Plan</li> <li>✓ Consumer Safety Messages Document</li> <li>✓ Consumer Safety Brochures, Labels, and Tags</li> <li>✓ Safe Grilling Campaign</li> <li>✓ DIYer Research</li> </ul>	✓ Consumer Safety E-Learning Modules
	Emergency Responder Training	<ul style="list-style-type: none"> <li>✓ Propane Emergencies Program, Materials, and Administration</li> </ul>	
<b>Management and Industry Leadership</b>	Management Education		✓ CETP Manager Training Program
	Industry Performance Tracking	<ul style="list-style-type: none"> <li>✓ Incident Data Collection</li> <li>✓ Workforce Injury Study</li> </ul>	
	Regulations and Standards	<ul style="list-style-type: none"> <li>✓ Propane Regulations Compliance Program</li> <li>✓ Code/Regulation Documents</li> <li>✓ Fire Safety Analysis</li> <li>✓ Operations and Maintenance Manual</li> </ul>	<ul style="list-style-type: none"> <li>✓ Updates for OSHA and DOT E-Learning</li> <li>✓ Updated Fire Safety Analysis</li> <li>✓ Updates for the Operations and Maintenance Manual</li> <li>✓ Propane Jurisdictional Systems Outreach Brochure and Training Program</li> <li>✓ Compendium of OSHA/DOT Training Programs Not Addressed in Other Programs</li> </ul>
<b>Enabling Activities</b>	Communication and Outreach	<ul style="list-style-type: none"> <li>✓ Website and Online Resource Library</li> <li>✓ Industry Feedback Forms</li> <li>✓ Articles, Industry Presentations, E-Learning Marketing Reel; Advertising in Industry Journals</li> <li>✓ Webinars</li> </ul>	
	Information Technology	<ul style="list-style-type: none"> <li>✓ www.propanesafety.com</li> <li>✓ CETP E-Learning</li> </ul>	

*1 Note: These projects have been planned with the understanding that they would be implemented and/or expanded over the next several years based on recognized need and available funding.*

## STAC 2002-2009 Score Card

STAC's efforts have resulted in a number of new programs, publications, and resources. In fact, STAC can identify upward of 40 distinct deliverables that it has completed or has planned to complete in the near future. Each of these initiatives, singularly or in combination, serves to reduce accidents and incidents, improve safety awareness, enhance the propane workforce, and improve regulatory compliance or consumer confidence. Together, the initiatives form a picture of STAC's achievements over the past seven years.

Table 3.1 displays STAC projects and activities, organized according to the implementation priorities identified in the 2002 roadmap.

### Summary

According to this score card, STAC has concentrated its 2002-2009 efforts on expanding formal employee training and consumer and customer education. In addition, STAC has maintained emergency responder training and has built a compendium of online resources and support materials — particularly materials relating to government regulations and standards. Finally, STAC has acted to collect information on industry incidents and workforce injuries.

Since STAC has consistently prioritized the development of formal training, it has established workforce training as an area of its unique expertise. Notable successes in this domain include the Certified Employee Training Program, which continues to be recognized for its excellence in topics such as propane-based design, installation, basic safety, and gas-leak assessment. Between 2002 and 2006, STAC updated CETP books and added new topics to the curricular materials, and it also plans further additions.

Overall, the 2002-2008 score card indicates that STAC has been both productive and effective at implementing the priorities and recommendations of the 2002 roadmap. CETP continues to be a well-respected and widely recognized brand name. The propane industry has come to rely on STAC as a key resource for workforce training. Through its hard work and commitment to the propane industry, STAC has established a solid core of unique competencies and value-adding products and services in the area of workforce safety training.



# IV. Trends, Drivers, and the New PERC Strategic Plan

Although much of the 2002 roadmap remains relevant and valid, the past seven years have brought significant economic and political restructuring, especially to the energy sector. The propane industry in particular has been faced with new market realities, shifting consumer demographics, and tightening regulations. These and other significant developments in the industry have altered the safety landscape. By “safety landscape,” we mean the collection of identified hazards, challenges, and issues related to propane safety and the accompanying safety training programs, materials, and services that must be created to reach both propane-industry and external audiences. The following section will review and analyze the specific trends and drivers that influence the contemporary propane industry, namely its unique intrinsic characteristics, workforce, customer base, commercial drivers, and regulatory restrictions.

**“Safety landscape” refers to the collection of identified hazards, challenges, and issues related to propane safety and the accompanying safety training programs, materials, and services that must be created to reach both propane-industry and external audiences.**

## Trends and Drivers

Each year, billions of gallons of propane are sold to millions of consumers by thousands of companies with employees numbering into the tens of thousands. The number of individuals in refineries, utilities, businesses, agriculture, homes, and other sectors handling propane continues to rise as the benefits and uses of propane are increasingly recognized and broadened. Whereas these increases testify to the success of the industry, they also represent a need for increased safety training, education, and outreach.

Propane is a safe fuel; however, the industry must be responsive to changes in the industry’s safety landscape. By identifying the factors that drive change and analyzing their implications, STAC can outline a path forward that anticipates the changes now underway and enables the industry to strengthen its position as a safe, efficient, and clean energy source.

## Propane Industry Characteristics

Propane is a versatile fuel that is used as a feedstock, heat source, and energy source in sectors ranging from agriculture to transportation to residential buildings. Such diversity of uses across diverse sectors results in an industry that is fragmented, geographically separated, and diffuse. The propane delivery infrastructure is equally complex and diverse. Propane delivery mechanisms include rail tank cars, bobtail trucks, cargo trucks, local delivery trucks, interstate pipelines, barges, and ships.

As it is a byproduct of natural gas or petroleum refining, propane’s production cannot be increased or decreased to match demand. A storage infrastructure is needed to bridge the gap between fixed production volumes and inconsistent demand across seasons. Propane is stored above and below ground (including underground caverns) in liquid form. The containers vary in size based upon mobile or stationary use.

The unique characteristics of the propane industry challenge STAC to establish and maintain effective safety practices for an increasingly diverse range of conditions and situations.

## Propane Industry Workforce Characteristics

Each year the population of propane employees grows and diversifies to meet the growing needs of the propane industry. The industry workforce, from field workers to top management, must collaborate across varying levels of expertise and great geographic distances to ensure consistent safety knowledge and practices throughout the vast infrastructure.

The need for consistent safety and training measures within the growing industry creates a continually expanding demand for materials, programs, and qualified trainers. There is also a need for greater access to safety and training materials through Internet delivery systems. Training programs benefit propane employees by providing accurate and consistent information on job skills, emergency procedures, and government regulations. Ongoing quality control is essential to ensure that accuracy and consistency is maintained as the range of programs and materials continues to expand.

## Technology Development and New Commercial Applications

PERC is aggressively pursuing new applications and uses for propane through technology development missions designed to expand the size and diversity of the propane market and its workforce. The ongoing development of new propane-fueled technologies and propane applications also increases the range of training needs for new propane uses.

As a result, the need for safety training continues to grow, and meeting that need becomes more complicated. Technology development and commercialization necessitate not only a more versatile and tailored content, but also an increasingly flexible and efficient set of delivery mechanisms. At the same time, this increases the challenge of maintaining consistent messages and information across different programs and materials.

## Consumer and Customer Base Characteristics

The growth in the number and diversity of propane consumers reflects both the expanding applications for propane and a rise in consumers' confidence and comfort level with those applications. This growing use of propane by an increasingly diverse customer base amplifies the importance and challenge of consumer education.

Although STAC's primary focus is on workforce safety training, the 2002 roadmap clearly identified consumer safety education as an action priority. Providing concise and compelling safety materials that speak to consumers with varying educational backgrounds remains an important safety and training issue. The expanding customer base also increases the need for consumer research to determine how propane is perceived, how consumers react to safety messages, which communication vehicles work best, etc.

## Government and Policy Regulations

Like many industries, the propane industry is subject to the standards and regulations put forth by various government agencies. National Fire Protection Association (NFPA) Codes 54 and 58 set requirements for operational safety, fire prevention, and equipment standards. The Department of Transportation (DOT) sets requirements for propane transport. The

Environmental Protection Agency (EPA) and Department of Labor, under the Occupational Safety and Health Act (OSHA), set regulations for employee safety.

Propane industry compliance is an ongoing challenge due not only to the diversity of agencies, but also to the continuously evolving nature of government standards and regulations. Furthermore, as both a cleaner alternative fuel and a petroleum or natural gas byproduct, propane is affected by the public debates over climate change and foreign oil dependence.

As evolving public policy changes the propane industry’s public accountability and liability, propane workers must maintain an up-to-date understanding of regulations. To meet this need, STAC must continually update its training content and materials. It must also find ways to reach workers who have already been certified and trained with outdated regulatory curricula.

## PERC’s New Strategic Plan

In October 2007, PERC developed a new strategic plan for 2008 to 2012. The plan establishes six overall goals that are broken down into specific strategic objectives. For each goal, the plan also describes the roles and responsibilities by which the goal may be achieved and specifies the metrics by which that achievement may be measured. PERC has explicitly stated its expectation that the advisory committees will update their roadmaps to ensure alignment to the new strategic plan.

### Safety and Training Goal

Although STAC’s efforts directly or indirectly support several of the overall goals put forth in PERC’s 2007 strategic plan, STAC now holds primary responsibility for the plan’s safety and training goal. That goal is presented in Figure 4.1, which is excerpted from the Strategic Plan document.

SAFETY AND TRAINING GOAL	
To improve safety awareness, reduce accidents and incidents, enhance the industry workforce, improve regulatory and consumer confidence.	
Strategic Objectives	Metrics
1. Work to reduce accidents and incidents by providing information and training that enables consumers and employees to eliminate unsafe conditions and practices.	<ul style="list-style-type: none"> <li>■ Data on accidents and incidents.</li> </ul>
2. Improve safety awareness by employees, emergency responders, and consumers by promoting safety, developing and distributing educational and training materials, organizing conferences and meetings, and using appropriate media to encourage safe practices and procedures.	<ul style="list-style-type: none"> <li>■ Consumer safety materials distributed by industry.</li> <li>■ CETP course materials ordered and participants in training classes.</li> </ul>
3. Enhance the propane workforce by maintaining a comprehensive, world-class Certified Employee Training Program and encouraging certification.	<ul style="list-style-type: none"> <li>■ CETP E-Learning courses ordered.</li> </ul>
4. Improve regulatory confidence and consumer confidence by demonstrating and increasing knowledge of the industry's exceptional safety performance and valuable educational programs.	<ul style="list-style-type: none"> <li>■ Employees and technicians earning CETP certifications.</li> </ul>
5. Coordinate with the National Propane Gas Association and the Gas Processors Association to provide information, conduct studies, or render other assistance requested to support the associations in their leadership role on industry and product standards.	<ul style="list-style-type: none"> <li>■ PERC training and educational materials used by original equipment manufacturers and consumers.</li> </ul>
6. Provide educational materials and training to maintain current markets and to support development of new markets for propane utilization equipment.	

Figure 4.1: PERC Strategic Plan — Safety and Training Goal (excerpt from the strategic plan document)

The strategic plan's goal and objectives for the safety and training mission reflect PERC's increased focus on the commercialization of new technologies. The safety and training goal also makes explicit STAC's accountability to populations beyond the propane workforce, particularly consumers and emergency responders. It indicates the need to maintain and expand workforce training and certification, especially through the use of media partnerships and promotional events.

In essence, PERC's strategic plan is industry's plan and is implemented via elected representatives. In implementing this plan, STAC's contribution should support the development of industry standards and improve regulatory compliance and consumer confidence. Finally, the plan's specification of metrics emphasizes the expectation that STAC will continue to assess its own performance.

## Summary

The diverse and multifaceted propane industry presents a variety of safety and training challenges, each of which calls for different safety promotion and protection activities. Changes in the industry itself, its workforce, its customer base, and the economic and regulatory constraints upon it have reshaped propane's safety landscape.

In response, PERC has renovated its strategic goal for safety and training — the goal that STAC is primarily responsible for meeting — and the associated objectives and metrics. Today, both industry demands and PERC's correspondingly revised safety goal compel STAC to update its safety and training roadmap and adopt a new strategic framework, as presented in the upcoming chapters, for 2009 and beyond.

# V. Strategic Priorities

STAC has effectively implemented the 2002 roadmap and established itself as a key industry resource for workforce training. CETP has become a respected and well-known brand name, and workforce safety training has become a core competence and the primary value of STAC's products and services. At the same time, industry demands and PERC's strategic leadership both emphasize the need for this 2009 roadmap.

The 2009 Propane Safety and Training Roadmap thus stands at the juncture of an established foundation and recipe for success on one hand and an urgent call for STAC to expand the ways it serves the propane industry on the other hand. The 2009 roadmap provides a bridge between these two obligations.

## Strategic Framework

STAC depends on two primary resources to carry out its work: assessment dollars allocated to it by PERC and the time and effort of its volunteer committee members. As described in Chapter 2, STAC has a fiduciary duty to exercise prudent stewardship in its deployment of these limited resources. This duty requires STAC to consider its practical limitations, to minimize liability risk and exposure, and to balance industry and public needs.

This chapter presents a strategic framework for STAC's activities over the term of the new strategic plan. The framework is designed to help STAC adhere to its fiduciary responsibility and values while addressing the safety and training needs that derive from the changing safety landscape. The framework enables STAC to build on its foundation of success and expand the scope of its contribution in accordance with the new strategic plan.

The strategic framework identifies two imperatives that will guide STAC's focus and priorities over the next four years. The first imperative is to continue developing STAC's core workforce safety training expertise and value. The second imperative is to expand its contribution by reaching out to meet the needs of those outside the propane industry, particularly needs for consumer safety education, new technology development, and emergency responder training.

The framework also incorporates a set of three outreach principles:

- **Make use of strategic partnerships.**
- **Repurpose rather than re-create.**
- **Stay true to STAC's mission and competencies.**

These three principles, which will be detailed in Chapter 7, help STAC to expand its contribution by capitalizing on its strengths. In other words, they provide a prescription for leveraged outreach. These principles will help STAC to expand its contribution while making good use of its limited resources, guarding against overextension, and avoiding undue liability risk.

Figure 5.1 illustrates the integration of the two imperatives: core capacity development and leveraged outreach by means of three principles (represented by the three arrows between STAC's core and the outreach areas).



Figure 5.1: Strategic Framework for the 2009 Roadmap

The next two chapters will divide the strategic framework into specific priorities and areas of focus and will elaborate on each. Chapter 6 will explain the first imperative to develop the core, and Chapter 7 will explain the imperative to leverage outreach.

# VI. Continue to Develop the Core: Workforce Safety and Training

The strategic framework identifies two overall imperatives for STAC's efforts over the next four years. The first imperative is to continue to develop the core. As shown in Chapter 3, STAC has developed a strong foundation of expertise, experience, and know-how in helping the propane industry ensure the safety of its propane-handling employees. Workforce safety training is what STAC knows and does best and is the essence of its service and value to the propane industry. Many propane marketers depend on STAC's training to give their employees the knowledge and tools they need to help protect themselves and the public and to ensure that propane remains a safe, clean, and effective fuel. Continuing to refine and monitor this highly successful core of expertise, activities, and programs is therefore STAC's first imperative.

This chapter identifies six focus areas through which STAC will carry out this imperative. The focus areas represent distinct, but interrelated, areas of activity and planning, where STAC will deploy its effort and resources.

## CETP Maintenance

The propane industry has come to depend on STAC as a primary resource for workforce safety training materials and programs. This training is offered through STAC's CETP programs. In addition, STAC offers a range of resources that support CETP training. These resources include instructor and student materials as well as an online reference library.

This focus area is about maintaining and administering STAC's diverse selection of CETP programs and support resources. It includes all of the services necessary to ensure that STAC continues to provide timely, high-quality, and up-to-date safety training for propane workers. Specific activities supporting CETP maintenance include the following:

- **Promote CETP programs** on a continuing basis within the industry and keep propane companies informed about the full range of CETP offerings, training resources, and delivery options.
- **Maintain the supply of CETP programs and materials** and work to ensure the timely delivery of quality programs and materials.
- **Track public policy changes regarding propane safety** and incorporate them into the training content so that CETP programs provide workers with clear, precise, and accurate information that helps them understand how their work will be affected by new regulations and standards and what they must do to ensure the safe and effective use of propane and to meet industry compliance standards.

## Continue to Develop the Core

CETP Maintenance

CETP Development

Emerging Needs

Web-Based CETP Development

Regulatory/Code Compliance

Management Training

- **Continually manage content** to maintain high-quality products and services and to ensure accuracy and consistency across programs. This includes work to coordinate training content and safety messages with other propane industry organizations (such as NPGA).
- **Evaluate the quality, relevance, and impact of CETP**, which includes soliciting industry feedback, conducting task force reviews of CETP curricula, collecting incident data, etc.

### STAC's Commitment

Over the next four years, the administration, promotion, and delivery of STAC's current and future CETP programs will remain an important priority in guiding its investment of time and money.

## CETP Development

Workforce safety is not a static issue; rather, it is a continually evolving challenge that is affected by an increasingly diverse workforce, new and expanding applications and markets, and changing regulations. Accordingly, CETP must have an evolving curriculum, requiring CETP development to be an ongoing task for STAC. In addition to curriculum development, STAC still must work toward establishing its core of expertise, products, and services in the area of workforce safety training. As STAC expands and develops CETP, it still must respond to identified gaps in its current curriculum.

Thus, STAC must maintain existing CETP programs and materials and develop new safety programs and materials for the propane workforce. Potential areas for further developing CETP are listed below:

- **Create CETP texts and CETP E-Learning materials** on vapor distribution, including content on residential and small commercial vapor systems, appliance installation and start-up, large commercial vapor systems, and basic electricity for propane vapor appliances.
- **Revise the textbooks** for CETP 4.1, 4.2, and 4.3, and align the curricula.
- **Align the curricula and develop texts** for the remaining CETP courses with potential for additional CETP E-Learning.

The development of each CETP product requires an allocation of PERC's financial and STAC's volunteer resources. With work still to be done to round out CETP's curricula, CETP program and product development remains a high priority for STAC. However, STAC also recognizes the need for careful and deliberate planning.

### STAC's Commitment

Over the next four years, development of new safety training programs and materials, particularly the expansion of CETP's curricula, will remain an important priority for the investment of time and money.

## Emerging Needs

Along with the planned expansion of CETP's curricula, STAC will continue developing its core capacities by responding to emerging needs. In fact, STAC has established operational procedures for evaluating these needs, determining an appropriate allocation of resources, and developing effective solutions.

Previously, STAC identified the emerging needs for safety training on the dangers of underground tank corrosion and static electricity generated at propane facilities. In response, STAC developed the Cathodic Protection Program and a booklet entitled Static Electricity in the Propane Industry.

The propane industry has come to depend on STAC to meet emerging safety and training needs in this way, and continuing to do so will be an important part of developing STAC's core expertise and offerings in workforce safety training. As propane applications, and thus safety concerns, diversify, identifying and responding to emerging safety and training needs will become ever more important.

### STAC's Commitment

Over the next four years, STAC will continue to identify and respond to emerging needs.

## CETP Web-Based Development

A fourth focus area for developing STAC's core concerns the conversion of CETP's curricula to a web-based platform. Propane marketers continually express a need for more flexible training tools. As the workforce becomes more diverse and geographically diffuse, the need for accessible, flexibly delivered, and promptly available training tools will continue to increase.

In addition, updating and managing the CETP content is becoming increasingly challenging. To both maximize quality and minimize liability, it is essential that safety information and prescriptions offered in CETP training be accurate and consistent across the various programs. The ongoing expansion of CETP programs and resources will only exacerbate the challenge.

Although the development of CETP E-Learning has increased flexibility and access, there is much more to be gained by migrating the CETP content to a web-based platform. It is easier, less costly, and less time-consuming to update web-based program materials. The web also provides access via other facilities such as schools, universities, and libraries. It is believed the vast majority of propane firms have web access, and web-based CETP resources will be more easily accessible to them. Finally, a web-based platform could open opportunities for new and/or improved metrics. It could enable more precise tracking of the number of employees who are taking a program and could allow STAC to collect more direct feedback from participants. It could also provide marketers with a means to evaluate learning outcomes for their own employees.

## STAC's Commitment

STAC's commitment in the near term is to fully and carefully explore the cost and feasibility of expanding web-based CETP resources to determine the full scope and cost of the task, both from a financial and personnel standpoint. This is the logical and responsible first step toward developing web-based CETP curricular materials.

## Regulatory and Code Compliance

The propane industry is governed by a complex set of regulations and standards promulgated by various organizations and agencies, including the NFPA, DOT, EPA, Department of Labor (under OSHA), and state and local governments.

Propane marketers recognize the need for regulations and are committed to operating in accordance with them. Nevertheless, it is not always easy to keep up with the changes, and it can be difficult to sort through the various standards to determine specifically what is required of propane marketers and their employees.

STAC offers a range of tools to help marketers stay abreast of and comply with codes and regulatory mandates. For example, STAC maintains a searchable database of regulations as well as a library of compliance guides and manuals. STAC also offers the Propane Regulatory Compliance Program, which takes the information set forth by OSHA, DOT, and the EPA and provides simple, concrete explanations of what propane marketers must do to meet regulatory compliance requirements.

## STAC's Commitment

Compliance training represents an important part of the core programs and services that STAC offers to the propane industry. It will remain a high priority over the next four years, and STAC will invest resources as needed to meet marketers' needs.

## Management Training

STAC has long recognized the important influence that managers hold over safety practices in the field. Propane managers oversee the safety standards, guidelines, and training that field workers receive. They control the work environment, which may or may not encourage safe behavior. The managers' knowledge of regulations and propane safety procedures may be critical to preventing or minimizing the severity of propane accidents. Effective management training, tailored to the areas of greatest need, will reduce injuries and incidents, improve compliance, and ultimately enhance the organization's bottom line.

Although management training was an implementation priority of the 2002 roadmap, STAC has struggled to achieve a clear and shared vision for this area. There is general agreement that much of the CETP content would benefit managers, but there is not a clear understanding about what else the program should include. Unanswered questions remain about managers' specific needs and how best to meet them.

STAC conducted a roadmapping workshop with committee members to address these questions. (It also addressed outreach opportunities in consumer safety education and technology commercialization, both of which are described in the next chapter.) The workshop was held in Baltimore, Md., on October 22-23, 2008. Its results concerning management training are summarized below and displayed in detail in Tables 6.1 and 6.2 in Appendix B.

## Management Training Needs

To provide maximum benefit to the propane industry, management training must be tailored to marketers' needs and focus on the areas of highest priority. Accordingly, STAC assessed current training needs. STAC based its assessment on an examination of current managerial workforce safety practices, that is, what managers are currently doing to manage safety in the field. As a result, STAC identified training needs in the following areas:

- **Maintaining awareness** of the current practices and skill levels in the field. Assist managers to increase their ability to be aware of what goes on in the field and determine the skill level of field workers.
- **Creating a culture** that values and encourages safety. Assist managers to understand the benefits of proactive and positive employee reward systems for safe behavior.
- **Equipping workers** with tools and training. Educate managers on the need and benefits of proper safety training for field workers, including responses to unexpected situations or risks.
- **Maintaining open communications.** Educate managers on establishing effective lines of communication with field workers and the benefits of regular communications with employees regarding incidents, successes, and steps taken to improve workforce safety.
- **Recognizing the value of safety training.** Educate managers on the value of safety training for themselves or their employees.

## Management Training Solutions

After the assessment of needs, the committee members proceeded to identify specific approaches, activities, modules, and other solutions that STAC could implement to meet those needs. The list of potential solutions falls into three distinct areas:

- **Requisite Activities.** The success of a management training program depends on both effective development and promotion of that program. Key steps to increase the probability of success include obtaining an upfront commitment of resources, engaging propane managers in the development process, and providing them with a compelling business case for safety training.
- **Training Content.** The scope and content of the management training program remains an important area for planning. Key potential topics include communication skills and practices, safety management practices, regulations, specific technical content related to workforce safety, and consumer safety communications.

- **Training Support.** The success of the program may also depend on the tools and resources that are devoted to supporting it. Potential tools and resources to consider include regular updates on incidents, company- or industry-recognized best practices (without instituting new regulatory or legal mandates), regulations, etc.; communication materials that managers could distribute to reinforce safety messages among workers; procedures and organizing tools that managers could use to more effectively manage safety in the field; and reference materials to help reinforce and communicate the training content.

## Implications for Management Training

The results of the roadmapping workshop, both in regard to training needs and training solutions, expressly calls for management training that is more than a retranslation of the CETP program for a managerial audience. The resources and programs that are offered to managers should be focused on maintaining continuous workforce safety through safety training, but also through effective communications, compliance practices, accident reviews, etc.

### STAC's Commitment

These results will be used to guide STAC's management training efforts over the next four years. Overall, the development of training programs and services for propane industry managers has been established as an important priority warranting a significant investment of STAC's financial and human resources.

## Summary

This chapter has shown that together, CETP Maintenance, CETP Development, Response to Emerging Needs, Web-Based CETP Development, Regulatory and Code Compliance, and Management Training make up the six focus areas for sustaining and developing STAC's core capabilities. Based on the general pattern of success that STAC has established in these areas over the past seven years, the committee appears highly capable of both maintaining these action areas and expanding outward in the directions that the next chapter will describe.

# VII. Leveraged Outreach

The strategic framework's second imperative is the expansion of STAC's contribution through outreach to meet the needs of populations outside the propane industry. STAC has identified three focus areas for this imperative: consumer safety education, technology commercialization, and emergency responder training.

This chapter describes the key considerations and priorities in each area. As previously noted, STAC used the recent roadmapping workshop to explore outreach opportunities in consumer safety education and technology commercialization. A summary of these results is included in the discussion below.

## Outreach Principles

Three principles will govern STAC's outreach efforts. While STAC recognizes the importance of serving the needs of populations outside the propane industry, it also understands that such activities entail certain risks.

The following outreach principles are designed to minimize the risks and help STAC make the most of its strengths and resources while still allowing it to focus on its core activities. The three outreach principles are as follows:

- **Make use of strategic partnerships.** PERC will capitalize on opportunities to develop and deploy partnerships, collaborations, and network relationships, particularly with other PERC advisory committees, marketers, secondary market contacts, agencies, associations, and industry groups. STAC will make full use of these connections to leverage its own efforts and resources; to promote public, governmental, and industry awareness of safety issues and programs; to track the changing needs and conditions related to propane safety; and to promote propane's reputation as a clean, safe fuel.
- **Repurpose rather than re-create.** In its outreach efforts, STAC will exercise careful stewardship of its limited financial and volunteer resources. STAC will seek to meet outreach needs by adapting and repurposing its current programs, either in part or in their entirety, before proposing solutions that entail the development of entirely new programs.
- **Stay true to STAC's mission and competencies.** As STAC seeks to expand its contribution through outreach, it will exercise care to stay true to the scope of its core competencies and mission. This vigilance is necessary in order to ensure that STAC's resources are not stretched to the point where its core programs and activities suffer. It also serves to protect STAC from undue exposure to liability risk.

## Leveraged Outreach

### Consumer Safety Education

### Technology Commercialization

### Emergency Responder Training

These principles will guide STAC's efforts to expand its contribution to the propane industry beyond the scope of workforce safety training, particularly as it reaches out to meet the need for consumer safety education, technology commercialization, and emergency responder training.

## Consumer Safety Education

Consumer confidence in propane and its safe consumer use are of paramount concern to PERC and the propane industry. Unfortunately, too many accidents occur because consumers are not knowledgeable, fail to use proper safety procedures when handling propane and its associated equipment, or both. Consumer education is therefore one of PERC's key mission areas and part of its mandate under the Propane Education and Research Act (PERA).

STAC coordinates with the Consumer Education Advisory Committee to achieve PERC's consumer education goals. CEAC generally works to educate consumers on the value of propane, whereas STAC has focused on educating propane consumers about safety issues related to using propane. PERC's new strategic plan identifies safety and training objectives that target consumer confidence, consumer safety awareness, and the reduction of unsafe practices by consumers. Accordingly, consumer safety education is an important focus area for STAC's outreach efforts.

During the roadmapping workshop, STAC committee members addressed two key questions with regard to consumer safety education: first, what are the challenges and barriers to consumer safety? Second, how could STAC expand its contribution in this area? The results are summarized below. Tables 7.1 and 7.2 in Appendix B display the specific workshop findings.

### Challenges and Barriers

The primary barrier to consumer safety lies in getting consumers to adopt safe practices. Multiple communication challenges impede safe consumer propane use, starting with getting safety information and materials into the hands of consumers. Marketers are a primary distributor of this information. Furthermore, it is challenging to get consumers to take the time to read and retain the information in the safety material. Since safety risks and needs vary by situation, application, and audience, safety communications often require a certain degree of specificity and detail. The diversity of propane uses and customers thus becomes a challenge to PERC's consumer safety efforts.

### Potential for Expanded Contribution

To explore the potential for expanded contribution to consumer safety education, the roadmapping workshop focused on marketer needs in safety communication. This approach was taken because of marketers' centrality in informing and educating consumers about propane safety.

To teach consumers more effectively, marketers could use support in many areas. First, they need data to help them track the effectiveness of their safety communications and to help them identify the most effective content, medium, and format. Marketers need more information about the consumers themselves and their perceptions, practices, and needs. They also need a range of tailored messages and materials to use with consumers. This could include brochures to hand out at the point of sale as well as information pieces to email or post on a website. It could also include general information about propane as well as equipment or system specific

information. In addition, marketers need coordinated marketing support to reinforce the safety messages they provide and to emphasize the importance of reading and using the information. Finally, marketers themselves could use training in communication and persuasion.

## STAC's Commitment

Over the next four years, consumer education will remain an important priority for STAC's outreach efforts. STAC has a number of products and services already in place that effectively support PERC's consumer education mission. Since these products and services have yet to reach their full potential, a major portion of STAC's outreach efforts will be devoted to maintaining and enhancing them, where needed. In addition, STAC will continue to collaborate with and support CEAC. Thus, STAC continues to identify consumer education training as an important focus area that may be served without developing a significant amount of new materials but rather by focusing on research and outreach.

## Technology Commercialization

A second focus area for STAC's outreach imperative is the response to safety needs arising from the commercialization of new technologies. Propane research has resulted in a number of new products that use propane. As these new products are produced and sold to consumers, the potential for accidents and incidents involving propane increases, and the challenge of ensuring the safe use of propane becomes more complex and unpredictable.

The design and engineering of intrinsically safe propane utilization products is the responsibility of the manufacturers that produce them. STAC will continue to maintain a clear boundary against assuming any liability in this regard. At the same time, consumer safety and confidence is dependent on the degree to which workers and consumers in these new markets are able to eliminate unsafe practices. In addition, PERC's new strategic plan explicitly tasks STAC to "provide educational materials and training to . . . support development of new markets for propane utilization equipment." STAC interprets this as an acknowledgement that its role is based on its core competencies, namely training on propane's properties and the safe handling and use of propane. Accordingly, STAC identifies technology commercialization as an important target for its outreach efforts.

The potential activities, challenges, and barriers in this area as well as the potential ways in which STAC could expand its contribution in this area are summarized below. Tables 7.3 and 7.4 in Appendix B display the specific workshop findings.

## Challenges and Barriers

Technology commercialization poses unique challenges for propane safety. The first challenge concerns the identification of safety issues and training needs associated with the new propane products and applications. Using propane in new ways is likely to create a new set of safety concerns and requirements that could be addressed in training programs and materials. However, identifying these new safety issues is difficult because product development in secondary markets is removed from the industry's direct oversight and takes place without industry input. In addition, many safety issues often appear only after a period of use.

The commercialization of a new technology also compounds all of the challenges associated with both workforce training and consumer education. To maintain a new propane application, workers unfamiliar with propane will be repairing and servicing equipment with propane components. Overcoming their old habits gained from the use of preceding technologies may be as difficult as filling in the gaps in their knowledge. Secondary market employees and managers may not be aware of the training resources that the propane industry has to offer. Similarly, the propane industry may not be fully aware of the components of the secondary markets and which secondary market personnel may need to be trained.

For consumer education, technology commercialization increases the uses that must be covered and the diversity of audiences that must be reached by consumer safety messages and materials. The potential expansion of propane use by consumers also increases the challenges associated with public misconceptions and negative perceptions of propane.

A final challenge raised by technology commercialization concerns liability. Complexities in both secondary-market products and the structure of these markets obscure the lines of responsibility and culpability around propane-related accidents and incidents. Thus, targeted safety and training programs are needed to help reduce the risks of liability.

## Potential for Expanded Contribution

There are a range of ideas and possibilities for reaching out to secondary markets. Developing and deploying partnerships and collaborations are priority activities. Partnerships and collaborations serve in two ways. First, they are an effective and efficient means for STAC to proactively track new products and applications of propane. Second, they provide a means for STAC to promote awareness of propane safety issues and training resources within the secondary markets. Strengthening its connection and mutual understanding with other PERC advisory committees, as well as secondary-market manufacturers and original equipment manufacturers, may be considered an important first step to expanding STAC's contribution in the area of technology commercialization.

### STAC's Commitment

For the next four years, supporting the commercialization of new technologies will remain an important priority for STAC's outreach efforts. Given some of the uncertainties over the safety issues of new applications and potential liability risks, STAC recognizes the need for carefully considered action in this area. STAC will continue to reach out to other advisory committees and look for ways to repurpose, modify, and promote its current programs to secondary markets.

## Emergency Responder Training

A final focus area for STAC's outreach imperative is the training of emergency responders that manage propane emergencies. This group includes fire department employees as well as emergency medical technicians, law enforcement, and hazardous materials teams. With proper training, emergency personnel can mitigate emergencies properly, quickly, and as safely as possible. Conversely, their lack of knowledge can increase the risk that they and the public experience. Their response can either protect workers and consumers and mitigate the consequences of accidents and incidents or exacerbate the risk and potential for negative

impact. The effectiveness of emergency responders directly influences PERC's goals and vision for the propane industry. Emergency responders continue to be an important target for STAC's outreach efforts.

STAC has responded to emergency responder safety and training needs by working with NPGA to maintain and build on its Propane Emergencies (PE) program. This program has been widely adopted by emergency responder agencies and is recognized as a benchmark of training programs for other hazardous materials. It has grown from a single textbook to a comprehensive training program that not only describes how to safely respond to propane emergencies, but also provides critical information on a range of topics, including propane's physical properties and characteristics, general emergency response procedures, tactical response guidelines for propane emergencies, product removal, and transfer and recovery operations.

### STAC's Commitment

Over the next four years, STAC is committed to working with the industry and its state association partners to continue building relationships with the emergency response community and serving their propane safety training needs. Since PE remains a functional, effective, and influential program, STAC will continue to maintain and enhance the PE program. STAC will also continue to build communication and collaboration between the propane industry, the fire service, and other emergency responder organizations.

## Summary

This chapter has described STAC's intention to expand its contribution through leveraged outreach. In addition to its workforce training initiatives, consumer safety education, technology commercialization, and emergency responder training comprise the three areas in which STAC will focus its outreach efforts. This chapter has also described the principles that will guide these efforts. Thus, STAC will seek to meet the safety training needs in these areas by making full use of partnerships, repurposing current programs and materials, and staying within the scope of its mission and competencies. This strategy of leveraged outreach will enable STAC to expand its contribution and serve a greater range of safety training needs without detracting from its core activities in workforce safety training.



# VIII. The Path Forward

This document presents a safety and training roadmap to guide the propane industry's investments in propane safety as well as STAC's effort and activities to advance propane safety. The roadmap describes a strategic framework by which STAC may build on previous accomplishments, continue to solidify its core expertise and offerings, expand the scope of its contribution, and reach out to meet the needs of those outside the propane industry. This strategic framework is consistent with the goals and objectives of the strategic plan, and it responds to the growing needs of propane marketers.

This roadmap also identifies nine focus areas of activity that cover the full range of STAC's purview under the new strategic plan. For each area, the roadmap describes the need and STAC's commitment to action. In essence, it is a description of initiatives and actions to be undertaken in the furtherance of the strategic plan and the advancement of propane safety.

A key requisite of STAC's path forward is the ongoing commitment and effort of its volunteer members. Without their active participation, STAC would not have achieved its current success and would be unable to carry out its function. As STAC moves forward on this roadmap, it will continue to need active and dedicated volunteers.

## Metrics

To the extent that STAC's activities over the next four years are informed by industry data, STAC will be able to adapt and improve the effectiveness of its efforts over time. Metrics are an important consideration for the path forward.

However, metrics pose a challenge because STAC's activities are removed from the ultimate results that define its effectiveness and purpose. The nature of the metrics challenge is illustrated in Figure 8.1 below. This figure presents a framework for analyzing and interpreting data. Essentially, it is a simplified map of the causal chain between STAC's activities and the

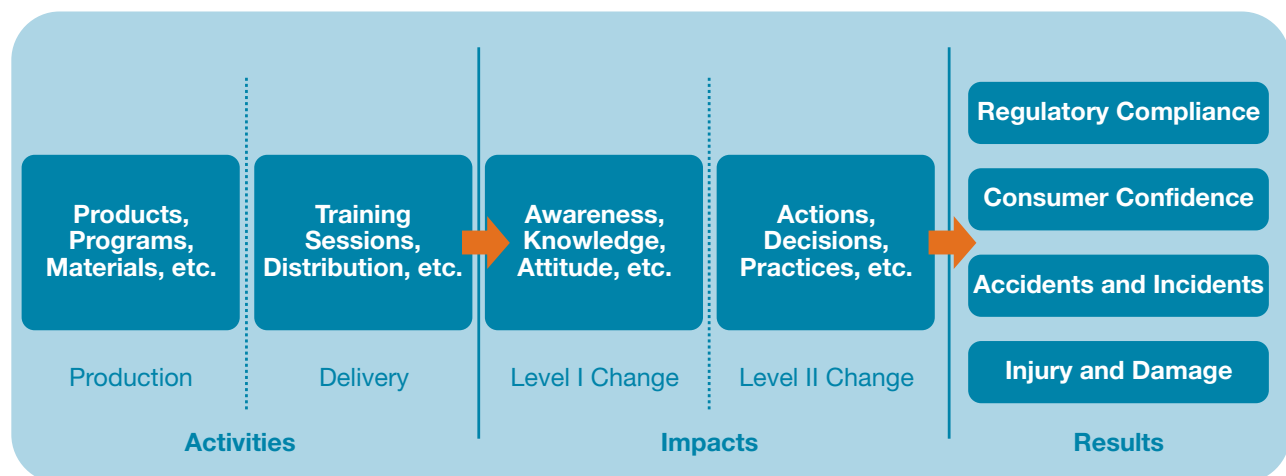


Figure 8.1 Measurement Framework for Analyzing and Interpreting Metrics Data

ultimate results. In general terms, STAC’s activities have direct impacts, which combined with behavioral and perception changes produce results.

From an assessment point of view, STAC’s activities are defined as either production (the creation of tangible products, programs, materials, etc.) or delivery (the training sessions conducted, program materials distributed, access channels supplied, etc.). The immediate impact of STAC’s activities is on the trainees or users of STAC’s products, starting with a Level I change in their awareness, knowledge, and attitudes, which then may be followed by a Level II change in their actions, decisions, and practices. The ultimate results of STAC’s efforts are measured in terms of an increase in regulatory compliance and consumer confidence, the reduction of incidents and accidents, and the minimization of injury and damage caused by incidents and accidents.

The strategic plan identifies six categories of source data that will be used to determine STAC’s success in meeting the safety and training goal, and STAC is committed to tracking the data in these categories. However, when these categories are mapped onto the conceptual framework, as they are in the Figure 8.2 below, the larger challenge becomes readily apparent: the strategic plan categories fit either at the beginning or at the far end of the causal chain. No matter how carefully these data are tracked, they are severely limited in their ability to tell the full story of STAC’s performance and the industry’s investment in propane safety. They are also limited in what insight they can provide STAC about how and why its efforts are effective.

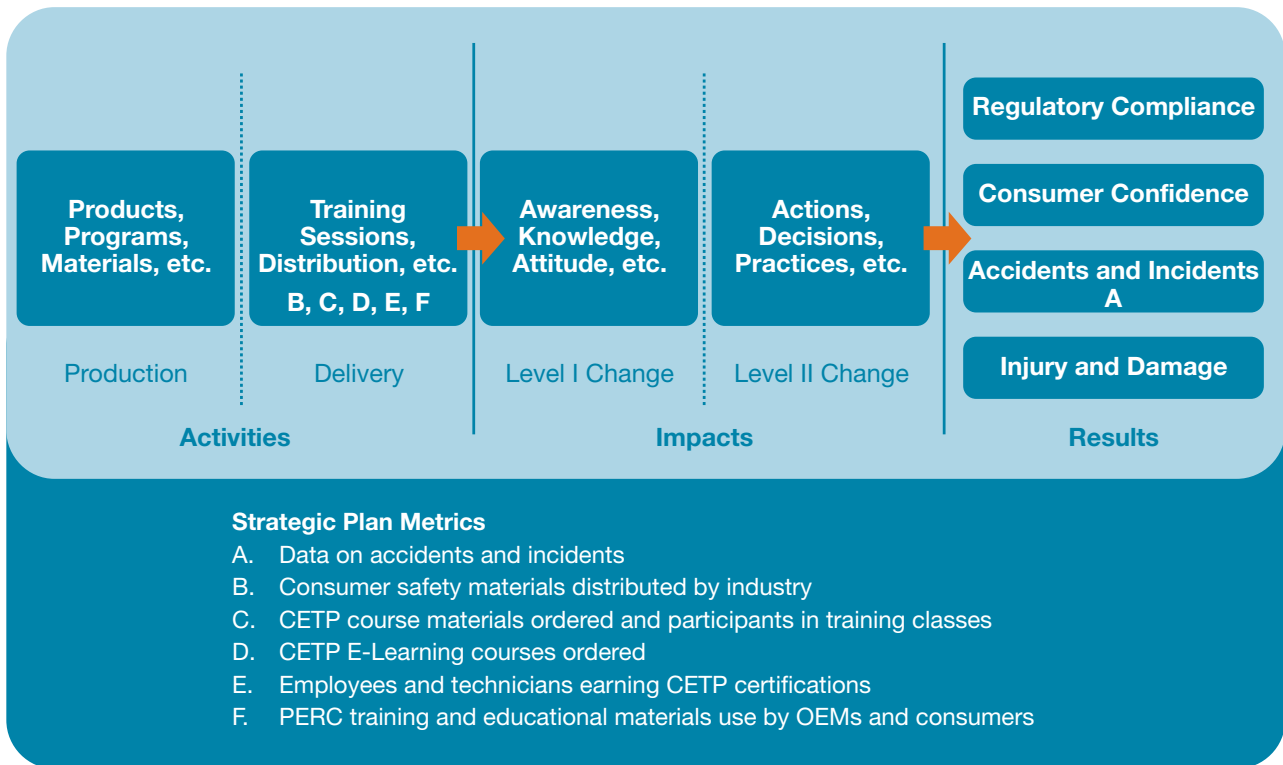


Figure 8.1 Measurement Framework for Analyzing and Interpreting Metrics Data

STAC fully recognizes the potential value that a more complete assessment could provide. Table 8.1 in the appendix presents ideas for potential sources of data that could be added at each stage of the conceptual framework. On the other hand, STAC is also aware that the tracking of additional data streams would require a significant investment with no guarantee of success.

STAC will continue to look for ways to improve its data tracking and collection methods, especially with respect to the quality of incident data. STAC will remain open to opportunities to capitalize on the data collection efforts of other agencies and organizations. STAC will also seek to capitalize on opportunities that may arise from the development of a web-based delivery platform for CETP activities.

## Final Word

STAC's commitments in the nine focus areas provide a picture of its path forward for the next four years. To a large extent, this path forward is a continuation of the activities and efforts that have made STAC successful in the past. At the same time, this roadmap emphasizes STAC's pivotal role in the furtherance of the new strategic plan. STAC has primary accountability for the safety and training goal, but it also recognizes its unique position in having expertise and offerings that can serve the efforts of PERC's other advisory committees.



# Appendix A: Contributors

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# Appendix B: Workshop Results

Table 6.1: Management Training Needs

<p><b>MAINTAINING AWARENESS OF PRACTICES AND SKILL LEVELS IN THE FIELD</b></p> <ul style="list-style-type: none"> <li>• Managers need to spend more time in the field to ensure compliance and safe work practices and to talk with field workers.</li> <li>• Walk around, watch habits of employees, ride-alongs, informal audits — open eyes.</li> <li>• Perform skill assessments based on CETP.</li> <li>• Managers need to inspect and keep track of developing issues and what’s going on in the field.</li> <li>• Review incidents (including near misses) to find cause and prevention.</li> <li>• Helping management to understand level of training workers have.</li> <li>• Educate managers on skills assessments; conducting skills assessments of employees that observe skill.</li> <li>• Conduct task analysis for operator and speaking with managers about these tasks.</li> <li>• Ensure managers are qualified to evaluate employee skill sets.</li> </ul>
<p><b>CREATING A CULTURE THAT VALUES AND ENCOURAGES SAFETY</b></p> <ul style="list-style-type: none"> <li>• Talk about/promote “saves” in the field to recognize a good job in the field.</li> <li>• Do root cause analysis of incidents/near misses — be proactive.</li> <li>• Use incidents for self-evaluations of own practices — ongoing self evaluation.</li> <li>• Create a safety culture by acknowledging/acting on employee safety comments (listen and acknowledge).</li> <li>• Model “value for” vs. “apathy” regarding safety.</li> <li>• Leadership by example — no shortcuts, wear protection, use PPE.</li> <li>• Reward safety performance, e.g., a pizza party for every safe month.</li> <li>• Engage in professional behavioral safety development.</li> <li>• Helping managers to change the behavior of seasoned employees using unsafe practices.</li> <li>• Help/motivate managers to promote a safety culture and recognize human factors — a culture of honest communication between drivers and managers; not tied to managers’ incentives.</li> <li>• Using safety behavior-based training has enhanced the culture of safety in some companies.</li> <li>• Recognition for superior safety practices (e.g., five-year “safe driver” pin).</li> <li>• Avoid having “seasoned” employees or managers teach shortcuts or take undue risks to employees on the basis that they, (the seasoned employee or manager), have done it that way without incident.</li> <li>• Some managers may exert pressure on workers to sign off on tank fill that a worker feels/reports is unsafe — Worker wants to do right thing but also wants to keep job.</li> </ul>
<p><b>EQUIPPING WORKERS WITH TOOLS AND TRAINING</b></p> <ul style="list-style-type: none"> <li>• Be accessible and make resources available so workers can ask for help while on site.</li> <li>• Encourage employees to develop and trust judgment, but also to ask for help.</li> <li>• Constant coaching, follow-up, refresher training for field people.</li> <li>• Importance of equipping the field with written policies and procedures regarding safety; also, keep policies simple.</li> <li>• Provide good solid guidelines to employees.</li> <li>• Require employees to take training and get certification.</li> <li>• When taking a course or test, explain to workers the benefits of focusing on learning safe work practices rather than simply passing a test.</li> <li>• Provide incident information with claims reviews to drivers to understand implications of issues to drivers, so they feel more empowered to challenge manager.</li> <li>• Develop and push down safety tools (safety meetings, language, safety posters, etc.) to maintain culture of safety with managers.</li> </ul>

#### MAINTAINING OPEN COMMUNICATIONS

- Managers are knowledgeable, but often need help on how to communicate well with employees — effective communication is needed.
- Company-wide communication to ensure all employees know what's going on — incidents, safety training successes and failures.
- Monthly safety meetings — ensure safety focus and follow up that it's actually being done.
- Walk around, watch habits of employees, ride-alongs, informal audits — open eyes.
- Make safety meetings real — have good topics, good materials, solid information, and structured, consistent messages to fill meetings.
- Encourage employee involvement.
- Keep safety meetings interesting, relevant, useful, and engaging without overloading them.
- Make safety meetings personal — “what's in it for employees.”
- Safety meetings.
- Empower employees to report safety issues to management.
- Need for safety communications that managers use to influence safety in field — indirect.

#### RECOGNIZING THE VALUE OF SAFETY TRAINING

- Tie profits to safety — profit of happy employees, safe employees; remind selves of profit in safety.
- Model “value for” vs. “apathy” regarding safety.
- Not learning the “rules” — codes and regulations.
- Managers taking training themselves.
- Lot of information available to managers — take advantage and use.
- Recognize the value of training, especially regarding insurance costs.
- Don't let a fatality be the reminder of the value of safety.
- Remember training even as the workforce changes; should be a part of hiring — not just a warm body.
- Set priorities, make time, avoid getting caught up in crises and day-to-day — set an example.
- Due to competing demands, managers may need help to understand their risk assessment and decisions.

**Table 6.2: Potential Management Training Solutions**

<p><b>REQUISITE ACTIVITIES</b></p> <ul style="list-style-type: none"> <li>• Secure resources (\$ and volunteer time) to address management training on top of other STAC activities.</li> <li>• Engage front-line managers in developing management training.</li> <li>• Create targeted/directed outreach to managers to expose them to safety issues that pertain to them.</li> <li>• Deliver messages that get into managers’ hearts and minds in two minutes (recognizing how busy managers are today).</li> <li>• Make outreach personal/emotional.</li> <li>• Develop presenters who can talk about safety management in an outreach way, rather than “book training.”</li> <li>• Encourage and facilitate managers to review past incidents (e.g, CSB report on Ghent incident).</li> <li>• Develop materials for state associations to use at regional meetings to talk about management training.</li> <li>• Deliver presenter message online (similar to YouTube) to reach managers who don’t attend meetings.</li> <li>• “Bite-sized” e-learning modules addressing managers on safety.</li> <li>• Score tactics film to “wake managers up” regarding importance of safety.</li> <li>• Quantify ROI of training and safety practices to build the case for Safety and Training, and build management support for training costs.</li> </ul>
<p><b>TRAINING CONTENT</b></p> <ul style="list-style-type: none"> <li>• Offer professional development: communication, time management, hiring quality employees, coaching and rewarding, handling difficult situations and people, creating a safety culture locally, management by walking around.</li> <li>• Human Resources management — how to handle people, how to manage safety module.</li> <li>• Crisis management and communication module.</li> <li>• Emergency evacuation plans/procedures — how to write an emergency evacuation plan.</li> <li>• Topics: How to look for potential hazards, how to perform a skills assessment (CETP).</li> <li>• Truck maintenance for managers.</li> <li>• “How to conduct a safety meeting” module.</li> <li>• Financial business case for safety financials module.</li> <li>• Pumping station operations and training needs regarding those operations (out of gas situation, interruptions of service).</li> <li>• Content to convey, through various mediums, code interpretations, proper procedures, what went wrong, and positives.</li> <li>• How to conduct a proper incident/accident investigation (i.e., Take pictures? Of what?).</li> <li>• Basic propane safety ideas to give to employees — something simple to get started.</li> <li>• Product transfer; OSHA/DOT, etc., regulation requirements.</li> </ul>

**TRAINING SUPPORT**

- Replicate “Charlie” video.
- Provide access to cases, case review/litigation, violations review — key findings, case analysis of root causes (in database format); create a library to do research on safety management ideas, safety meetings, creating a safety culture.
- Provide videos and animations about what to do/not do — use in safety meetings.
- STAC could send regular safety emails to managers that include new ideas, best practices, regular updates, etc.
- Compliance schedule.
- Training matrix regarding what people need to be trained on, when, how often (“employee training maintenance schedule”).
- Safety summit for safety professionals and managers — a conference with speakers, presentations; one in the summer (regulations, operating issues, etc.) and one in the fall (hours of service, busy season issues).
- Management template that divides CETP into parts — evaluate one part at a time.
- Promote fire safety months, etc., with other safety organizations to create a safety calendar with topics for each month.
- Tool: safety scoreboard poster with “saves,” near misses, etc.
- Webinars regarding specific topics (i.e., truck maintenance).

**Table 7.1 Challenges and Barriers in Consumer Safety**

- Getting consumers to change/practice safety.
- Consumers often don't read the materials! — <1 percent have questions — we assume they are reading it.
- Different approaches are needed to communicate with different consumers (i.e., cylinders, service technicians, drivers).
- Diversity of consumers — message appropriate to audience, requires a tailored message.
- Language barrier in talking to consumers about safety — local dialects of Spanish can change the meaning of Spanish-language materials.
- Single/isolated messages not enough to have an impact, just don't get through to people.
- Safety risks are system-specific or equipment-specific, also vary by season.
- Safety messages tend to be negative — can reinforce fears of propane especially in non-users who could be scared away by safety talk.
- Misconceptions, mystery about what “propane” really is, prevalent hazmat perception of propane — YouTube — puts a flood of negative information and misinformation out there.
- Talking to people who have been near a major incident about safety is a challenge.
- We think non-users who have a neutral opinion of propane can be moved to users; those with negative view are harder (don't know who these people are).
- Hard to change the minds of do-it-yourselfers except through their own mistakes or cost.
- Reaching the younger audience living in consumers' homes.
- Keeping terminology simple, a lot of things are too technical with too much industry jargon.
- Put too much information on delivery ticket — need a more concise way to say it?
- Overload of safety messages about everything — what is important?
- Ensuring that customers actually get messages — verify they get it.
- Lack of data about use and effectiveness of consumer education materials; don't know if we are impacting behavior? — hard to measure accidents that don't occur.
- Lack of data about what/how do most consumers think about propane — What perceptions, reactions does “propane” evoke? Do people who use propane grills have adverse attitudes regarding in-house uses?
- Medium — what really works?
- Getting marketers to promote safety — marketer motivation; marketers need to know “What's in it for me?” to get them to worry about consumers.
- Who talks to consumer about safety? Is this person giving the proper message? How engaged are they? Are messages consistent across marketer? What are marketers as a whole doing?
- Too much focus on covering self legally than really educating consumers to keep them safe— messages seen by consumer as “CYA.”
- Liability risk from what you say to consumers.

**Table 7.2: Potential Areas for Expanded Contribution in Consumer Safety Education**

<p><b>DATA/RESEARCH NEEDS</b></p> <ul style="list-style-type: none"> <li>• Need metrics to assess effectiveness of consumer safety education efforts; ability to evaluate how effective what you are doing is.</li> <li>• Information about how effective current marketing materials are.</li> <li>• Benchmarks that go beyond meeting requirements to how effective we are.</li> <li>• Information on what would be the most effective way to reach the consumer — what they will pay attention to.</li> <li>• Information on what works — most relevant data, what message fits what audience, what consumer messages they need to prevent incidents.</li> <li>• Greater understanding of how customers really perceive propane from a safety standpoint.</li> <li>• Research on consumers: what they read, what they want from marketers — putting ourselves in the shoes of the consumer.</li> <li>• Data to keep up with consumers’ practices.</li> <li>• Data on why some marketers don’t provide consumers with propane safety materials.</li> <li>• Ability to document communication with consumers about safety.</li> </ul>
<p><b>SAFETY MESSAGING AND MATERIAL NEEDS</b></p> <ul style="list-style-type: none"> <li>• Elementary-level, attention-grabbing communication materials.</li> <li>• PSAs to address specific safety issues/messages (e.g., heating homes using propane grill tanks).</li> <li>• Email-delivered safety messages to customers (current).</li> <li>• Consumer messages that can be downloaded to a company’s website.</li> <li>• Clear, consistent, positive message.</li> <li>• Messages that speak to consumers in a language they understand and put safety up front when talking to consumers.</li> <li>• Different messages for user vs. non-user, market segment, who is giving message.</li> <li>• Develop literature that clearly explains to consumer what exactly propane is (e.g., “propane is waste product of gas processing”... not good!).</li> <li>• Materials educating consumers about when/whom to call for help.</li> <li>• Messages applicable to commercial accounts as well.</li> <li>• System-specific or equipment-specific messaging.</li> <li>• Explain safety during sale of product (when first meeting customer — user or non-user).</li> <li>• Materials that are easily distributed to all customers and uses consistent language.</li> <li>• Information targeted to area of greatest risk — some states have developed targeted materials focused on issues in their states (e.g., Iowa, Minnesota ice fishing).</li> </ul>
<p><b>COORDINATED MARKETING SUPPORT</b></p> <ul style="list-style-type: none"> <li>• Marketing propane based on safety advantages — develop materials that sell propane based on safety.</li> <li>• Tie in alternative fuel managing to safety messaging.</li> <li>• Web presence (Google, YouTube) regarding propane safety and positive safety messages.</li> <li>• Weather channel, food channel, etc. — 30 second spots.</li> <li>• Using public service messages/media to get the message to all consumers (marketers need help with this).</li> <li>• Multi-prong: safety mailings, media, billboards.</li> <li>• Making mailers part of a bigger program.</li> <li>• Funding and support to do mailings to satisfy requirements and make a difference.</li> <li>• Educating general public about importance of reading and following safety information we already provide.</li> <li>• Timing of messages needs to be consistent, regular.</li> </ul>
<p><b>EDUCATING MARKETERS</b></p> <ul style="list-style-type: none"> <li>• Marketers need to be educated so they can correctly answer consumer questions.</li> <li>• Re-education of marketers about what is available to them.</li> <li>• Need program on communication skills regarding talking to the public.</li> <li>• Talking to consumers about “safety” (e.g., safety audits) is equated with additional costs.</li> </ul>

**Table 7.3: Challenges and Barriers in Technology Commercialization**

- New applications developed without propane industry input; multiple product designs creates an even bigger issue.
- Regular oversight of new technologies.
- Lot of unknowns and unanticipated use issues, unaware of all of the safety issues and won't know some safety issues until there are incidents (i.e., forklift tank on lawn mower used on rough terrain).
- New set of consumer demographics and propane-ignorant users; limited awareness of hazards by new users — all consumer safety issues are now compounded.
- Customer orientation and new training requirements.
- With all of these propane uses, there will be a need for more infrastructure, more training courses, and new content — new technology creates new training needs.
- Technical manuals from OEMs are not adequate in terms of propane safety practices.
- Language issue: do new products have multi-language manuals?
- State-level regulatory approval — approved by each state.
- School bus garage mechanics: need fundamentals of propane safety (many may have no experience).
- New training/skills regarding installation, repair, and servicing — after-market activity that is not propane-wise.
- Fear of new technology not being time-tested.
- Differences in international practices and international marketers may not have adequate materials; technical information for new products may be inadequate.
- Retraining and overcoming old habits with other fuels, e.g., gas lawn mowers.
- Safety information for irrigation systems and for agriculture in general (i.e., rough use scenario).
- OEMs need training and education on new propane products they may be selling, as well as means to educate their customers on propane safety.
- Liability risk/responsibility regarding new technology.
- Evaluating and updating old materials.
- Advisory committees may not know what safety/standards questions to ask STAC.
- Companies selling residential generators (DG) are oblivious to codes or ignoring codes on regulator distance from ignition source.
- Getting more of the public educated on how to fuel and refuel using propane.
- As infrastructure grows, there will be more points of transfer — more liquid transfers, more safety issues and need for training.

**Table 7.4: Potential Areas for Expanded Contribution in Technology Commercialization**

- Partnering with engine fuel, agriculture, and other mission areas to identify needs.
- Industry and OEM training as a stop-gap for new technology — opportunity for partnering with manufacturers.
- Marketing STAC resources and capabilities to OEMs and new manufacturers.
- Informing new OEMs about STAC's current resources (materials that OEMs could use).
- Fast links to [www.propanesafety.com](http://www.propanesafety.com) on OEM sites.
- Work with other advisory committees to develop a procedure for STAC to work with them on reviewing safety training needs and materials for technicians outside of the propane industry.
- Having people on advisory committees willing to work with other committees (volunteer time).
- If other committees are developing training materials for new technologies, STAC needs to be involved and engaged, including legal review, as applicable.
- Review of existing training materials developed by other committees.
- All advisory committees should work together to determine what to do about training materials (develop process for review that all agree on) — e.g., CEAC approaches STAC before embarking on new marketing pushes that involve safety issues; e.g., Brief 5-10 minute presentations during STAC meetings to share information on plans for new products or market campaigns.
- Being aware of what's out there or coming to be proactive.
- PERC/STAC being aware of new technology coming out and taking a safety look.
- Task force to pull safety information from various venues — create animation to educate new and existing users.
- Develop “basics of propane” brochure for new users (consumers).
- Developing new safety tips for new products.
- Review process for new technology manufacturers' manuals, materials, and/or literature.
- Conduct assessment of state policies/regulations.
- Template/assessment criteria for safety manual content regarding handling propane, questions to ask regarding new technology.

**Table 8.1: Potential STAC Assessment Data**

ACTIVITIES
<p><b>PRODUCTION</b></p> <ul style="list-style-type: none"> <li>• Number of new products that respond to the needs of the industry.</li> <li>• Number of materials reviewed/updated (ongoing management).</li> <li>• STAC score card: number of programs, percent accomplished.</li> </ul>
<p><b>DELIVERY</b></p> <ul style="list-style-type: none"> <li>• Consumer safety materials distributed by industry.</li> <li>• CETP course materials ordered and participants in training classes.</li> <li>• CETP E-Learning courses ordered.</li> <li>• Phone surveys to assess how many people are trained using CETP E-Learning.</li> <li>• PERC training and educational materials use by OEMs and consumers.</li> <li>• Number of other materials ordered/distributed, e.g., cathodic protection.</li> <li>• At local level — introducing fire fighters to materials.</li> </ul>
IMPACTS
<p><b>LEVEL I CHANGE</b></p> <ul style="list-style-type: none"> <li>• Employees and technicians earning CETP certifications.</li> <li>• Test scores (certification).</li> <li>• Use online E-Learning to track (problem: E-Learning tests knowledge, not skill).</li> <li>• Collect information about attitudes/behaviors through national focus groups of workers (e.g., drivers and technicians, company leaders discussing changes they have seen since using Safety and Training products).</li> <li>• Conduct structured interviews of seasoned employees at companies about what they have learned — upper-level, mid-level employees — ask what they use.</li> <li>• Assessment of employee confidence in what they're doing (employees who have been through CETP).</li> <li>• Consumer questions and perceptions collected at propane state fair booth.</li> <li>• CETP-certified employees taking test online — a survey of behavior and attitude changes, also getting feedback on resource already being used.</li> <li>• Consumer calls to marketers: questions asked, level of information consumers have, etc.</li> <li>• Subject tracking of consumer emails.</li> <li>• Quality of rapport with responders.</li> <li>• Interactive web survey, outsourced to experts à la DHS survey.</li> <li>• CETP student evaluations.</li> <li>• Online propane consumer survey with rebate incentive.</li> </ul>
<p><b>LEVEL II CHANGE</b></p> <ul style="list-style-type: none"> <li>• Actions/decisions of employees, consumers, and responders in a particular incident; Learning from incidents — have to dig deeper; Make adjustments to training based on learning from incident.</li> <li>• Measuring “lack of success.”</li> <li>• Ask stakeholders (marketers, insurance companies) for accident/incident report information and root cause information to assess behavior — Problem: they don't understand “what's in it for me” and surveys are a pain.</li> <li>• Acceptance of STAC programs by industry, i.e., E-Learning (anecdotal).</li> <li>• Calls by responders to propane industry for assistance.</li> <li>• Number of regulatory citations issued.</li> <li>• On-the-job performance assessments.</li> <li>• Number of callbacks on service calls.</li> <li>• Adoption of propane emergency by State Fire Marshals as their training (decisions made at fires are based on this knowledge).</li> <li>• Skill-assessed vs. not skill-assessed.</li> <li>• States requiring certification vs. those that don't.</li> <li>• Number of CETP-certified employees involved in accidents vs. total.</li> <li>• Employees and technicians earning CETP certifications.</li> </ul>

RESULTS
<p><b>REGULATORY CONFIDENCE</b></p> <ul style="list-style-type: none"> <li>• States adopting CETP as a licensing criterion.</li> </ul>
<p><b>CONSUMER CONFIDENCE</b></p> <ul style="list-style-type: none"> <li>• Language driver/technician uses with consumer instills consumer confidence.</li> <li>• Measure consumer confidence by asking them — build on existing CEAC effort.</li> <li>• Look at headlines and news stories (past vs. present) to measure impact of “propane emergencies.”</li> <li>• Rate of consumer changing from electricity to gas.</li> <li>• Number of rebates.</li> <li>• Consumer perceptions collected at state fair propane booth.</li> </ul>
<p><b>INCIDENTS AND ACCIDENTS</b></p> <ul style="list-style-type: none"> <li>• Data on accidents and incidents.</li> <li>• Trend report from insurance company data: i.e., number of claims, size of loss, last 10 years.</li> <li>• Collect names of insurance carriers and contact; if we see trends, STAC will focus on those areas going forward.</li> <li>• Track information about what happened to cause an incident, i.e., contributing factors to the Ghent incident (Consumer- or employee-related?).</li> <li>• National fire reporting system.</li> <li>• Annual survey of marketers’ incident numbers: injuries, property damage, vehicle.</li> <li>• Hazmat incidents.</li> <li>• Incident specific to categories — e.g., transfer of product: bobtail loading vs. unloading, had training, marketer gave resources, follow-up training.</li> <li>• DOT reportable and recordable incidents.</li> </ul>
<p><b>INJURY AND DAMAGE</b></p> <ul style="list-style-type: none"> <li>• [No new data sources identified]</li> </ul>



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