



Dominican University of California Environmental Finance Center

Biodiesel Roundtable to Identify and Resolve Obstacles to Produce and Use Waste Grease Derived Biodiesel

February 29, 2008



PQR Summary and PQR Table

Project of the Center for Sustainability

Summary of Biodiesel PQRs

The following is a summary of the Biodiesel Roundtable PQR (what, how and why) Statements which are presented in their entirety below. The 64 PQR statements are essentially the next steps that were developed by roundtable participants at the conclusion of the day. Each PQR states what should be done and how and why it should be accomplished. Each participant was allowed to vote for those PQRs they felt should be a priority and the number of votes each PQR received is reflected in column one.

The PQRs have been divided into five areas of emphasis: Criteria/Standards, Education, Feedstock/Production, Funding and Regulatory/Policy Change. In general, the PQRs focused on the following eight actions.

- Develop sustainable biodiesel criteria/standards, labels, sustainable best practices and verification protocol.
- Develop a clearinghouse that would provide informational and educational resources on biodiesel.
- Develop an easy to replicate sustainable business model.
- Conduct research on various aspects of feedstock and production.
- Increase financing sources for BD.
- Establish a lobby to approach state and federal government agencies and elected officials to promote legislation and regulations that increase the use and production of sustainable BD.
- Convene consensus-building forums to establish uniform understandable biodiesel laws and regulations that facilitate a consolidated permitting process.

- Develop laws and regulations that address the positive & negative impacts of BD.

Criteria/Standards (11 PQRs)

1. Develop sustainable biodiesel criteria/standards, labels, sustainable best practices and verification protocol.

The Sustainable Biodiesel Alliance, a multi-stakeholder association, or a multi-stakeholder process similar to the Roundtable should develop and maintain the consensus-driven criteria/standards. Ensure that all relevant agencies (local, state, federal, environmental, consumer protection, etc.) work together in this process, stay current, create a reliable database, review national and international requirements and standards and research all aspects of the biodiesel life cycle including establishing metrics.



The standards should cover fuel sources, generation and collection of feedstock, production, distribution and use based on emissions testing and engine performance. Ensure that any certification process based on these criteria/standards is complete and

transparent and identifies businesses that operate sustainably.

Education (17 PQRs)

1. Develop informational and educational resources for:

- Restaurants -- encourage them to participate in waste oil collection through information, training & provision of financial incentives
- Institutional users – collect, create & disseminate success stories & research
- Public – create a campaign/educational program/PR/lobbying effort about the benefits of grease recycling
- Businesses – create business-friendly guidance documents about storage issues
- Researchers, producers, fleet managers, regulators, consumers, trade associations, BD advocates -- create an open and unbiased system of electronic information sharing/clearinghouse, include codified BD information, a wikipedia for BD, a blog, that allows for problem-solving & information sharing.



2. Develop an informational clearinghouse that would address the following subjects:

- Preventing biodiesel spills & spill protocol
- Storage

- Safety, use, availability, permitting, right to know
- Grease to BD issues
- Operational characteristics of various BD feedstocks
- Terminology
- Established practices
- Air quality benefits of BD compared to petroleum fuels
- Best practices for ensuring BD quality through the distribution channels
- Research on BD – use science writers to translate into 8th grade English

3. Create community-based biofuels resource centers to promote locally-produced waste vegetable oil (WVO) biodiesel.

Feedstock/Production (17 PQRs)

1. Develop an easy to replicate sustainable business model to optimize scale, location, technology, and access to resources to assure profitability of community-based production and a reliable supply of consistent quality BD. Towards that end,

- Develop a system to ensure WVO is of consistent quality
- Develop restaurant pick up and storage practices protocol
- Promote crop rotation as potential source of biofuel feedstock
- Develop a system to utilize fish oil for BD in Alaska
- Allow free collection of waste cooking oil in SF to be made into BD

2. Conduct research on various aspects of feedstock and production including:

- Pros and cons of above and below ground storage and related infrastructure considerations,
- Generation of sustainable energy from: anaerobic digestion using food waste, algae for biofuel production, fish oil for

BD, brown grease for wastewater treatment plants, and crop rotation as potential source of biofuel feedstock

- Obstacles/barriers to diversifying feedstock based on surveys of all stakeholders in BD production chain
- Using BD manufacturing byproducts/waste products
- Preventing agricultural feedstock invasive species from escaping.



Funding (4 PQRs)

3. Increase financing sources for BD to include:

- New Resources Bank
- Community Bank of the Bay
- Mainstream commercial lenders
- Equity fund program like CA Stem Cell Research Fund to invest in start-up sustainable BD ventures
- Federal agencies & encourage them to provide grants to develop BD including DOD, DOE, HUD, BIA, etc.
- Socially-responsible investors, brokerage firms and individual investors & educate them about the social and environmental benefits of BD

Regulatory/Policy Change (13 PQRs)

1. Establish a lobby to approach state and federal government agencies and elected officials to promote legislation and regulations that increase the use and production of sustainable BD.

2. Convene consensus-building forums to establish uniform understandable biodiesel laws and regulations that facilitate a consolidated permitting process. Develop laws and regulations that address the positive & negative impacts of BD. Change the following laws and regulations to promote biodiesel:

- Allocate resources for sustainable feedstock promotion in the US Farm Bill and end subsidies for non-sustainable feedstock
- Amend the Biodiesel and Alternative Fuel Excise Tax Credit passed by Congress in 2004, which provides a dollar for every gallon of biodiesel blended in the United States, so that only fuel sold and used in the US qualifies for the credit
- Amend the Fleet Evaluation Team law so only fuel sold and used in the US qualifies for the credit
- Create a B5 mandate
- Change law to allow sale of higher concentration BD fuels
- Develop regulatory standards using feedback from engine manufacturers, fuel producers and end users for finished fuel blends above B20
- Revise EPA & SPCC regulations to reflect BD non-toxic properties relating to spills
- Reduce permit fees for WVO collection to encourage collection for BD (vs rendering)
- Require restaurants to show proof of WVO collection
- Create California-wide policy guidelines to promote sustainable BD

**Biodiesel Roundtable
PQR (What, How, Why) Statements**

Criteria/Standards

Votes (66)	PQR Statement	Subject
14	<p>1. Produce and use sustainable biodiesel How: Participate and promote the efforts of the Sustainable Biodiesel Alliance to identify criteria and labeling certification for a sustainable BD standard Why: To inform consumers to make smart decisions.</p>	Criteria/Standards
10	<p>2. Develop a system to provide complete transparency in sourcing, production and distribution How: By creating a life cycle certification that rates overall sustainability Why: To allow consumers to make informed choices and incentivize producers to maximize sustainability.</p>	Criteria/Standards
7	<p>3. Create a system to identify businesses in the BD industry (feedstock, production and distribution) that operate in a sustainable way How: Develop criteria/standards of sustainable best practices and a protocol to verify Why: To assure that BD is being grown, processed and distributed in a way that benefits the world and communities</p>	Criteria/Standards
6	<p>4. Standardize Grease Recovery Devices by developing a system to ensure that every food service establishment has a grease interceptor or suitable alternative. How: Provide a combination of rebates / subsidies/incentives and collective bargaining to mitigate the capital expense on equipment. Why: Because an efficient system to capture brown grease at the source, provides multiple benefits to the producer and restaurant including better feedstock quality, water treatment, fewer clogged sewers and less odor, pests, and blockages</p>	Criteria/Standards
6	<p>5. Existing state, federal & local environmental & consumer protection agencies should work together to protect people and the environment. How: By providing reliable info setting engineering & quality standards & instituting best management practices industry wide, through oversight, regulation, contracting</p>	Criteria/Standards

	<p>enforcement agencies such as CARB must test all blends of BD & SVO (straight vegetable oil), staying current with new tech, creating a valuable, reliable database.</p> <p>Why: We need consumer protection; we are not getting enough reliable up-to-date info and suggested actions on engine impacts and fuel & air quality.</p>	
4	<p>6. Create an association that would establish and maintain standards within the biofuels industry</p> <p>How: By bringing together government and industry</p> <p>Why: To save time and energy in training handlers, stokers, transporters and users of biofuels, industry quality standards are needed; research needs to be disseminated to all stakeholders.</p>	Criteria/Standards
4	<p>7. Conduct research on multimedia Life Cycle Analysis with metrics.</p> <p>How: Identify all elements from field to fuel.</p> <p>Why: Distinguish between biodiesel types compared to fossil, solar energy</p>	Criteria/Standards
4	<p>8. Create Sustainable development criteria</p> <p>How: Collect economic, environmental criteria through multi stake holder process (like today!)</p> <p>Why: Create green collar jobs & develop skilled labor force & increase knowledge & market for BD.</p>	Criteria/Standards
3	<p>9. Create regulatory standards including enforcement.</p> <p>How: Standards are based on emissions testing and engine performance. Regulation development should include feedback from engine manufactures, fuel producers and end users.</p> <p>Why: Currently there are no biodiesel standards for finished fuel blends above B20.</p>	Criteria/Standards
2	<p>10. Facilitate stakeholders participation in the development of consensus-generated biodiesel standards</p> <p>How: Provide funding for participation (travel, employee time) of small stakeholders to the standards development process</p> <p>Why: There is a need for standards for high concentration blends and alternative feedstocks.</p>	Criteria/Standards
2	<p>11. Develop criteria to address the issue of food versus fuel</p> <p>How: We need to quantify the benefits of fuel crops and compare it to the other food production options</p>	Criteria/Standards

	Why: So we know which is best.	
2	12. Conduct life cycle analysis of BD production from various crops How: Identify all elements from field to fuel. Why: To distinguish between agricultural crop feed stock, help buyers make more informed decisions.	Criteria/Standards
1	13. Review feedstock requirements and standards How: Inventory national and international requirements and standards and determine if they need to be modified and create label Why: Make production, consumption etc. of BD easier	Criteria/Standards
1	14. Develop regulatory fuel standards for enforcement. How: Standards should be based on emissions testing and engine performance. Regulation development should include feedback from fuel producers, engine manufactures & end users. Why: Currently there are no biodiesel standards for finished fuel blends. Problems with warranty & pushback from manufactures.	Criteria/Standards
Education		
Votes (77)	PQR Statement	Subject
12	15. Develop a system to overcome obstacles that prevent or discourage restaurants from participating in waste oil collection How: By addressing issues (storage space, quantities, cost/benefit, quality of waste oil, illegal disposal, training for staff), and creating financial incentives for quality oil free of debris Why: Because restaurant education is key and non-hydrogenated oil is healthier.	Education
10	16 Create an open & unbiased system of information sharing between researchers, producers, fleet managers & regulators. How: A neutral facilitator who connects stakeholders through electronic information sharing and interactive live events. Why: There is currently a disconnect between these parties. (exp: research institutions aren't sharing with producers)	Education

9	<p>17. Develop an open and unbiased system of information sharing between researchers, fleet managers and regulators</p> <p>How: Provide a neutral facilitator who connects stakeholders through electronic info sharing and interactive live events</p> <p>Why: There is currently a disconnect between these parties</p>	Education
7	<p>18. Create a public education campaign to educate how grease recycling is beneficial and sustainable</p> <p>How: By using multimedia and education systems to accurately inform the public</p> <p>Why: Consumers and policymakers lack knowledge about the principles of sustainability and benefit of grease including challenges and opportunities.</p>	Education
7	<p>19. Develop an organizational system to codify BD information – A Wikipedia for BD</p> <p>How: Industry Trade Groups, BD advocates to meet in a virtual place to work through new info, post and share, problem solve and troubleshoot and blog must be accessible to small local communities.</p> <p>Why: Because a rising tide floats all boats, so share information, the success of our industries depends on a balance between competition and cooperation and to help replace the current vacuum of biodiesel information.</p>	Education
6	<p>20. Develop a system of community-based WVO biodiesel production facilities</p> <p>How: By creating community biofuels resource centers to educate and support local govts; business associations; potential entrepreneurs; potential end users; fleets and developing incentives (such as loans, grants, subsidies, RFPs with preference for locally produced WVO biodiesel from local resources)</p> <p>Why: To benefit communities, economy, profits remain local, jobs, local energy security, environmental Benefits to community.</p>	Education
5	<p>21. Create an effective consumer education program on operational characteristics of various bio-D feedstocks</p> <p>How: Develop a simple chart outlining how different feedstocks are appropriate for different applications</p> <ul style="list-style-type: none"> • Weather • Stability • Storage • NOX's 	Education

	<p>Why: To maximize benefits to users and minimize problems, and avoid confusion which will ideally lead to greater use of bio-D</p>	
4	<p>22. Develop a business friendly guidance document that includes multi-regulatory/multimedia issues for waste, veggie oil B20 & B100 storage sites. How: Host two regulatory stakeholder roundtables. 1st individual agency 2nd multimedia regulatory agency consensus Why: No consistent statewide regulatory guidance for businesses.</p>	Education
4	<p>23. Develop educational info & venues for increasing institutional users</p> <ul style="list-style-type: none"> • Printed material and stories • Online info • Research – cross disciplinary <p>How: COLLECT the many “success stories” of current institutional users, their measures of progress, cost savings, etc. CREATE educational materials and online resources from success stories. DISSEMINATE info online and in various places such as colleges, universities, health events, communities. Why: The more people who know about successes the more motivated they will be to do it</p>	Education
4	<p>24. Develop a system to create educational programs to prevent biodiesel spills and spill protocol How: By creating educational materials for distributing online and via trainings coordinated through biodiesel associations to biodiesel industry members. Why: To build public acceptance of biodiesel and to ensure community health/welfare while streamlining operations for BD industry members.</p>	Educational
2	<p>25. Develop a clearinghouse to centralize updated info for consumers, business leaders and policymakers about safety, use, availability, permitting, “right to know” issues & about “grease to BD issues. How: Create a website Why: To disseminate info based on current knowledge.</p>	Education
2	<p>26. Raise public awareness How: Through PR campaign, press coverage & lobbying Why: To increase public awareness that will pressure public officials to affect change.</p>	Education

1	27. Provide a system to educate stakeholders about terminology and established practices in the brown grease industry. How: Develop a social marketing campaign Why: The lack of shared info is a barrier to the development of brown grease collection as a biodiesel feedstock.	Education
1	28. Provide better education on overall air quality benefits of biodiesel compared to petroleum fuels. How: Consumer education Why: So that consumers are aware of overall benefits of biodiesel and not confused by perceived NOx issues.	Education
1	29. Create and implement national and regional campaigns to promote quality and benefits of biodiesel. How: National and regional biodiesel associations coordinate and build quality and benefits. Why: Build biodiesel acceptance and build the industry.	Education
1	30. Disseminate Research Results How: Use science writers to translate science technological language to 8th grade English. Why: More informed consumers make smarter choices.	Education
1	31. Create a central online location that is easily accessed that has the best practices for ensuring biodiesel quality throughout the distribution channels. (Production to Pump) How: Gather best practices and synthesize into an online resource that can be easily updated. Why: By ensuring biodiesel quality we can build trust of the consumer and grow the biodiesel industry.	Education
Feedstock/Production		
Votes (50)	PQR Statement	Subject
10	32. Provide a disposal alternative and viable renewable energy source by securing brown grease feedstock supply How: Develop a business model that can be easily replicated and communicated Why: To lay the foundation to encourage an ongoing commercial development.	Feedstock/Production
6	33. Identify solutions to remaining governments &	Feedstock/Production

	<p>industry barriers to diversifying biodiesel feedstock How: Survey all stakeholders in biodiesel production chain including producers (farmers) processors, distributors, buyers to outline obstacles and identify solutions. Why: Will allow for crops to be grown that are regionally appropriate and in some instances more environmentally sustainable. Also allows more feedstock diversification & expansion which leads to the 3 Es: Economic opportunities for more regions. 2. Energy Security, Safe & diversified energy source. 3. Environmental – promotes more sustainable crops.</p>	
5	<p>34. Determine raw material to produce biodiesel consistently, with high quality & acceptable cost How: Evaluate local-regional ag crop oil, animal fats & recycled oils/grease prior to sustainable business model (technology & industry) Why: Feedstock => 70% cost of production & determines viability of business model.</p>	Feedstock/Production
5	<p>35. Establish a mechanism to determine the appropriate scale (plant size) for BD production How: Determine demand, supply, and regional resources (renderers, collection systems) and educate regulators of production on difference between BD and petroleum Why: To avoid fuel transportation costs to be more self-sustaining, and people feel good that they are contributing to a solution.</p>	Feedstock/Production
4	<p>36. Develop a sustainable business model to optimize scale, location, technology and access to resources (feedstock, energy, water, waste treatment, etc) to assure profitability of production How: Strategic planning & evaluation of proposed sustainable business model by a diverse task force. Why: Lower cost biodiesel provided by sustainable & profitable production plant.</p>	Feedstock/Production
4	<p>37. Conduct research regarding above/below ground storage tanks and the related infrastructure considerations. How: Interview current users and collect stories of success and failure Why: To build a system to ensure the quality of biodiesel storage AND to provide information regarding the conversion of existing storage tanks.</p>	Feedstock/Production

3	<p>38. Utilize food waste in an anaerobic digester to create methane to reduce fuel consumption</p> <p>How: Create a system to address the fluctuations in prices from region to region of biodiesel.</p> <p>Why: We need to facilitate collection everywhere, which makes bio diesel available to all.</p>	Feedstock/Production
3	<p>39. Utilize brown grease as an energy source within wastewater treatment facilities.</p> <p>How: Research development and identification of technologies that consistently produce quality biodiesel from variable quality brown grease.</p> <p>Why: Brown grease is an available resource, removal improves wastewater treatment process, environmental benefits.</p>	Feedstock/Production
3	<p>40. Create a system to economically farm algae for biofuel production</p> <p>How: By utilizing and combining the expertise and interest of private investors, large oil companies & government.</p> <p>Why: To find a footprint and an economic effective source of feedstocks for biofuels</p>	Feedstock/Production
3	<p>41. Develop a process to effectively use the byproducts that come out of the biodiesel manufacturing process</p> <p>How: Use eg glycerate fish meal as inputs for new products that can be helped to build local economies</p> <p>Why: By using byproducts of the biodiesel process you can help create new local business opportunities.</p>	Feedstock/Production
1	<p>42. Allow free collection of waste cooking oil in SF to be made into biodiesel</p> <p>How: Oil deposited into appropriately-sized container and collected according to restaurant's time restrictions</p> <p>Why: Restaurants without collection are dumping grease down drains; some service providers aren't turning waste oil into biodiesel.</p>	Feedstock/production
1	<p>43. Prevent agricultural feedstock invasive species from escaping.</p> <p>How: Don't plant them or contain them in non-toxic ways</p> <p>Why: Protect ecosystem & local species.</p>	Feedstock/Production
1	<p>44. Develop effective restaurant pick up protocol and storage practices</p> <p>How: Provide incentives, flexibility and appropriate infrastructure/containers</p>	Feedstock/Production

	Why: restaurants' participation is crucial to biodiesel goals	
1	45. Create a system to ensure that collected WVO/VCO is of consistent quality to be made into biodiesel How: Establish education programs and incentives for proper VCO handling/use/disposal Why: Because cleaner grease costs less to process and results in higher quality biodiesel.	Feedstock/Production
0	46. Develop a system to utilize fish oil for bio diesel in Alaska How: Take advantage of the high cost of petro-diesel and produce the fish oil locally Why: So that it is cost competitive.	Feedstock/Production
0	47. Promote crop rotation as a potential source of biofuel feed stock. How: Work with Ag Extension to do outreach with farmers Why: Diverse feedstock creates new income source for farmers, control erosion & water use reduction.	Feedstock/Production
0	48. Create a research group to promote use of fish oil and all feedstocks into biofuel. How: Stakeholders should analyze benefits to use Why: There are unknown quality issues (higher gel point) production, availability and feedstock.	Feedstock/Production
Funding		
Votes (12)	PQR Statement	Subject
5	49. Increase private sector funding How: Talk to New Resources Bank and Community Bank of the Bay to explore innovative approaches Why: Move funding to mainstream/commercial financing sectors	Funding
3	50. Promote targeted education to SRI (Soc Resp Investors) Brokerage firms and individual investors re social benefits and environmental benefits of bio-d fuel usage How: Outreach and education per financial projections of investments and benefits to SRI community and others Why: There is a need to significantly increase the supply of feedstock and decrease the time and cost of supply to the market and investments can have huge impact	Funding

2	<p>51. Increase private sector funding How: Educate other federal agencies to encourage them to provide grant funding to develop sustainable waste derived biodiesel programs (DOD, DOE, HUD, BIA, etc). Why: Open up existing grant mechanisms to include bio-D. Break out of existing siloed approach to agency funding.</p>	Funding
2	<p>52. Increase private sector funding How: Develop an equity fund/program like the CA Stem Cell Research Fund to provide investment funding of sustainable bio-D models. Why: Stimulate innovation and spur growth in bio-D sector.</p>	Funding
Regulatory/Policy Change		
Votes (54)	PQR Statement	Subject
9	<p>53. Establish a multi-level political action to stop subsidies within the Farm Bill and shift resources to sustainable feedstock How: By educating and lobbying specific institutional users on how they can financially contribute to take action for future changes in Farm Bill Why: Because institutional users will have greater impact on lobbies than private citizens.</p>	Regulatory/Policy Change
8	<p>54. Prevent Biodiesel Incentive Abuse How: By changing Fleet Evaluation Team law should it be - - Alternative Fuel Excise Tax Credit passed by Congress in 2004, which provides a dollar for every gallon of biodiesel blended in the United States(so that only fuel sold and used in the U.S. qualifies for the credit Why: In order to prevent taking money and jobs away from the U.S.</p>	Regulatory/Policy Change
7	<p>55. California needs to establish regulatory protocols How: Create state-wide policy guidelines Why: To provide clear direction and a level playing field.</p>	Regulatory/Policy Change
6	<p>56. Form a lobby to promote sustainable bd to state & fed govt. How: Find stake holder allies Why: To move sustainable BD to the public agenda & produce results that will address existing political & bureaucratic obstacles.</p>	Regulatory/Policy Change

5	<p>57. Encourage the use of biodiesel How: By creating a B5 (5% bd) mandate Why: So more people will use the fuel if it is cheaper.</p>	Regulatory/Policy Change
5	<p>58. Establish uniform and understandable biodiesel regulations that facilitate a consolidated permitting process. How: Convene meetings of regulatory, industry & community stakeholders to develop mutually agreeable regulatory standards and permitting process. Why: To address inadequacies of the existing regulatory and permitting process.</p>	Regulatory/Policy Change
4	<p>59. Revise regulations (EPA, SPCC) to incorporate quality standards and to reflect biodiesels non-toxic properties in terms of biodiesel spills. How: Work with regulatory agencies to create a unified set of standards/regulations relating to biodiesel spills. Why: Remove barriers to biodiesel use and acceptance because currently it is being penalized by being treated like petroleum diesel.</p>	Regulatory/Policy Change
4	<p>60. Develop regulations that address the positive and negative impacts of BD. How: Conduct consensus building forums with agencies, industry & community stakeholders to fully asses the impacts of BD and identify mitigation measures the address possible adverse impacts Why: Although BD provides positive benefits it may also increase NOX. That must be addressed to maintain air quality.</p>	Regulatory/Policy Change
3	<p>61. Create legislation that increases the use/production of sustainable BD How: Promote consumer pressure on elected officials Why: To make sustainable BD more economically viable against petrol-diesel.</p>	Regulatory/Policy Change
1	<p>62. Develop better policy to improve current regulations in yellow grease industry How: By differentiating WVO collection for biodiesel vs. other types of other types of rendering Why: Small companies collecting WVO for biodiesel are mandated to pay expensive permits the same as large companies with deeper pockets.</p>	Regulatory/Policy Change

1	<p>63. Develop policy to improve current regulations in the yellow grease industry How: By mandating that restaurants show proof of a contracted rendering service Why: To reduce or eliminate illegal dumping of grease in the sewers.</p>	Regulatory/Policy Change
1	<p>64. Suggest law change to allow the sale of higher concentration biodiesel fuels until consensus standards can be developed. How: Educate senators and assembly personas as the need (lobby) Why: Facilitate the use and sale of biodiesel, as well as promoting passenger vehicles using biodiesel</p>	Regulatory/Policy Change