



1255 Post Street, Suite 1015
San Francisco, CA 94109
415-285-8246

February 27, 2009

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 08-ALT-1
1516 Ninth Street
Sacramento, CA 95814-5512

DOCKET	
08-ALT-1	
DATE	FEB 27 2009
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RE: COMMENTS ON AB 118

The California Biodiesel Alliance thanks you for this opportunity to comment on AB 118. The California Biodiesel Alliance represents a variety of biodiesel producers, marketers and users within California.

The California Biodiesel Alliance has reviewed the Draft Implementation Plan for AB 118 and supports the goals of AB 118 therein.

Unfortunately, we believe that the Draft Implementation Plan and associated proposed funding levels do not assign enough importance to the use of biodiesel in reducing Greenhouse Gases, especially in the early stages of the program.

The California Biodiesel Alliance submits the following comments.

1. In-state Biodiesel Production and Distribution Infrastructure

Biodiesel is an alternative, renewable fuel technology that exists *today* in sufficient volumes to achieve significant, immediate reductions in greenhouse gas (GHG) emissions. Furthermore, large volumes of waste animal fats and used cooking oils are available in California to be converted into Super-Ultra-Low Carbon biodiesel fuel. However, California has not been able to reap the benefits of biodiesel fuel due to a lack of investment in distribution infrastructure and in biodiesel production that utilizes the aforementioned waste feedstocks.

The California Biodiesel Alliance (CBA) has recently submitted documentation to the Energy Commission stating that estimates of capacity for in-state and national production are overstated. The National Biodiesel Board and Biodiesel Magazine currently show national capacity of 2.4 billion gallons per year and California capacity of 63 million gallons per year.

In a January poll of its members, the CBA determined that California's annual biodiesel production capacity is currently only 15 million gallons, but an additional 42 million gallons per year of new incremental capacity is expected be added by the end of 2009.

While the total US capacity and California capacity has been previously overstated and the total US capacity is somewhat less than the 2.4 billion estimate of capacity, the total US production volume in 2008 was only 700 million gallons per year. Therefore, it appears that the available national capacity is significantly underutilized. The availability of excess biodiesel production capacity at the national level

combined with the increase in future in-state capacity would allow California to include biodiesel use as a meaningful component in the State's strategy to realize significant reductions in GHG emissions and to reduce petroleum dependency.

It should be noted that California used approximately 45 million gallons of biodiesel in 2008 with less than 10 million gallons coming from in-state production using in-state waste feedstock sources. Therefore, it appears that California currently lacks the production and capacity to fully utilize California waste feedstocks. Furthermore, with petroleum diesel consumption of approximately 4 billion gallons in California, there is a market opportunity to utilize significantly greater quantities of biodiesel fuel in California; however, the lack of biodiesel distribution infrastructure, particularly at existing bulk fuel terminals and at the wholesale level, as is currently available for ethanol, is a significant barrier to greater utilization of biodiesel.

The California Biodiesel Alliance believes that AB 118 funds should be used to:

- A. Incentivize in-state production using California feedstocks, especially waste fats and oils feedstocks that show the potential for immediate, significant reductions in GHG emissions
- B. Incentive the development of storage and blending infrastructure for biodiesel fuels

2. GHG Reductions -- Sooner , not Later

CBA agrees with concerns voiced by other groups such as the Union of Concerned Scientists that much more needs to be done to reduce GHG/carbon emissions in the early years of LCFS.

Because of the long-lasting, cumulative effects of carbon residing in the atmosphere that accelerates both climate change and movement towards a potentially disastrous environmental and economic tipping point, a unit of carbon/GHG reduction today is worth more than a comparable reduction in the future. Accordingly, we strongly recommend that the Energy Commission implement investment strategies that include a quick increase in biodiesel use to achieve rapid GHG emissions reductions.

Biodiesel offers a GHG reduction strategy that is significantly better than other alternative fuels in that the GHG reductions are sizable. Biodiesel from waste feedstocks offer a 94% GHG reduction over ULSD and biodiesel projects can be implemented quickly, thereby delivering quick results at a low cost. California alternative energy policy should incentivize the production and use of California-produced biodiesel from California-waste feedstocks such as recycled cooking oil, trap grease, and animal fats.

In the Draft Staff Paper "INVESTMENT PLAN FOR THE ALTERNATIVE AND RENEWABLE FUEL AND VEHICLE TECHNOLOGY PROGRAM" - Peter Ward, Fuels and Transportation Division, California Energy Commission - December 2008 - (CEC-600-2008-007-D), page 5, the Energy Commission says:

"To establish funding priorities and opportunities for the program, specific fuel and vehicle categories were designated according to their ability to reduce GHG emissions. The categories are:

- The Low-Carbon (LC) category includes vehicles using propane, natural gas, and renewable diesel and show at least a 40 percent reduction in GHG emissions.*
- The Ultra-Low-Carbon (ULC) category includes fuel-flexible vehicles using ethanol (E-85) and average at least a 60 percent reduction in GHG emissions.*
- The Super-Ultra-Low-Carbon (SULC) category includes fuel cell, plug-in hybrid electric and battery electric vehicles and show at least an 82 percent reduction in GHG emission."*

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We applaud the Energy Commission's use of the California-GREET models being developed by the California Environmental Protection Agency – Air Resources Board. Although the full slate of fuels is not available at this date, we have reviewed documents available as of January 31, 2009 (including the ARB LCFS workshop on January 30th, 2009) and have summarized the expected GHG emissions reductions of certain fuels (see Table 1 following).

TABLE 1 CBA summary of CA-GREET model GHG emission values	gCO₂e/MJ	GHG Reductions from ULSD indicated by negative values
CaRFGasoline	95.85	
CARBOB	95.86	
ULSD	94.71	
Corn Ethanol Midwest avg w iLUC of 30 gCO ₂ e/MJ	99.40	5%
Corn Ethanol California avg w iLUC of 30 gCO ₂ e/MJ	95.66	1%
Sugarcane Ethanol Brazil w iLUC of 46 g CO ₂ e/MJ	73.40	-23%
Cellulosic Ethanol, Midwest forest residue, no iLUC	22.20	-77%
Hydrogen, liquid from NG	133.0	40%
Hydrogen, liquid from NG, EER=2.3 in LDV's	57.83	-39%
Hydrogen, gaseous, avg NG+ renewables	76.10	-20%
Hydrogen, gaseous, avg NG+R, EER=2.3 in LDV's	33.09	-65%
Electricity, CA average	124.1	31%
Electricity, CA average, EER=3.0 in LDV's	41.37	-56%
Electricity, CA marginal NG	104.7	11%
Electricity, CA marginal NG, EER=3.0 in LDV's	34.90	-63%
CNG, Avg Natural Gas	68.00	-28%
CNG, landfill gas	11.40	-88%
Soy Biodiesel from Midwest, no iLUC	26.90	-77%
Soy Biodiesel from Midwest, assume iLUC of 22 g*	48.90	-48%
RCO-AF Biodiesel, produced in CA from CA feedstocks**	6.10	-94%
Ethanol, CA forest residues	5.40	-94%

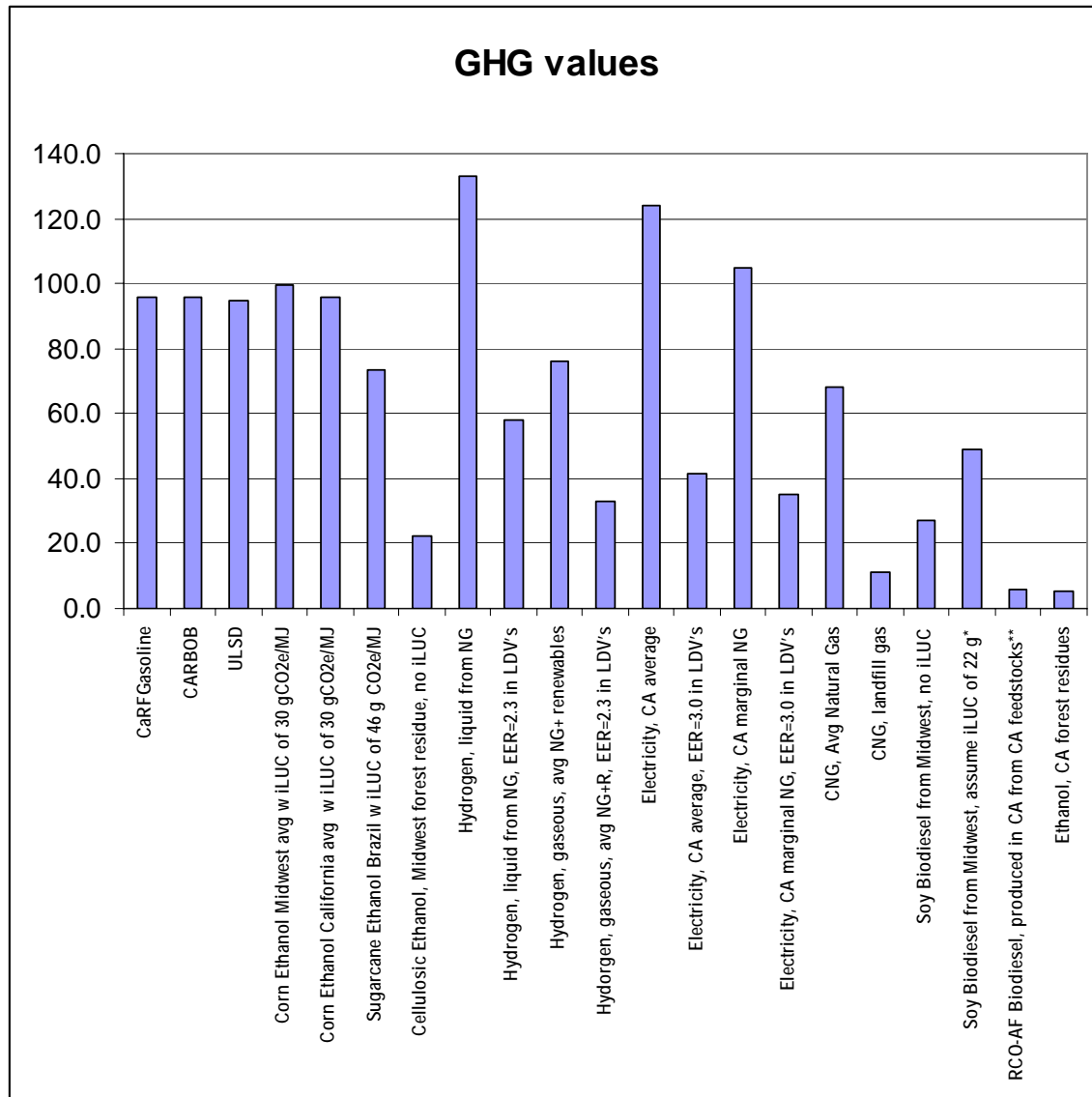
* The CA-GREET model for Midwest Soy Biodiesel does not include Land Use Changes. Until the new number is published, we have estimated a value of 22 gCO₂e/MJ.

** The CA-GREET model for California-produced biodiesel from California-waste feedstocks has not been completed. We have calculated this number by deducting ag-related items from the Soy Biodiesel model.

Based on the information available to us at this time, we believe that California waste feedstock derived biodiesel can decrease carbon emissions by 94% over ULSD, making such biodiesel a Super-Ultra-Low-Carbon fuel that is available today. With AB 118 funding, the utilization of this SULC fuel can be significantly increased.

Figure 1 summarizes the GHG emissions in chart form from Table 1.

FIGURE 1



It is important to note that the use of California-produced biodiesel from California-waste feedstocks such as recycled cooking oils generates more GHG emission reductions per unit of energy than almost all other alternative fuels. In fact, this locally-produced biodiesel should properly be placed in the Super Ultra Low Carbon category, that is, those fuels with at least an 82 % GHG reduction compared to petrodiesel.

Note: California agriculture is not a significant source of oilseeds. Therefore most of the biodiesel feedstocks available within California will be waste feedstocks such as recycled cooking oil, restaurant trap grease, and animal fats. In continued discussion within this memo, we will refer to California-produced biodiesel from California-waste feedstocks as “California-produced biodiesel” even though we understand that there may be some California production from soy or other oilseed feedstocks. We will refer to Midwest Soy Biodiesel as such, even if produced in California from imported feedstock sources.

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The California Biodiesel Alliance believes that the Energy Commission has placed too much emphasis on certain other fuels with respect to their potential effect on GHG reductions, especially reductions that can be reliably achieved in the next decade.

- When compared with CNG or propane, even from CNG produced by landfill gas, California-produced biodiesel from California waste feedstocks provides a distinct advantage.
- California-produced biodiesel from local waste feedstocks enjoys a generous emissions advantage over electrically-powered vehicles.
- California-produced biodiesel provides a major GHG advantage over all forms of ethanol production except for cellulosic ethanol from local waste forest resources. We would point out that this technology and the systems for collection of waste materials and fuel production is years away whereas biodiesel feedstock collection already exists and production and distribution can be quickly ramped up with AB 118 support.
- California waste feedstock biodiesel is achievable today and thus, enjoys considerable GHG reduction benefits over long-lead-time technologies such as hydrogen from renewable resources.
- As noted earlier, more needs to be done to achieve GHG reduction in the immediate future, that is, within the next decade. Biodiesel should play a larger role in the Energy Commission's prioritization of fuels and in the AB118 Investment Plan.
- The diesel market is largely a wholesale market where targeted investments in wholesale distribution infrastructure for biodiesel can have broad market impact and on the potential for petroleum displacement.

3. Maximizing the effectiveness of AB 118 investments

AB 118 funds spent on California-biodiesel and distribution infrastructure represent a cost efficient use of funds, demonstrating excellent Greenhouse Gas Reductions for each dollar spent.

Use of AB118 funds to incentivize development of California's-biodiesel production supports the State's goal as outlined in the BioEnergy Action Plan for California and in Executive Order S-06-06, of achieving in-state production of 20% of all biofuels consumed within California.

The California Biodiesel Alliance has performed three analyses of how AB 118 funds might be designated to achieve significant and quick GHG reductions. The analyses:

- calculate the GHG reductions achieved by typical biodiesel projects
- estimate the amount of AB 118 funding required to achieve the goal
- compare relative GHG reduction "value" by summarizing GHG reductions achieved per AB 118 dollar spent

Project #1 – Quick implementation of biodiesel usage in California (2009) through incentivized use of biodiesel at three demonstration projects (GHG emissions begin immediately and continue through the life of the program but are limited to the life of the program.)

As requested by the Energy Commission, the California Biodiesel Alliance has calculated the potential GHG reductions of three demonstration projects within California, using AB 118 funds to reduce the price of biodiesel to incentivize the use of biodiesel in a B20 blend. We studied two locations in the Los Angeles area and one location in the Bay Area.

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- CBA has calculated that a \$0.50 per gallon incentive from AB 118 funds would be adequate to ensure that the price of California-produced biodiesel from California-waste feedstocks can be priced below the price of ULSD thereby making biodiesel affordable and acceptable to fleets in the areas studied.
- Each demonstration project would use 3 million gallons of B100 California biodiesel during the first year. California-produced biodiesel would be utilized in a B20 blend. (80 % ULSD + 20 % California-produced biodiesel) generating 15 million gallons of B20 at each location and 45 million gallons of B20 overall.
- If 3 million gallons of California-produced biodiesel is used at each of the three locations, then a total of 9 million gallons of biodiesel will be substituted for 9 million gallons of petroleum diesel. If the Energy Commission designates \$0.50 per gallon of biodiesel substituted for petrodiesel, then the cost of the project's three locations would be \$4.5 million annually.
- Substituting 9 million gallons of California-produced biodiesel for 9 million gallons of petroleum diesel would reduce GHG emissions from 94.71 to 6.1 g CO₂ e/MJ or 12,080 g CO₂e for each gallon of California-produced biodiesel substituted. The total gCO₂e reduced will be 110.9 billion gCO₂e. At an incentive rate of \$0.50 per gallon of biodiesel, the GHG reduction value received is **24,640 gCO₂e per \$1 spent** on the program.

Project #2 – Adding production capacity of California-produced biodiesel from California-waste feedstocks such as recycled cooking oil (GHG reductions would begin mid-2010)

The California Biodiesel Alliance has surveyed its members for the purpose of studying plant sites for providing added biodiesel capacity to California. One representative project and associated costs and GHG reductions are described below.

- The representative example consists of a new greenfield biodiesel production facility designed to use waste feedstocks.
- This representative facility would have the capacity to produce 30 million gallons per year of biodiesel from waste feedstocks.
- The total facility cost would total \$20.0 million. AB 118 funds of \$6.0 million (30 percent of the total cost) would be coupled with \$14 million (70 percent) of private funding to finance capital expenditures.

With the AB 118 investment in the first year spread over the seven year AB 118 program life, GHG reduction value received would be **422,814 gCO₂e per \$1 spent** on the project. (Note: AB 118 funds are spent in the first year but the GHG reductions occur during the life of the facility. Spread over a twenty year production schedule, AB 118 reduction value received would be **1,208,039 gCO₂e per \$1 spent** on the project.

Project #3 - Investment in Biodiesel distribution infrastructure

The California Biodiesel Alliance calculated the benefits of providing new infrastructure to allow for increased utilization of biodiesel.

- The representative project consists of biodiesel storage at a bulk fuel distribution terminal with related blending infrastructure to blend biofuels with conventional diesel ("petrodiesel") fuel at the terminal's truck racks.
- This bulk fuel terminal's petrodiesel volume is approximately 20,000 barrels per day (840,000 gallons per day). The project will provide segregated, heated storage of biodiesel (which can be used for any form of renewable diesel) and the associated piping and equipment

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necessary to provide in-line blending of biodiesel with conventional diesel, providing blend levels of 2% to 20%.

- Total estimated cost is \$2,000,000. The project would propose that \$600,000 (30 percent) of the cost be funded by the AB118 program and \$1.4 million (70 percent) by the private sector / project sponsor. This project would yield the following benefits:
- Petrodiesel Displacement – The Project is projected to utilize 20 million gallons per year of biodiesel fuel, displacing an equivalent amount of conventional petrodiesel fuel
 - The facility would blend 20 million gallons of biodiesel with 282 million gallons of petrodiesel annually in generating the following product volumes:
 - About 269.4 million gallons of blended biodiesel-petrodiesel in a B5 blend would use 13.47 gallons of biodiesel to displace about 13.47 million gallons of petrodiesel.
 - About 32.5 million gallons of blended biodiesel-petrodiesel in a B20 blend would use 6.5 million gallons of biodiesel to displace about 6.5 million gallons of petrodiesel.
- GHG Emissions Reductions: Substituting California-produced biodiesel from California waste feedstocks for petrodiesel achieves a 94% GHG reduction, saving approximately 242 billion gCO₂e per year. The total reduction over the seven year AB 118 program would be approximately 1,694 billion gCO₂e.
- AB118 Investment Efficiency: The GHG reduction value received would be **2,818,758** gCO₂e per \$1 spent. The funds would be expended in the first year of the program and benefits are calculated for the seven-year life of the AB 118 program. GHG reduction benefits would occur for the life of the infrastructure.

Summary of the effectiveness of AB 118 funds used in biodiesel projects

- **Project #1 – Quick implementation of biodiesel usage in California (2009) through incentivized use of biodiesel at three demonstration projects.**
 - AB 118 funds total \$4.5 million in one year with an incentive rate of \$0.50 per gallon of biodiesel for 9 million gallons of biodiesel substituted for 9 million gallons of petrodiesel,
 - The GHG reduction value received is 24,640 gCO₂e per \$1 spent on the program.
 - The benefit is only applicable for the one year in which the investment is made.
- **Project #2 – Adding production capacity of California-produced biodiesel from California-waste feedstocks such as recycled cooking oil.**
 - AB 118 investment of \$6.0 in the first year is spread over the seven year AB 118 program life.
 - GHG reduction value received would be 422,814 gCO₂e per \$1 spent on the project.
 - The GHG reduction benefit occurs over the life of the production facility, expected to be 20 years.
- **Project #3 Investment in Biodiesel distribution infrastructure.**
 - AB 118 investment of \$600,000 in the first year is spread over the seven year AB 118 program life.
 - The GHG reduction value received would be 2,818,758 gCO₂e per \$1 spent.
 - GHG reduction benefits would continue for the life of the proposed distribution infrastructure, expected to be 20 years.

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Again, The California Biodiesel Alliance suggests that these studies demonstrate that AB 118 funds spent on California-biodiesel production and distribution infrastructure projects represent a cost efficient use of funds, exhibiting the most compelling and cost effective Greenhouse Gas Reductions for California.

4. Recent research shows biodiesel to be NOx-neutral.

Older studies (1990's) have suggested that the use of biodiesel increased NOx emissions, especially from soy-based biodiesel. Biodiesel from recycled cooking oils and animal fats had less of an effect or even reduced NOx emissions.

More recent research has shown that the use of biodiesel, even soy-based biodiesel, has little or no effect on NOx emissions. In the report *"EFFECTS OF BIODIESEL BLENDS ON VEHICLE EMISSIONS"* - R.L. McCormick, A. Williams, J. Ireland, M. Brimhall, and R.R. Hayes, National Renewable Energy Labs – October 2006 (NREL/MP-540-40554), page iii, the National Renewable Energy Labs states:

*"Based on the studies reviewed and new data reported here, there does not appear to be a discrepancy between engine and chassis testing studies for the effect of B20 on NOx emissions. Individual engines may show NOx increasing or decreasing, but on average there appears to be no net effect, or at most a very small effect on the order of $\pm 0.5\%$. The small apparent increase in NOx reported for engine-testing results in EPA's 2002 review occurred because the dataset was not adequately representative of on-highway engines. In particular, nearly half of the NOx observations included in the review were for engines from a single manufacturer (DDC). Newer engine and chassis studies, which on average show no B20 effect on NOx, are not representative samples either. **However, considering all of the data available, we conclude that B20 has no net impact on NOx.**" (emphasis added)*

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415-285-8246

Summary of Comments:

- The California Biodiesel Alliance believes that the Draft Implementation Plan for AB 118 and the associated proposed funding levels do not assign enough importance to the use of biodiesel in reducing Greenhouse Gases, especially in the early stages of the program.
- Biodiesel is an alternative, renewable fuel technology that exists *today* and volumes of fuel can be made available that would achieve significant reductions in Greenhouse Gases if the level of biodiesel production in California from waste feedstocks were increased.
- We agree with concerns voiced by other groups such as the Union of Concerned Scientists that much more needs to be done to reduce GHG/carbon emissions in the early years of LCFS. Because of the long-lasting, cumulative effects of carbon residing in the atmosphere that accelerates both climate change and movement towards a potentially disastrous environmental and economic tipping point, a unit of carbon/GHG reduction today is worth more than a comparable reduction in the future. Accordingly, we strongly recommend that the Energy Commission implement investment strategies that include a quick increase in biodiesel use to achieve early GHG emissions reductions.
- Biodiesel offers a GHG reduction strategy that is significantly better than other alternative fuels in that the GHG reductions are sizable and projects can be implemented quickly, thereby delivering quick results at a low cost. California should craft policy that incentivizes the production and use of California-produced Biodiesel from California-waste feedstocks such as recycled cooking oil, trap grease, and animal fats.
- AB 118 funds spent on California-biodiesel represent a cost efficient use of funds, demonstrating excellent Greenhouse Gas Reductions for each dollar spent.
- Based on the most recent scientific studies, we believe prior NOx emissions concerns associated with increased use of biodiesel are no longer warranted. The new data shows biodiesel to be NOx-neutral.

Thank you for this opportunity to comment.

Sincerely yours,



Eric M. Bowen
Chairman

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1255 Post Street, Suite 1015
San Francisco, CA 94109
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