

Quarterly Meeting

Elliott Levine
DOE Biomass Program
November 8, 2011

Travel Process

- Natalie Roberts is the point of contact for all questions related to TAC travel and reimbursement. She can be reached at natalie.roberts@ee.doe.gov or 202-586-2325
- Reimbursement deadline for November meeting: **December 15, 2011**

Future Meeting Dates

- Tentative meeting dates for 2012 are as follows:
 - February 28-March 1
 - May 22-24
 - August 21-23
 - November 6-8
- A calendar identifying tentative meeting dates, federal holidays, and other bioenergy related conferences is included in tab 10 of your binders. Please let us know if we've missed anything.
- We will confirm consensus availability for specific meeting dates on Wednesday afternoon.

Agenda at a Glance – DAY 1

9:00-10:00 – Agency Update Presentations

- Elliott Levine – DOE Updates
- Bill Hagy – USDA Updates

10:15-12:00 – Subcommittee Report Outs

- Feedstock
- Conversion
- Infrastructure
- Sustainability

1:00-1:30 – VOTE ON FY2011 COMMITTEE RECOMMENDATIONS

1:30-5:30 – Afternoon Presentations

- TAC inputs to the Update to the National Biofuels Action Plan
- Review of current biomass solicitation process

5:30-5:45 – Public Comment

5:45 – Adjourn

Agenda at a Glance – DAY 2

8:00-8:30 – Breakfast

8:30-10:00 – DPA Initiative and discussion

- Tom Hicks (Dept. of the Navy)
- Zia Haq (DOE)
- Sarah Bittleman (USDA)

10:00-12:00 – Day 2 Presentations

- National Agricultural Research Extension, Education, and Economics Update, Carol Keiser-Long
- National Research Council Report: “Renewable Fuel Standard: Potential Economic and Environmental Effects of U.S. Biofuel Policy,” Dr. Wallace E. Tyner

12:00-12:30 – Final Housekeeping

- Discussion of 2012 Meeting Availability and Topics
- Closing comments and farewell to departing members

Binder Contents:

Please find the following information included in your binders:

1. Biomass R&D Technical Advisory Committee Meeting Agenda
2. Biomass R&D Act (as amended)
3. Biomass R&D Technical Advisory Committee Charter
4. Biomass R&D Technical Advisory Committee Members
5. Biomass R&D Board Members
6. Speaker Bios
7. DOE and USDA Biomass Updates
8. 2011 Work Plan
9. 2011 Recommendations
10. Proposed Meeting Dates for 2012
11. NRC Fact Sheet

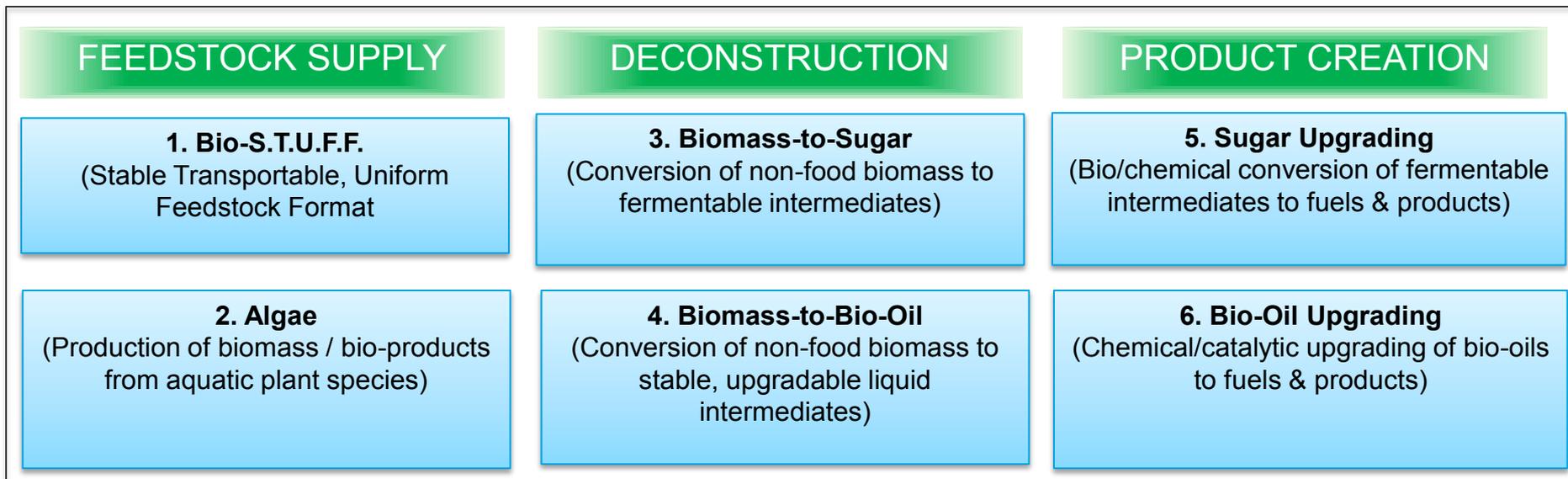
Biomass Program Manager Updates:

- Biomass Program Manager Paul Bryan will step down, effective the end of November.
- DOE is actively looking for a replacement to begin as soon as possible.

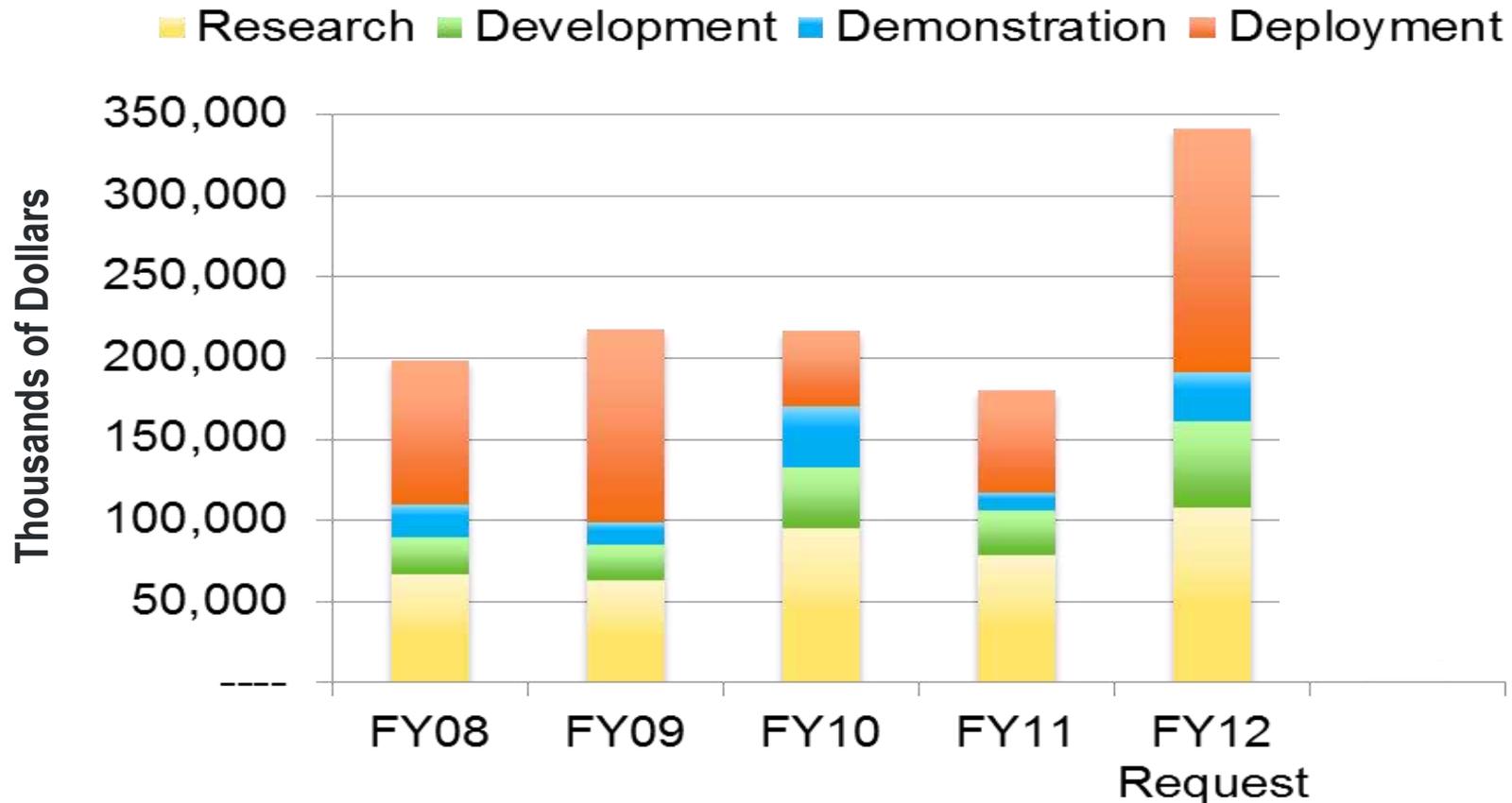


Biomass Program Reorganization:

The Biomass Program is moving away from a platform-based organizational structure and adopting a new approach.

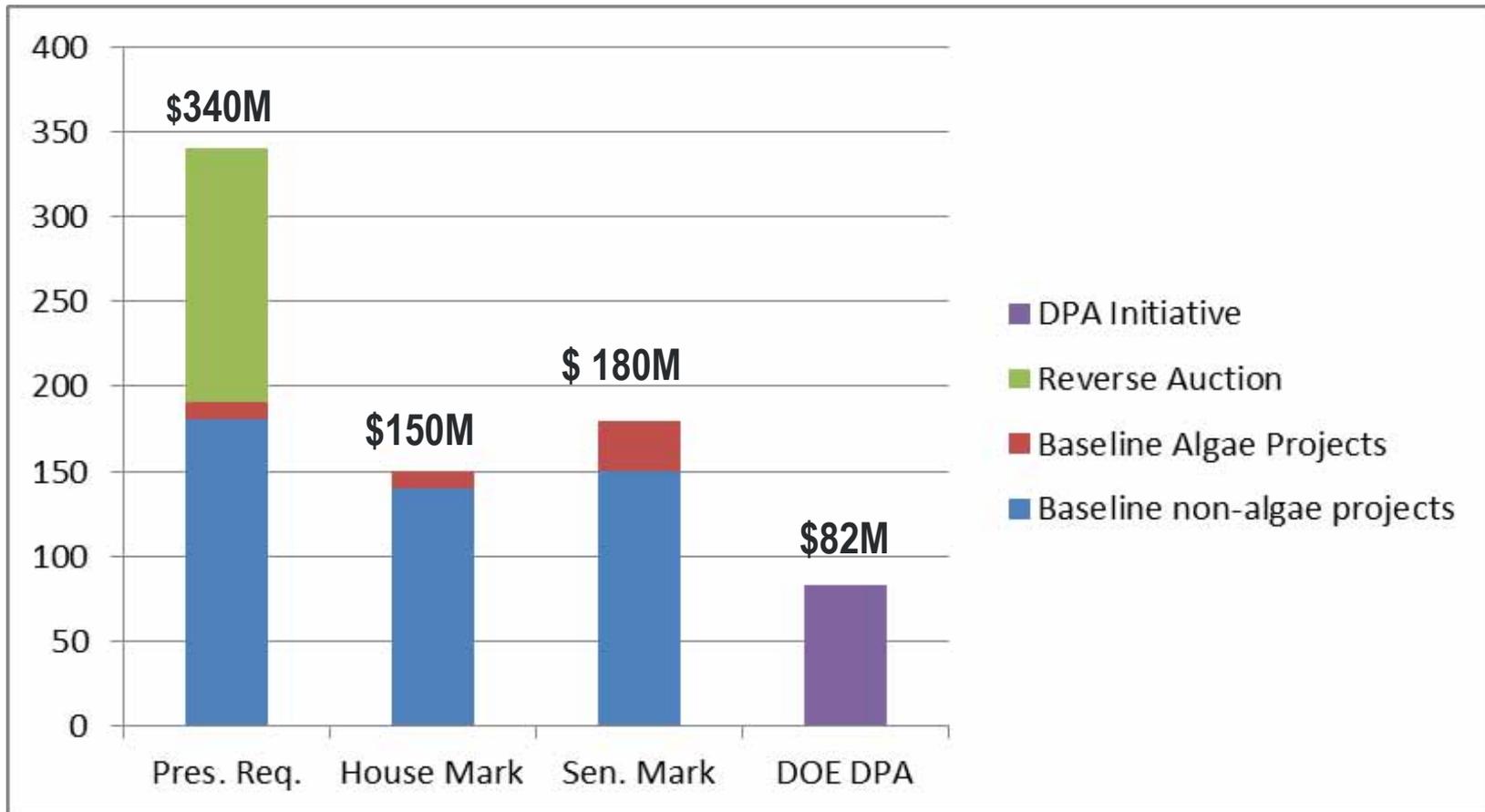


Biomass Program annual appropriations have averaged around \$200M between FY08-FY11.



FY2012 Biomass Program Budget Negotiations

- An additional \$82 M will be requested in FY2013 as part of the DOE DPA budget request

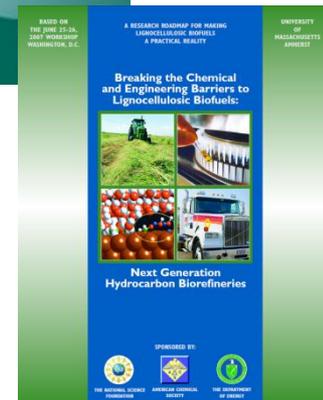
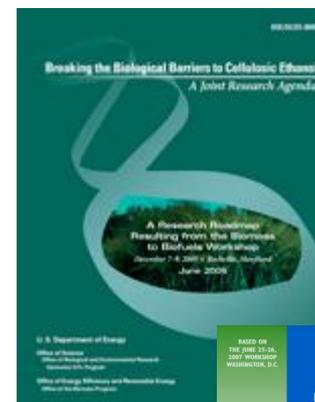


Upcoming Conversion Roadmapping Workshop

On December 6-8, the Biomass Program will host an advanced conversion workshop in the Washington, D.C. area at a to-be-determined venue.

Workshop Objectives

- Expand upon existing R&D Roadmaps
 - Breaking the Biological Barriers to Cellulosic Ethanol
 - Breaking the Chemical and Engineering Barriers to Lignocellulosic Biofuels
- Gather input from industry, national labs, and academia



Conversion Roadmapping Workshop – Continued

Areas of Focus – Sugar Pathways & Bio Oil Pathways

- R&D progress as laid out in existing roadmaps (SOT)
- Identification and incorporation of hybrid routes
- Dedicated focus on hydrocarbon fuels and products
- Incorporation of algal lipids as an intermediate and algal organisms as conversion mechanisms

Deliverable

- 1 combined or 2 individual R&D roadmap(s)

Two Recent DOE Loan Guarantee Announcements

1) Abengoa Bioenergy

- DOE award announced October 6, 2011
- \$134M for construction of a cellulosic ethanol plant near Hugoton, Kansas
- Expected to convert approximately 300,000 tons of corn stover and other agricultural residues into 23 million gallons of ethanol per year

2) POET- Project Liberty

- DOE award announced September 23, 2011
- \$105M for construction of a 25 million-gallon-per year cellulosic ethanol plant near Emmetsburg, Iowa
- Co-located with existing POET grain ethanol plant
- Cellulosic plant will also produce biogas to power itself and the existing plant

ARPA-E Award Announcements

- On September 29, 2011, ARPA-E announced new awards of up to \$156 million for groundbreaking energy research projects.
- Bioenergy related projects are part of ARPA-E's PETRO program – Plants Engineered to Replace Oil
- PETRO awards consisted of:
 - 10 projects
 - Totaling \$36 million
 - About 52% of the total funding was awarded to universities, 19% to private companies, 13% to labs, and 15% to other non-profits.

More information can be found here: <http://arpa-e.energy.gov/LinkClick.aspx?fileticket=QHWJySjQEbk%3d&tabid=454>

USDA-DOE Plant Feedstocks Genomics for Bioenergy:

Genomics-based research leading to improved use of biomass and plant feedstocks for the production of fuels such as ethanol or renewable chemical feedstocks

DE-FOA-0000598 (FY12)

Phenotyping bioenergy crop collections (energy cane, *Miscanthus*, sorghum, switchgrass, *Populus*):

- biomass yield, quantity and quality of key metabolites
- adaptation to environment

Translation of genomics into cultivar improvement (“phenomics”) in candidate perennial grass and woody biomass bioenergy crops:

- genotype-to-phenotype
- systems biology approaches

FOA release anticipated November 11, 2011

<http://genomicscience.energy.gov/research/DOEUSDA/>

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Ed Kaleikau

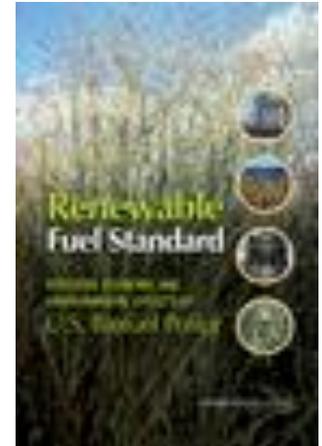
(ekaleikau@nifa.usda.gov)

DOE Joint Genome Institute (JGI) Community Sequencing Project (CSP) 2012 awards

41 projects selected, including:

- *Setaria viridis*: resequencing 37 strains for genomics tool development;
- *Brachypodium distachyon*: creating a library of grass transcription factors by gene synthesis;
- *Populus trichocarpa* rhizosphere microbiome: sequencing 18 metagenome samples to investigate GxE interactions;
- Perennial grasses and associated beneficial microorganisms: sequencing transcriptomes of 48 plant samples.

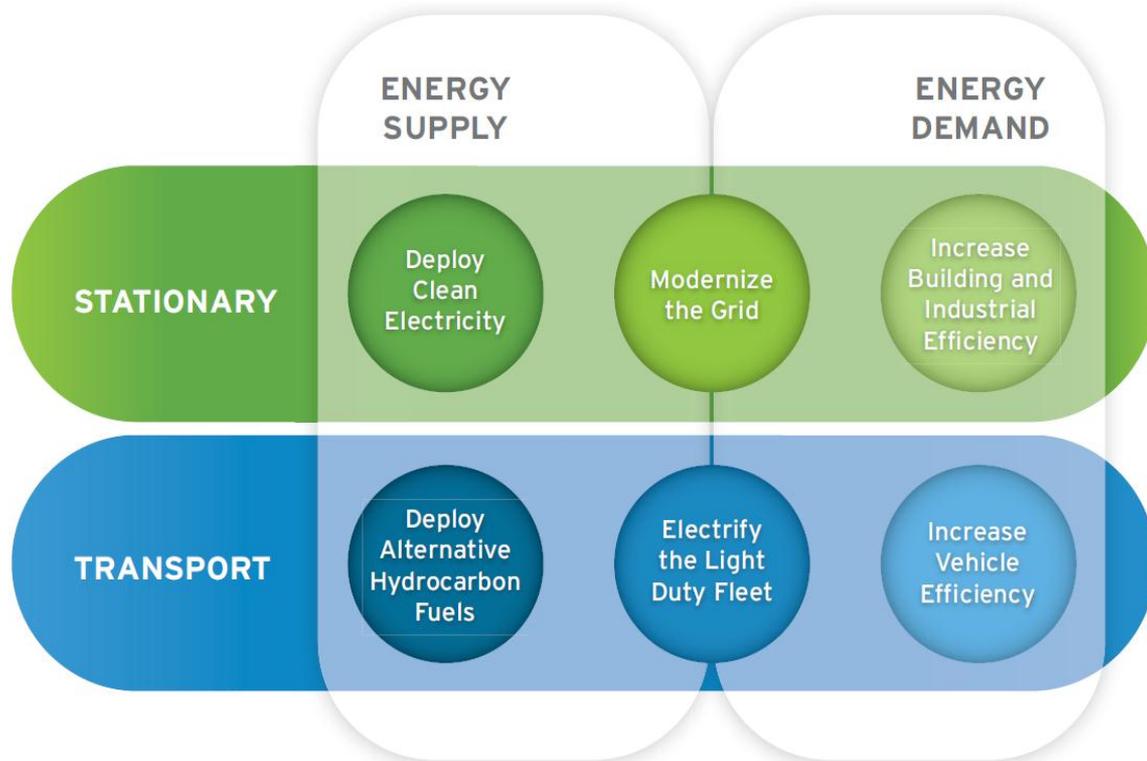
Renewable Fuels Standard: Potential Economic and Environmental Effects of U.S. Biofuel Policy



- A major new report on the impact of the Renewable Fuels Standard was published in October 2011
- The report was authored by the National Research Council (NRC) of the National Academy of Sciences and published by the National Academies Press
- The U.S. Congress requested the report to assess the economic and environmental concerns related to achieving the targets of the Renewable Fuels Standards
- A report Co-chair, Wallace E. Tyner, of Purdue University will deliver a presentation to the Committee on the key findings of the report on Wednesday morning at 10:45 AM

Quadrennial Technology Review

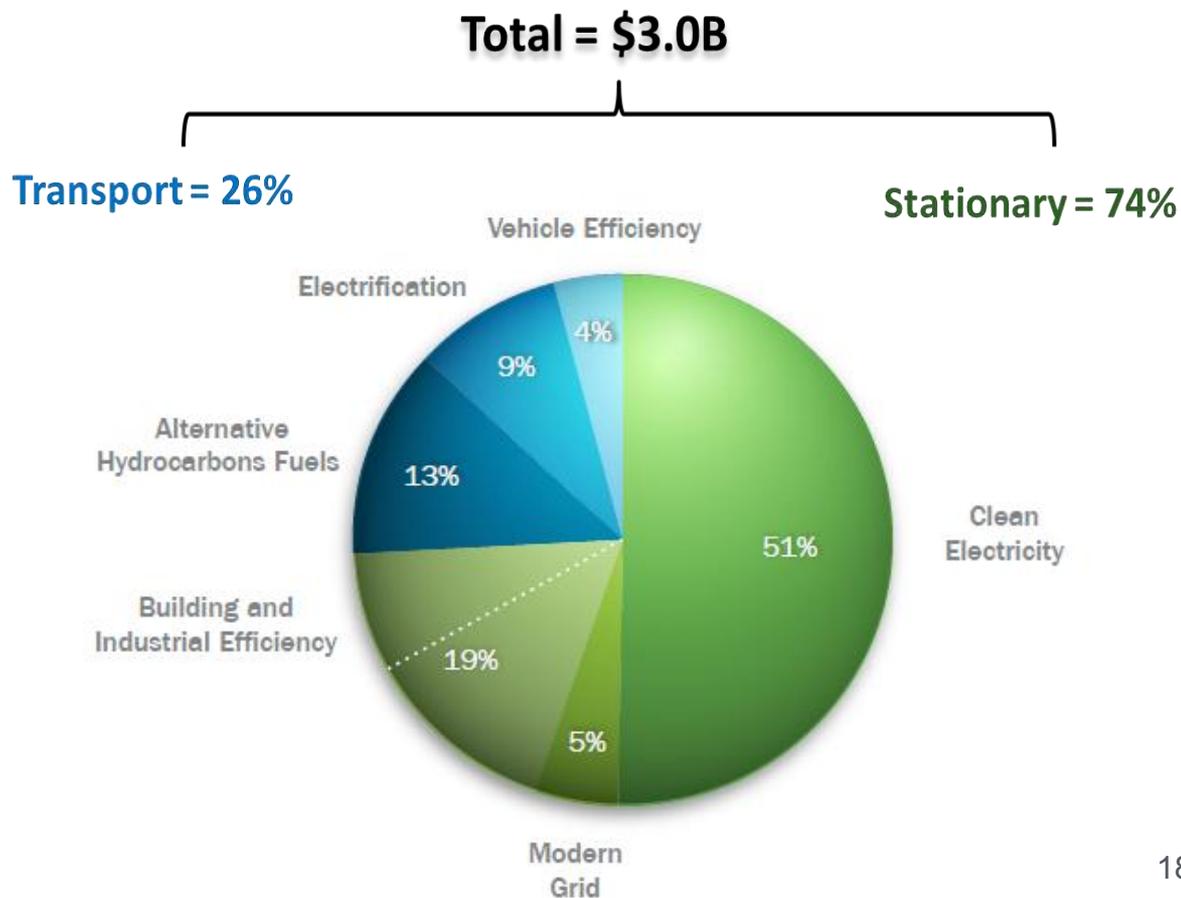
- On September 27, 2011, the Department of Energy released its first Quadrennial Technology Review - a report recommended by the President's Council of Advisors on Science and Technology.
- The report focuses on six strategies to reduce energy demand and increase the supply of alternative energy.



Quadrennial Technology Review

A key finding of the review was that the DOE energy technology portfolio is unbalanced between transportation and stationary.

- Over 74% of the DOE FY11 technology budget goes to stationary power generation, building and industrial efficiency, and grid modernization.
- 13% of the technology portfolio goes to alternative liquid fuels



Quadrennial Technology Review

Key Recommendations relevant to Bioenergy:

1. DOE will give greater emphasis to the transport sector relative to the stationary sector.
2. Among the transport strategies, DOE will devote it's greatest effort to the electrification of the light-duty fleet.
3. DOE will preferentially focus fuels research on the heavy-duty vehicle market (mainly diesel).
4. DOE will not give high priority to R&D activities in conversion pathways to produce ethanol.
5. DOE will not support the development of bioproducts in the absence of fuels production.

The full report is available here:

<http://energy.gov/sites/prod/files/ReportOnTheFirstQTR.pdf>

Defense Production Act (DPA) Initiative Updates

Background: On August 16, DOE Secretary Chu, USDA Secretary Vilsack, and Navy Secretary Mabus announced an MOU to support sustainable, commercial-scale biorefineries to produce hydrocarbon jet and diesel biofuels in the near-term.

Key Requirements:

- Drop-in hydrocarbon biofuels meeting military specifications
- Geographically diverse locations to enable market access
- No adverse impact on food / feed supplies
- Demonstrate commercial viability to encourage private-sector investment
- No increases in life cycle GHG emissions relative to petroleum fuels

Updates:

- An Integrated Product Team (IPT-officials from DOE, USDA, and DOD) has been established to coordinate the planning process and review proposals
- An RFI was issued on August 30 and closed on September 30; the IPT received over 100 responses
- RFP is planned for early 2012, subject to Congressional budget approval
- A stakeholder Q&A workshop is in the planning stages

MOU is available here: <http://www.rurdev.usda.gov/SupportDocuments/DPASignedMOUEnergyNavyUSDA.pdf>

Links to Press Releases/Sources

1) Defense Production Act MOU

<http://www.rurdev.usda.gov/SupportDocuments/DPASignedMOUEnergyNavyUSDA.pdf>

2) Quadrennial Technology Review

<http://energy.gov/sites/prod/files/ReportOnTheFirstQTR.pdf>

3) ARPA-E Awards

<http://arpa-e.energy.gov/LinkClick.aspx?fileticket=QHWJySjQEbk%3d&tabid=454>

Back-up Slides

Privately funded biomass power plant abandons project

- On October 13, 2011, Liberty Green Renewables announced plans to end a three year effort to construct biomass power plants in Scottsburg and Milltown county Indiana
- Project would have consisted of two \$100 million, 32-MW power stations burning wood mill and logging residue
- Project negatively impacted by:
 - Falling price of natural gas
 - Cheap coal-fired power from the Midwest
 - Sustained local opposition