



Caltrans Division of Research,
Innovation and System Information

Research



Results

Planning, Policy
and
Programming

NextSTEPS: Scenarios and Transition Strategies

The purpose of the NextSTEPS sponsorship program was to generate new insights about the transitions to a sustainable transportation energy future and to disseminate that knowledge to decision-makers in the private and public sectors.

JUNE 2015

Project Title:
Sustainable Transportation
Energy Pathways (STEPS)

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WHAT WAS THE NEED?

The partnership between California Department of Transportation (Caltrans) and University of California, Davis researchers regarding alternative fuels began with the development of California's "Hydrogen Highway" Initiative which was put forth by then California Governor Arnold Schwarzenegger in 2004. This collaborative effort with U.C. Davis in the area of hydrogen for transportation applications was necessary for Caltrans to undertake in light of this new proposal, as the owneroperator of California's highway system. During this time, however, other alternative fuel types became more practical in the application for transportation and infrastructure that required a broader, more comprehensive analysis.

The Sustainable Transportation Energy Pathways (STEPS) – public-private, 4-year sponsorship program that followed, developed the theory, tools, and methods that allowed for transparent comparisons of promising alternative energy and vehicle pathways, then applied these tools and methods in comparative assessments of four general transportation energy pathways - hydrogen, biofuels, electricity and fossil fuels. While this analysis was an important step for Caltrans in the understanding of alternative fuels, there was still the need to address how these comparisons could assist Caltrans in planning and policy development.

The subsequent 4-year NextSTEPS program made consistent comparative analyses among different energy and vehicle pathways: an increasingly challenging task when accounting for factors such as market dynamics, technological changes, geographic location, and infrastructure interactions. Caltrans needed to have this comparative analysis provided by NextSTEPS to understand the impacts and implications of moving to an alternative fuels future.



DRISI provides solutions and knowledge that improves California's transportation system

WHAT WAS OUR GOAL?

The goal of the NextSTEPS program was to inform the public debate and to assist sponsors by providing tools and knowledge concerning sustainable transportation alternatives. For Caltrans, this means to have a full research portfolio of the major alternative fuel types, which includes fuel use development and the potential impacts and challenges to public sector entities and policy-makers.

WHAT DID WE DO?

Each year of the program, NextSTEPS researchers coordinated a personalized conversation with key contacts at Caltrans to match Caltrans' specific needs to NextSTEPS projects, and to organize an efficient process for transferring information to Caltrans' customer contacts. Deliverables disseminated to Caltrans included project summaries, presentations, working papers, published articles, datasets, and other relevant information. Additionally, the NextSTEPS team issued quarterly reports to all sponsors on the progress of the program.

Each year, Next STEPS researchers hosted at least three webinars on topics of pressing interest to sponsors, and two invitation-only workshops. These workshops provided high level policy and technology discussions, as well as review of research outputs from the NextSTEPS program. The gathering of highly-informed consortium members allowed for valuable discussion and technical exchange. As a sponsor, Caltrans was allocated a seat on the program's Advisory Board, which met annually to provide input on NextSTEPS studies, research direction, and public outreach. A cumulative summary of each year's research was issued annually and distributed to all sponsors.

WHAT WAS THE OUTCOME?

NextSTEPS researchers produced a large number of reports and white papers on their results. The NextSTEPS program administrator provided quarterly reports which summarized accomplishments and projected future activities. Additionally, there were a number of symposia and workshops, which presented findings and allowed Caltrans staff to interact directly with researchers.

WHAT IS THE BENEFIT?

Through the collaborative private-public sponsorship effort that included numerous researchers studying a variety of alternative fuel use scenarios, Caltrans was able to obtain a great volume of data and analyses with which to evaluate alternative fuel use. This invaluable information produced by NextSTEPS will help Caltrans' decision makers attain a greater understanding of how alternative fuels will change the transportation landscape as the Department, and society at large, both move towards a sustainability-focused future.

LEARN MORE

View More Information on STEPS

<https://steps.ucdavis.edu/>

IMAGE



Image 1