# Biofuels Workshop and Trade Show
# Western and Pacific Region

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**Keynote Address**
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**California Energy Commission**

## Expanding Opportunities for Biofuels

It is an honor to be here this morning to provide the California Energy Commission's perspective on biofuels. Governor Schwarzenegger and I both extend a warm welcome to Sacramento, along with our appreciation to all of you for participating in this timely workshop on this important subject.

It is gratifying to see that there are over 400 people here from at least 34 U.S. states, five Canadian provinces and eight other countries. This is certainly a strong indication of how interest in biofuels is growing and broadening. The California Energy Commission has a long-standing interest in biofuels and we are pleased to be a co-sponsor of this workshop. We thank the organizers, BBI International, for bringing this event to Sacramento and for involving the Energy Commission and other California agencies in planning the excellent agenda on tap for the next two days.

When California first looked at biofuels in the early 1980s, we saw prospects for small-scale ethanol production using excess agricultural commodities in farming regions. Today, the potential for biofuels is much greater. Ethanol and biodiesel, as well as other bio-derived fuels, stand to contribute substantially to domestic energy supplies here, in most other states, and abroad. This recognition of biofuels' broader potential, and the resulting proliferation of interest and activity is evidenced by this workshop, and sets the stage for major advancements in the production and use of biofuels. But there are still challenges to realizing the potential of biofuels; hopefully, this workshop and others like it will be steps toward resolving those challenges.

California's increased interest in biofuels illustrates the multiplicity of reasons and purposes driving the worldwide expansion of interest in biofuels. With California's ever-increasing demand for highway gasoline

and diesel fuel, now at 18 billion gallons annually, we have a natural interest in alternative energy sources. Five state agencies are sponsors of this workshop, and other state agencies are represented on the agenda. This diversity of participation reflects the expanding view of biofuels as options for addressing not just energy objectives, but objectives of agriculture, environment, resource management, forestry and waste disposal as well. The future of biofuels development rests not only on their energy supply potential, but also on the benefits they offer in these other areas. And, by combining these various interests into a multi-purpose initiative for development of biofuels, we will do better at confronting the remaining challenges I alluded to earlier.

I would like to briefly touch on some of these major challenges that we think need to be overcome in order for the promise of biofuels to be fulfilled in California. Most of these issues will be addressed during the next two days in this workshop. As with most alternative fuel candidates, cost-competitiveness remains the key to permanent, growing markets for biofuels in the long term. Today's record high oil prices may appear to be a major boost for alternatives and could help foster closer economic parity. However, for the most part, the true cost relationships between petroleum based fuels and non-petroleum alternatives have not suddenly changed. Thus, it would be a mistake to assume that an oil price today above $50 a barrel means that competitive markets for alternatives, including biofuels, are now assured. In fact, we foresee a considerably longer time period for true market competitiveness to be realized, necessitating continued progress toward reducing the cost of alternatives.

Closely related to achieving cost-competitiveness is the need for further R&D to commercialize new biofuel production technologies that promise lower costs. There appears to be some good news from the R&D front to support an optimistic outlook. We all need to continue to push the R&D agenda.

Another important challenge for alternative fuels, including biofuels, is to achieve or maintain technical parity with petroleum fuels in terms of regulatory compliance and consumer performance factors. Alternative fuels were once synonymous with clean fuels, and enjoyed certain associated advantages. Advances in low-emission vehicle technology have essentially leveled the playing field with respect to regulated vehicle emissions. Today in California, we are closely examining the comparative emission

performance of alternative fuels and petroleum fuels to ascertain the actual differences and determine what steps are needed to accommodate the characteristics of new fuels. Other areas of needed technical progress involve issues of material compatibility, fuel economy and range.

Creating supply and distribution infrastructure for biofuels presents another challenge. To some extent, infrastructure changes and investments to accommodate biofuels have already been made. California's transition from MTBE to ethanol, for example, has resulted in most of the necessary modifications to allow ethanol-gasoline blending. Infrastructure for supplying E85, on the other hand, is still at an early stage of implementation.

Today, as this workshop convenes, we see a number of positive indications that the outlook for biofuels is, in fact, a healthy one. Countries around the world, from Europe to North and South America to Asia, are engaged in the pursuit of biofuel production and application programs. Here in the U.S., both the established ethanol industry and the emerging biodiesel industry are experiencing rapid growth. U.S. ethanol production may soon match that of Brazil, the world's long-time top ethanol producer. Ethanol is now being produced in eighteen states, with production plans in a dozen more. California currently has two small producers in the Los Angeles area making ethanol from food and beverage industry residues. And, California's first new corn-to-ethanol project recently began construction in the San Joaquin Valley town of Goshen. This 25 million gallon-per-year plant is expected to be in operation next year, and several other corn-to-ethanol and sugarcane-to-ethanol projects are planned in the state. There are also several companies producing biodiesel in California.

Both the ethanol and biodiesel industries in the U.S. received a boost this month with passage of new federal fuel tax provisions. The existing federal ethanol tax incentive has been extended through 2010 and, even more importantly, revised so that it will no longer have an impact on federal highway funds. As revised, this incentive should also improve the marketability of ethanol in the form of E85, to serve the growing fleet of flexible fuel vehicles, now estimated at four million vehicles nationwide. And biodiesel, for the first time, will also benefit from a federal tax incentive. Together, these tax changes extend and reinforce national energy tax policy instituted in 1978 to encourage a domestic biofuels industry.

In the U.S., ethanol is approaching a three-percent share of the gasoline market, the largest inroad yet for any alternative fuel. California, for its part, contributes heavily to this current market inroad with our transition from MTBE to ethanol as a gasoline oxygenate additive. This year, California will use over 900 million gallons of ethanol, about 5 percent of the state's gasoline supply. Biodiesel use, currently amounting to about 4 million gallons per year, represents a smaller share of the state's diesel fuel market, driven mainly by fleets employing this option to comply with federal Energy Policy Act requirements for alternative fuels.

California's current use of ethanol as a substitute for MTBE illustrates the previous point about multiple drivers for biofuels. The state's decision to ban MTBE and use ethanol in its place was based on a water quality objective, after MTBE was found to have unacceptable water quality impacts. In this case, addressing a water quality problem resulted in a market expansion opportunity for a biofuel that might not otherwise have been realized.

Let's discuss California's request for a federal waiver. The decision by California to pursue a waiver of federal oxygenated gasoline requirements has produced some misunderstandings. California's intention is not to curtail the use of ethanol as a gasoline component but to gain more flexibility to supply gasoline conforming to federal and state emission standards. Governor Schwarzenegger, in his letter to the U.S. EPA earlier this year reiterating the state's waiver request, made this clear. The Governor referred to the benefit of the increased use of ethanol and the expectation of a continued large market for ethanol here even without a federal oxygenate mandate. He also noted that California is looking at ways to encourage in-state ethanol production. Simply put, California seeks the flexibility to meet its increasingly difficult gasoline supply needs with the most effective fuel formulations that comply with the state's own stringent standards.

We believe, as the Governor stated, that ethanol -- along with other biofuels -- will be a permanent, and hopefully a growing component of California's motor fuel supply. The Energy Commission, in cooperation with other involved state agencies, continues to pursue the identification and resolution of barriers to more widespread use of biofuels. We are working closely with the Air Resources Board to re-examine the question of whether the ethanol blend percentage in California gasoline can be increased from the current 5.7 percent blend to blends of up to 10 percent ethanol. If this becomes viable,

and the federal oxygenate mandate no longer applies, then fuel marketers will have broader latitude to formulate CARB-complying gasolines with any ethanol content up to 10 percent. From an energy standpoint, we view this potential outcome as favorable for the ethanol market and for California's strained gasoline supply situation. In any case, we expect a continued market for ethanol in California of at least 600 million gallons per year.

Meanwhile, the Energy Commission and other state agencies are working with ethanol fuel stakeholders to explore other expanded market opportunities beyond ethanol-gasoline blending, including E85 and E-diesel. We now have the first three E85 fueling facililties supplying ethanol to various fleets in the state, in what we hope is the beginning of a wider E85 network to serve the growing California FFV population, now approaching a quarter-million vehicles. A similar stakeholder working group approach is being pursued for biodiesel, as part of our overall efforts to explore the market potential for each alternative fuel that can contribute to California's transportation energy supply. This approach, recognizing the need for and the market potential of all candidate fuel sources, is our preferred plan, developed jointly with the Air Resources Board, for reducing California's dependence on petroleum fuels as directed by the State Legislature in SB 2076 of 2000.

In the R&D arena, California has long been a proponent of biomass-to-ethanol technology development. We have participated with the U.S. Department of Energy in two California projects exploring ethanol production from rice straw (the Gridley Project) and from forestry wastes (the Collins Pine Project). While the plans for these pioneering projects haven't yet reached fruition as originally hoped, we are encouraged by the continued worldwide progress in biomass-to-ethanol technology that these projects helped to further. The long-sought goal of widespread production of biofuels from various waste and residue resources is indeed getting closer to reality, as several of the presentations at this workshop will bear out. We can now say that biofuels – ethanol, biodiesel and other bio-derived fuels – are being successfully produced and supplied to motor fuel markets.

California intends to play a strong role in the development and commercialization of advanced biofuel technologies. Processes that can produce biofuels from the extensive resources of cellulosic wastes and residues from our agricultural and forestry industries and from our municipal waste streams remain a primary goal.

Meanwhile, we are encouraged to see conventional technology biofuel projects going forward. These projects are important for reasons that go beyond their immediate contributions to our motor fuel supply and to our agricultural economy. They help create the "bridge" to cellulosic ethanol production by serving as R&D venues, and by integrating the advanced technologies and feedstocks as they become available. And perhaps most importantly, these path-breaking projects will demonstrate that new supplies of transportation energy can be successfully created within our state, at a time when our conventional fuel supply infrastructure is stretched to its limits. We may not ever see a new oil refinery built in California, but we can now be more certain that we will see the emergence of other types of fuel production facilities.

While it is encouraging to see new biofuel projects in California coming to fruition with federal incentives, we recognize that a supportive state government role is necessary to sustain the viability and growth of this industry in the longer term. And, as Governor Schwarzenegger has said, we will continue to consider various mechanisms available to spur expanded production of biofuels in our state.

In closing, I would like to invite everyone to visit the Energy Commission's website (www.energy.ca.gov) for further information and updates on California's continuing biofuels-related activities, and on other transportation energy topics. Thank you for the opportunity to address your workshop today and I hope you have a productive next two days!