



Financing Advanced Biofuels, Biochemicals And Biopower In Integrated Biorefineries

**Status Of Available Domestic And
International Financing Mechanisms**

**Biomass 2013: How the Advanced Bioindustry is Reshaping American Energy
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- *Has Represented Clients In Renewable Energy (Fuels and Power) Project Finance Since 1978, Government Funding Initiatives (Grants, Loans, Loan Guarantees, Etc.) Since 1980, And Clean Tech Private Placements Since 1999, Domestically And Internationally.*
- *A Founder And Original General Counsel:*
 - *Renewable Fuel Association –1979-1984.*
 - *Clean Fuels Development Coalition – Since 1985.*
 - *Clean Fuels Foundation – Since 1990.*
 - *American Council On Renewable Energy/Biomass Coordinating Council – Since 2001.*
 - *Latin American Council On Renewable Energy - Since 2009.*
- *Assisted Clients In The Creation Of The Original Alternate Energy Tax Incentives In The 1978 And 1980 Tax Acts, And Their Expansions and Extensions Thereafter.*
- *Assisted Clients In The Renewable Fuels And Renewable Power Industries In The Development Of Provisions In The 1978 Public Utility Regulatory Policies Act, 1983 Caribbean Basin Economic Recovery Act, 1990 Clean Air Amendments (And Reformulated Gasoline Regulations thereto), 1992 Energy Policy Act, 2005 Energy Policy Act, And The 2007 Energy Independence And Security Act, 2008 Food, Conservation And Energy Act, and 2009 American Recovery And Reinvestment Act.*
- *Named One of The Top 100 Bioenergy Leaders Worldwide – BiofuelsDigest – 2011-2012 (#67) and 2012-2013 (#50).*
- *AV Preeminent Rating by Martindale-Hubbell for last 17 years.*
- *Named One of Washington, DC & Baltimore’s Top Rated Lawyers for Business & Commercial by Legal Leaders for FY2012 and FY2013.*
- *Vice Chairman for Project Finance, American Bar Association, Section for Energy & Natural Resources.*
- *Kilpatrick Townsend Ranked #1 for Infrastructure Construction – Chambers – 2011 and 2012.*

I. Where Were We

- **Grants For Pilot And Demonstration Scale Projects**
 - DOE
 - Integrated Biorefineries Grant Program.
 - USDA
 - Rural Energy for America Program (Section 9007).
- **Loan Guarantees**
 - DOE
 - Section 1703 & Section 1705 (uncapped senior debt).
 - USDA
 - Section 9003, Section 9007, and the Business & Industry (B&I) Program (senior debt at \$250MM, \$25MM, \$10MM-\$25MM, respectively, at 60-90% of senior debt guaranteed).
- **Tax Incentives**
 - Section 1603 Cash Grant.
 - Section 1603 Investment Tax Credit.
 - Biofuels Tax Credits and Bonus Depreciations for Renewable Power and Cellulosic Biofuels (100% bonus depreciation through 2011/50% bonus depreciation through 2013).

II. Where Are We

A. Grants For Pilot And Demonstration Scale Projects

1. DOE

- \$15 million for pilot-scale projects – closed.
- \$35 million for biomass R&D in Biomass Research & Development Initiative – closed.
- \$40 million for military advanced biofuels – \$20 million for each of FY2012 – closed and FY2013 – open.
- \$10 million for advanced biofuels and biochemicals – closed.
- \$10 million for algae-to-biofuels – open (20% cost share) (announced 1/17/13, concept paper due 2/11/13 and full application due 4/1/13) – closed.
- \$20 million ARPA-E program for natural gas to clean liquid fuels (20% cost share) (announced 3/27/13, concept paper due 4/22/13 and full application due at a later date to be announced by DOE) – closed.
- DOE's proposed FY2014 Budget would add \$282 million for advanced biofuels.

2. EPA

- \$20 million in grants for clean diesel projects – closed.

3. USDA

- Section 9007 offering up to \$500,000 in funding for projects. \$10.4 million in total available for grants and \$43.4 million for loan guarantees for FY2013. The USDA's proposed FY2014 Budget would add a new \$328 million which would be scored increased by OMB by nearly 5x.

- #### 4. FY2014 funding potentially available through an Energy Appropriations Act, Agriculture Appropriations Act, or Farm Act of 2014 when enacted. Congress enacted a 6 month extension of the federal government, including funding on September 28, 2012 through March 27, 2013 by a Continuing Resolution (H.R. Res 117), with a further extension through September 30, 2013, and a 9 month extension of Farm Act on January 2, 2013 through September 30, 2013 by H.R. 8, The American Taxpayer Relief Act of 2012 (House approved 257 to 167 and Senate approved 89 to 8).

II. Where Are We (cont'd)

A. Grants For Pilot And Demonstration Scale Projects (cont'd)

5. Foreign Funding

- Australia
- United Kingdom
- EU Biomass Initiative
- Canada
- India

6. Domestic Funding

- President Obama has requested that Congress pass into law the \$10 billion Rebuild America Partnership Plan (“RAPP”) to provide loans and loan guarantees for energy, transportation and water infrastructure projects. He also has proposed a \$2 billion Energy Security Trust from oil and gas leasing revenues for breakthrough energy technologies. This Trust would provide \$200 million/year for each of 10 years to reach this goal.
- Connecticut Green Fund (\$50 million plus – established July 2011).
- New York Green Fund (\$1 billion plus – established January 2013 and will be located in NYSERDA – NY State Energy R&D Authority. The NY Green Bank will provide guarantees as credit enhancement. Assuming a conservative default rate of 10%, 1 million of those guarantees could mobilize more than \$100 million in construction capital.)
- California Green Bank (\$13 billion plus – established in 2012).
- Hawaii Green Bank to be funded by green bonds (amount yet to be determined).

B. Loan Guarantees

1. DOE

- Section 1703 - requires an additional renewable energy appropriation – No more Solyndra’s Bill would end this program if enacted.
- Section 1705 – expired.
- 33 loan guarantees closed in the amount of \$34 billion with \$17 billion disbursed to date (28 in Section 1703, 1705 and 5 in Advanced Technology Vehicles Manufacturing Loan Guarantee (“ATVM”) Program) and 10 loan guarantee finalists remain with approximately \$1.25 billion coverage and \$170 million credit subsidy amounts remaining.
- The FY2014 Budget proposes to provide \$282 million for advanced biofuels (a 46% increase over FY2012), \$615 million for renewable power (a 29% increase over FY2012) and \$575 million for advanced vehicle technologies (a 75% increase over FY2012). Therefore, additional RFPs for grants should become available after enactment of the proposed FY2014 Budget.
- Section 1703 - recently is being used by DOE with a redirection of previously appropriated funding of \$8 billion for advanced fossil fuel energy technology use in electrical and non-electrical fossil energy use. Fossil fuel is divided broadly as coal, natural gas, oil, shale gas, coal based methane, methane hydrates, and other fossil energy. The application fee, however, is a steep and non-refundable \$1MM in this competitive loan guarantee program.

II. Where Are We (cont'd)

B. Loan Guarantees (cont'd)

2. USDA

- Section 9003 had no FY2012 nor has any FY2013 funds, although approximately \$100 million remains from previous fiscal years. (USDA fears that Congress may try to return this amount to the Treasury.) The FY2014 Budget Proposal also would add no funds. The 5-year 2013 Farm Act must provide the funding.
- Section 9007 had \$48.5 million available and has no FY2013 funding, although it has approximately \$10.4 million for grants and approximately \$43.4 million for loan guarantee from previous fiscal years. The FY2014 Budget proposes an additional \$328 million in funding for Section 9007.
- USDA issued an FOA for the Section 9007 Program on March 29, 2013 and is preparing an FOA for the Section 9003 program's remaining funds potentially to be issued in 3rd Quarter 2013.
- B&I Program had \$850 million for FY2012, approximately \$425 million through the March 27, 2013 Continuing Resolution and another \$425 million through the new September 30, 2013 Continuing Resolution.
- FY2014 energy program funding potentially available through expected 5-year Farm Act of 2013 (Sections 9003/9007) and Agriculture Appropriations Act of 2013 (B&I) further extensions beyond September 30, 2013, when enacted, for FY2014. Congress enacted a 6 month extension of the federal government, including funding on September 28, 2012 through March 27, 2013 by a Continuing Resolution. An extension by a second Continuing Resolution/government appropriation through the end of FY2013, or September 30, 2013, was issued on March 20, 2013 through H.R. 933. On its second attempt, the House recently passed a stripped down version of the Farm Bill following the Senate's passage of its version. Conference Committee action will occur over the next several months.
- In non-loan guarantee programs, USDA has the following approximate funding amounts remaining for prior fiscal years for use:
 - Section 9004 – Repowering Program -- \$30 million (which was then returned to the Treasury by Congress).
 - Section 9005 – Advanced Biofuels Payments Program -- \$65 million (which was then returned to the Treasury by Congress).
 - Section 9008 – Biomass R&D Program -- \$0 million.
 - Section 9011 – Biomass Crop Assistance Program -- \$0 million.

II. Where Are We (cont'd)

C. Tax Incentives

1. Section 1603 Cash Grant has expired (“In construction” is the new trigger for the 10-year PTC and ITC (for PTC eligible projects irrevocably electing the ITC) in lieu of “placed in service” by 12/31/13 (wind), 12/31/13 (biopower) or 12/31/13 (geothermal), as a result of the passage and enactment of H.R. 8, The Taxpayer Relief Act of 2012, January 2, 2013), subject to a potential further extension. IRS issued regulations thereto on April 15, 2013. The “placed in service” trigger remains, however, like it does for solar power (through 12/13/16), if biopower, wind power, geothermal power and marine power elected and met the requirements to take the Section 1603 cash grant (available until 12/31/13) in lieu of the PTC.
2. Cash grants, ITC and PTC were to be subject to a reduction of 7.6%, when the Sequestration took effect on March 1, 2013, after being extended from January 2, 2013). However, the Sequestration percentage was increased to 8.7% for at least the cash grants.
3. Treasury, to date, has paid out more than \$18.5 billion in 1603 cash grants for renewable power. It expects to pay out an additional \$12 billion to eligible projects still in the pipeline
4. On April 3, 2013, the IRS increased the PTC from 2.2 cents/KwH to 2.3 cents/KwH for wind, geothermal and closed loop biopower projects; while open loop biopower projects remained at 1.1 cents/KwH. The President’s FY2014 Budget would transform the PTC into a refundable tax credit. It also would make renewable electricity tax incentives permanent (at a cost of \$23 billion over the next 10 years).
5. Section 1603 Investment Tax Credit expires for biopower on 12/31/13, but the new “in construction” triggers offers more project opportunities and extended use of the 10-year PTC, if it is selected in lieu of ITC.

II. Where Are We (cont'd)

C. Tax Incentives (cont'd)

6. The \$1.01/gal. cellulosic biofuels (which now includes algae, cyanobacteria or lemna-to-biofuels per H.R. 8 enactment) production tax credit exists through the end of 2013; as do the biodiesel/green diesel at \$1.00/gal., 10¢/gal. for small biodiesel, \$0.50/gal. alternative fuels and alternative fuels mixtures tax incentives after an extension through the enactment of The American Taxpayer Relief Act of 2012 (H.R. 8).
7. H.R. 860 (Congressmen Ron Kind – D. Wisc and John Lewis – D. Ga) would qualify biogas for a 30% ITC.
8. For renewable power projects, the IRS recently has now permitted Indian tribes to pass through ITCs to lessees under lease structures. This permission opens up new funding to such projects and could open the way for similar treatment for churches, schools, pension funds and other similar tax exempt entities.
9. Congress may extend these incentives further too, as tax incentive extensions are possible in 2013 for future years.
10. There is also talk of a Carbon Tax to raise revenue – November 2012 Brookings Study – \$20 per metric ton in year one with 6% annual increases, raising up to \$154 billion by 2021. Another study would place the revenue raised at more than \$1 trillion over the next 10 years. On January 28, 2012, 18 Republican Senators, led by Senator David Vitter (R-La.), introduced a concurrent resolution (S. Con. Res. 4) stating that “a carbon tax is not in the economic interest of the U.S.”

II. Where Are We (cont'd)

C. Tax Incentives (cont'd)

11. The American Taxpayer Relief Act of 2012 extended the 50% Bonus Depreciation for renewable power and cellulosic biofuels (including algae, cyanobacteria or lemna-to-biofuels) through 12/13/13.
12. The Section 48C Advanced Energy Manufacturing Tax Credit is available again with a new funding round of \$150 million in remaining program funds from the original \$2.3 billion funding level. Concept papers were due by 4/9/13, invited full applications were due by 7/23/13 and decisions are to occur before 11/15/13.

III. Where Are We Going

- A. Need to extend 30% 1603 cash grant for biopower (and wind) and add the incentive for advanced biofuels. The likelihood of passing a major tax bill in 2013 to address energy incentives and other issues is fleeting without Congressional resolve. Nevertheless, we highly doubt that such energy incentives will be extended beyond 2016.
- B. Need to protect the Renewable Fuels Standard (“RFS”)
1. Senate has established the “Biofuels Investment and RFS Market Congressional Study Group” (Senators James Inhofe-R-Okla and Chris Coons-D-Del) to study RFS.
 2. Eight States had requested RFS waivers. On November 16, 2012, EPA denied these waivers finding no evidence of severe economic harm to justify any waiver of the RFS.
 3. The American Petroleum Institute (“API”) filed a lawsuit on September 18, 2012 in US Court of Appeals for District of Columbia Circuit challenging cellulosic ethanol requirements under RFS due to requirement to purchase RINs when fuel availability is limited. On January 25, 2013, the Court ruled that the EPA must revise its cellulosic biofuels projection of 8.65 million gallons for 2012 and vacated only the cellulosic biofuels volumes set by EPA for that year. The Court did not overrule the EPA’s decision to reduce the total volume of advanced biofuels that refiners, importers and blenders must purchase under the RFS. Also, the Supreme Court, in late June 2013, rejected an API attempt to overrule a Federal Court of Appeals decision supporting EPA’s ruling to allow 15% ethanol in gasoline.
 4. On January 31, 2013, the EPA proposed the new RFS requirements for FY2013, as follows:
 - Biomass-based diesel – 1.28 billion gallons.
 - Advanced biofuels – 2.75 billion gallons.
 - Cellulosic biofuels – 1.4 million gallons.
 - Total renewable fuels – 16.55 billion gallons (including corn-based biofuels).
 5. Representatives Pete Olsen (R-Tx), Gene Greene (D-Tx) and Martha Blackburn (R-Tenn) introduced H.R. 6444-Stop RIN Fraud Act of 2012 on September 20, 2012 to protect obligated parties from fraudulent RINs. EPA is reviewing two different proposals to assist RIN obligated parties to avoid costs associated with fake RINs.
 6. President Obama has pledged to support the continuation of the RFS.
 7. Senator Murkowski’s new energy plan would open the RFS to nonrenewable feedstocks such as natural and coal-derived products.
 8. Congress held 2 days of RFS hearings on July 24-25, 2013 before the Senate. There may be some tweaks to the RFS, but a repeal does not have Congressional support.

III. Where Are We Going (cont'd)

C. Need to (i) continue energy program funding through enactment of Farm Act of 2013 – USDA Loan Guarantee Programs for Sections 9003, 9007 Programs and Agriculture Appropriations Act of 2013 for Business & Industry Program (Continuing Resolution now effective through 3/27/13) for FY2014 and beyond and (ii) expand the Farm Bill energy programs to include biochemicals, bioproducts and biopower to be included as an eligible principal borrower (which was not accomplished in the recent 9 month Farm Act extension). Can these or larger amounts below agreed to last year in the Senate be achieved in a new Farm Bill extension?

- | | <u>9003</u> | <u>9007</u> |
|---|--|--|
| 1. Senate 2013 Farm Bill (5 year statute) | \$100MM mandatory funds for FY2014 (\$216MM mandatory funds – \$100MM for \$58MM for each) FY2015 and FY2016, \$0 for FY2017 and FY2018) | \$68MM mandatory funds (\$340MM mandatory funds for 5 years) |
| House 2013 Farm Bill | \$0 mandatory funds | \$0 mandatory funds |
| Senate FY2014 Appropriations Bill | \$150MM discretionary funds for FY2014 | \$20MM discretionary funds (\$100MM discretionary funds for 5 years) |
| House FY2014 Appropriations Bill | \$75MM discretionary funds for FY2014 (\$375MM discretionary funds for 5 years) | \$45MM (\$225MM discretionary funds for 5 years) |
2. The Senate expanded the 9003 Program to Biochemicals and set aside \$25MM Bioproducts of all types
 3. The Senate's 2013 Farm Bill contains more than \$780 million in mandatory funding over 5 years for the USDA energy programs.
 4. The House Farm Bill contains \$0 million in mandatory funding over 5 years for the USDA energy programs, but offered discretionary funding annually through Congressional appropriations which similar discretionary funding has never been provided by Congress. It also does not expand the 9003 Program to Biochemicals.
 5. As discussed above, the House's stripped down version and this Senate version of the Farm Bill will be settled in Conference Committee action with hope that the Energy Programs will continue to be funded.

D. Need to fill equity holes

1. Company level
2. Project level

E. Need to develop new financing mechanisms, particularly for first commercial projects.

IV. How Do We Succeed in Funding Integrated Biorefineries

A. Pilots & Demos

1. Australia

- Australian Renewable Energy Agency (“ARENA”) is offering \$3.2 billion in funding for pilot and demonstration projects – commenced operations on July 1, 2012 (several grants have been issued).
- Clean Energy Finance Corporation (“CEFC”) is offering \$10 billion in funding for renewable energy and energy efficiency – commences operations on July 1, 2013.
- \$170 million also is available for R&D on low-pollution and energy efficiency technologies – commenced operations on July 1, 2012.
- The upcoming Australian elections on September 14, 2013 likely will change the source of these funds from a carbon tax to carbon trading. The programs likely will survive, since the Australian government is raising significant revenues from these carbon penalties.

2. United Kingdom

- UK Green Investment Bank provides funding with an initial capitalization of approximately US \$5 billion – opened on April 1, 2012.

3. Canada

- Sustainable Development Technology Canada (“SDTC”): SD Tech Fund (\$590 Million) (grants - pilots/demos) and Next Gen Biofuels Fund (\$500 Million) (takes pilots/demos to 1st commercial project through loans).

4. India

- IFC-Tata Ltd-“Tata Cleantech Capital Ltd.” 1st private sector green bank and expected to be funded up to \$1 billion for issuance of low-cost loans.

5. U.S.

- New Green Banks in Connecticut (approximately \$50 million funded), New York (approximate 1 billion plus of State government of NY and private sector still to be funded), California (more than \$13 billion through tax exempt bonds) and Hawaii (creating a new green fund through the issuance of green bonds which other states may copy).

6. European Commission

- New Biobased Industries Joint Technology Initiative of \$4.7 billion (Euros 3.8 billion) through a public private partnership to develop new biorefinery technology to transform renewable natural resources into biobased products and biofuels. The program is competitive. It will be available from January 2014 – 2020.

7. New DOE/USDA initiatives are required.

8. Increased role for strategic investors are required.

IV. How Do We Succeed in Funding Integrated Biorefineries (cont'd)

A. Pilots & Demos (cont'd)

9. Continued Role for VCs

- Average time from initial funding to IPO is 8.3 years for cleantech versus 9.4 years for other venture backed technologies (National Venture Capital Association Report).
- However, as the Wall Street Journal noted on February 3, 2013 – “Venture Capital firms are taking stiff measures to survive a tough fundraising environment and lack luster returns, including gutting their partnerships, slashing their fund size and refocusing their investment areas.”
- Cleantech venture capital closings dropped in 1st Quarter 2013 in North America and Europe by 39% and 27%, respectively, versus the 4th Quarter 2012 according to a recent Cleantech Group research report.

B. First Commercial Plants

1. Farm Act - Sections 9003 & 9007 Loan Guarantees to Credit Enhance Project Bonds (We have been 12 for 12 in client finalists in the last 2 years with 3 closed to date and the remaining applicants still in line to close).
2. System Performance Guarantee Insurance Wraps on Technology Risks (for scaleability and integration risks):
 - Insures against failure to deliver a project on time or to meet performance requirements (European Insurers – performance only/policy is less comprehensive).
 - Term – 5 years (European Insurer – up to 10 years).
 - Range – approximately \$10 Million to \$450 Million (European Insurer – same range).
 - Premiums – 15% to 25% of costs associated with technology risk (European Insurer – 3%-5% of revenues under offtake agreement(s) attributed to project debt payments during policy term).
 - Targets projects with up to 24 month construction (European Insurers – same).
3. Insurance Products with price collars for feedstock agreements and price floors for offtake agreements to protect against price increases or decreases, respectively.
4. Continue Strategic Investor Equity.

IV. How Do We Succeed in Funding Integrated Biorefineries (cont'd)

B. First Commercial Plants (cont'd)

5. Continue IPOs after technology risk is eliminated (9 biofuels/biochemical companies' IPOs closed/9 pending) (Bio-Amber completed the 1st IPO in Second Quarter 2013 at \$80 million after a long hiatus of such funding); 2 biopower closed; fertilizer MLP closed) and Later Round Private Placements (Series C, D, etc.).
6. Use of Australia's Funds, Canada's Next Gen Biofuels Fund, UK Green Bank, EU Biomass Initiative and India's Green Bank for First Commercial Projects. Connecticut, New York, California and Hawaii Green Banks also may provide first commercial project funds.
7. The Vice President of New Venture Commercialization, at NYC-based, Assurant Solar, recently noted that "fewer than 5% of the 6,500 banks and lending institutions in the U.S. are actually involved in financing solar projects due to concerns and misunderstandings about industry risks." Now imagine what % of that 5% is for financing biofuels, biochemical and biopower projects. That is the reason why we are focused on non-traditional lender solutions.
8. Instead of commercial debt from private banks:
 - i. Credit enhanced bonds with government loan guarantees (USDA/DOE) (blended coverage),
 - ii. Covered bonds using pools of mortgages or Treasury strips – 100% coverage,
 - iii. Asian hedge funds making 100% debt finance (8% interest rate), and
 - iv. BNDES did a 100% debt finance in the US at a very low interest rate and is financing 1st commercial projects in Brazil. However, recently, due to its immense lending levels, Moody's downgraded it to BA1 from BAA2. Its loan book has grown much faster than its capital base. Notwithstanding, BNDES intends to continue lending for these projects.
 - v. Green Bond Funds for Renewable Energy Projects — Hawaii is to issue AAA-rated bonds which institutional investors will buy and place the proceeds into a fund to create a vehicle for low-cost loans/loan guarantees. It could become the model for additional states.

IV. How Do We Succeed in Funding Integrated Biorefineries (cont'd)

B. First Commercial Plants (cont'd)

9. Military Initiatives

- A new DOD report concluded that the Navy will require 336 million gallons of renewable fuels to meet the Green Fleet goals by 2018.
- Navy-DOE-USDA Public Private Partnership (We were 4 for 4 in client awards with 5 selected out of 100 applicants plus) - \$510 Million for equity investments over 3 fiscal years (Broad Agency Announcement (“BAA”)/FOA (June 27, 2012) Phase 1-\$30 MM; Phase 2-\$70MM; FY2013 – \$40MM-DOE, \$70MM to \$110 MM-Navy, \$170MM-USDA) – House (passed House 299 to 120)/Senate (passed Senate Armed Services Committee 13 to 12) bills (H.R. 4310/S.3254) would prohibit non-market price purchases, which were removed in subsequent bills. A second McCain bill that would have barred the use of federal funds for the building of advanced biofuels drop-in capacity also was defeated in late December 2012. Recently introduced and similar bills from Senator Pat Toomey (R-Pa) also were defeated in March 2013.
- Navy Phase 1 selected 5 winners to be provided RFPs for Phase 2 with 2 to 3 expected winners for first commercial biojet projects.
- DOE selected 4 winners for biojet pilots or demonstration units (we were 2 for 2 in client awards from these 4 awardees out of more than 50 applicants) in FY2012 (\$20MM) (in April 2013) and FY2013 (\$20MM) for another 3 to 5 expected winners to be chosen from original FY2012 round of submitters.
- Army-\$7 Billion for renewable power PPAs (FOA submission due 10/5/12 with awards projected for Summer 2013 – 1st 5 awardees for geothermal (we were 1 for 1 in client geothermal awards) with solar, wind biopower awards still to come); Navy and Air Force – 1 GW each for renewable energy PPAs.

10. Capital Stacks for projects also may contain New Market Tax Credits (“NMTCs”) (which were extended at \$3.5 billion for each of FY2013 and FY2014 with approximate \$1 billion plus remaining from earlier rounds and 2012 Census results have opened more qualifying NMTC zones), tax exempt bonds, Section 1603 tax equity (where a power plant is attached), state revolving funds (for working capital, debt service reserve accounts, credit enhancement), state grants/loans/loan guarantees, etc.

IV. How Do We Succeed in Funding Integrated Biorefineries (cont'd)

C. Second Commercial Projects

1. Domestic US

- Traditional project finance with insurance wraps on any continuing technology risks along with EPC Performance Guarantees/Bonds.
- Use USDA B&I (small projects - \$10 million senior loan cap restriction at present, with restoration to \$25 million senior loan in future) and Rural Utility Service (“RUS”) (biopower and other power projects)(12.5 basis points over Treasuries – less than 2.5% for shorter of PPA length or 35 years) Programs. The RUS program could change from a corporate finance to a project finance program of 75% debt and 25% sponsor equity instead of the current 100% project cost coverage with USDA/Treasury Bank debt.
- Credit enhanced project bonds to investment grade with (a) loan guarantees (from USDA/B&I, DOT, HUD, SBA, Bureau of Indian Affairs) and (b) Treasury Strips or pooled mortgages (so-called “Covered Bonds”), letters of credit, bank guarantees, etc. and sell these bonds to institutional investors at low coupon rates and long maturities.
- As we close in on 2019 and the implementation of Basel 3 requirements for banks worldwide to increase their capital reserves, commercial debt may become harder to obtain – with shorter tenors, higher interest rates and an increasing number of restrictive covenants. As such, bonds may become an increasingly preferred financing mechanism with long maturities at low rates. Some predict that in the foreseeable future, bonds may represent 40% of the debt in project financings worldwide in the foreseeable future. However, the Basel Committee on Banking Supervision in January 2013, extended the original deadline of 2015 to 2019 and “watered down” the liquidity requirements by broadening the range of qualified assets banks may use to meet these requirements. As such, this move may increase bank participation in project finance transactions for a longer period of time. Nevertheless, many bulge-bracket banks already have complied with the 2019 requirements which could make them adverse to lending at lower interest rates and long tenors.
- Strategic equity, including U.S. infrastructure funds and company specific or consortium funded renewable energy funds, are required.
- EKF (Denmark), MITI (Japan), Belgium, Korea and China Ex-Im Banks – can provide loans/loan guarantees for U.S.

IV. How Do We Succeed in Funding Integrated Biorefineries (cont'd)

C. Second Commercial Projects (cont'd)

2. International

- Renewable Energy Investments, particularly with already “commercial” renewable energy technologies, are shifting offshore to developing countries. For example, such investments in the Middle East and Africa increased by 228% in 2012 to \$12 billion. President Obama recently set aside \$7 billion for clean power projects in Africa.
- Low Cost Loans – US Export – Import (“Ex-Im”) Bank at 3.5% (increased from 3.13%) Fixed for 18 years and at 2.71% (increased from 2.31%) Fixed for 10 years against 85% of US content plus 30% of host country content (\$140 billion is available for each of FY2013 and FY2014). President Obama has said he seeks to recharter the Bank to be able to lend in the U.S.
- Project Bonds Credit Enhanced with AAA – Rated Multilateral and Bilateral Finance Agency Loan Guarantees (US Overseas Private Investment Corporation (“OPIC”), Ex-Im, International Finance Corporation (“IFC”), Asian Development Bank (“ADB”), Inter-American Development Bank (“IDB”), Multilateral Investment Guarantee Agency (“MIGA”), etc.).
- Equity from IFC, ADB, Inter-American Investment Corporation (“IIC”)/IDB.
- International Infrastructure Funds (OPIC can increase/leverage existing equity funds with loan guarantees).
- OPIC and MIGA Political Risk Insurance.
- Climate Private Public Partnership (“CP3”) with an initial \$3 billion green energy fund for post first commercial projects in developing countries – based in the UK.
- Green Carbon Fund, launched by governments at the UN climate talks in Durban, South Africa in 2011 for mobilizing \$100 billion/year of climate finance for commercial technology projects in developing countries, has yet to be structures and funded, but should be considered as it takes form.
- The IFC just issued a 3 year green bond which was subscribed to by large institutional investors for approximately \$1 billion. It will be used to support green energy and environmental commercial projects in developing countries. IFC invested \$1.6 billion in green projects in 2012 and expects to double its annual investment to \$3 billion/year by 2015.

IV. How Do We Succeed in Funding Integrated Biorefineries (cont'd)

D. Sequestration

Of the \$85 billion in Sequestration cuts for FY2013, Congress was to impose automatic cuts of: 9.4% (Non-Exempt Defense Appropriations), 8.2% (Non-Exempt Non-Defense Appropriations), 7.6% (Non-Exempt Non-Defense Mandatory Funds – 10% Non-Exempt Defense Mandatory Funds) could affect adversely US pilot, demonstration and commercial funding programs when implemented on March 1, 2013 (after an extension from January 2, 2013). However, Congress increased the 7.6% cuts to 8.7% on March 1, 2013. Further Sequestration cuts are expected in the near future.

E. New Creative Funding Mechanisms

1. Master Limited Partnerships (“MLPs”)

- Currently, 72 energy-related businesses constitute 78% of all existing publicly-traded MLPs representing a market capitalization exceeding \$445 billion as of 12/31/12 (\$350 billion as of 12/31/11, \$220 billion as of 12/31/10 and \$22 billion as of 12/31/06) with average dividends at approximately 6%. However, Credit Suisse recently reported that MLPs could return as much as 25% in 2013 due to the increase in oil, natural gas and natural gas production projected over the next 10 years.
- MLPs must derive 90% of their income, at present, from depletable natural reserves such as oil, gas and coal, but are not under an annual percentage income distribution requirement as are REITs.
- MLP tax liability is not subject to a corporate income tax. Taxed at personal, ordinary income level as a pass-through entity (so one, not two, levels of taxation).

IV. How Do We Succeed in Funding Integrated Biorefineries (cont'd)

E. New Creative Funding Mechanisms (cont'd)

1. Master Limited Partnerships (“MLPs”) (cont'd)

- Would require a statutory amendment to include renewable power generation, and biofuels, biochemicals and infrastructure production – Senator Chris Coons (D-Del) and Jerry Moran (R-Ks) introduced MLP Parity Act bill S.3275 (June 7, 2012) (originally drafted by a colleague and me) for including renewable power, biofuels and biochemicals production, along with infrastructure development. On September 19, 2012, the House, through Representatives Ted Poe (R-Tx) and Mike Thompson (D-Ca), introduced the companion MLP Bill – H.R. 6437. Many oil and gas Congressional members have signed onto these measures which bodes well for passage and enactment. These measures were reintroduced in April 2013 into the new Congressional session and expanded from renewable power and fuels to renewable chemicals, certain infrastructure and energy efficiency. The American Petroleum Institute fully supports the measure
- MLPs are expected to raise more than \$6 billion for renewable energy, from FY2013 – FY2020 and cost the Treasury approximately \$1.0 billion over 10 years from FY2013 – FY2022; while ITCs and PTCs for the renewable energy industries would cost the Treasury approximately \$11.6 billion during a 5 year period from FY2011 – FY2015, according to an analysis by Senator Coon’s office.

2. Hybrid MLPs

- Is being considered by the wind industry in conjunction with gas pipelines. In this regard, one would combine assets with excess tax shelter (e.g., gas pipelines) with assets that generate net taxable income (e.g., wind power) to minimize tax and maximize regular cash distributions to unit holders. MLPs would pursue this strategy as their unit holders are subject to passive loss rules and must utilize tax losses and benefits at the MLP level.

3. “Yield-Co. Inc.” Structure

- Bulge Bracket Banks (such as Citi Group and JP Morgan), are pursuing this structure with clients. Renewable energy assets are packaged into a “Yield Co. Inc.” structure and listed in an IPO on the stock exchange. It represents a combined M&A and IPO. PTCs, ITCs and MACRS depreciation are available for use – all taken at a Schedule “C” Company level.

IV. How Do We Succeed in Funding Integrated Biorefineries (cont'd)

E. New Creative Funding Mechanisms (cont'd)

4. Real Estate Investment Trusts (“REITs”)

- As of 12/31/11, publicly-traded and private placement-initiated REITS represented \$440 billion equity market capitalization with average dividends of approximately 10%. Today, they likely exceed \$550 billion.
- In 2011, REITs raised a total of \$51.3 billion in initial debt and equity capital offerings with \$35.2 billion raised in secondary equity common and preferred share offerings.
- At least 95 percent of a REIT’s annual gross income must be derived from real property.
- At least 75 percent of the value of a REIT’s total assets must be comprised of “real estate” assets.
- Taxed at personal, ordinary income level as a pass-through entity (so one, not two, levels of taxation).
- 90% of REIT income must be distributed annually – construct new projects.
- May require a statutory amendment to include renewable power generation, biofuels and biochemical production (including infrastructure development) or a Treasury guidance to accomplish the same (We have been working with DOE, Treasury and White House on this approach).
- Current definition of “real property” inherently requires no moving parts which is problematic for most renewable energy applications. The transmission industry received a private letter ruling; while PV solar currently is trying to obtain a similar private letter ruling.
- After receipt of a closely-held private letter ruling from the IRS in October 2012, Hannon Armstrong filed an S-1 and raised more than \$250 million for a new REIT on the capital markets initially to hold mortgages of buildings that have attached renewable energy systems (such solar, energy efficiency, etc.). Over time, Hannon expects to expand the use of this REIT to renewable power projects in a more significant context.

IV. How Do We Succeed in Funding Integrated Biorefineries (cont'd)

E. New Creative Funding Mechanisms (cont'd)

5. OPIC Programs
 - **Political risk insurance** products, such as technology risk insurance warranty policies, to wrap risks for new renewable fuel and power projects in developing countries. Debt/equity funds and loan guarantees for renewable energy project financings.
6. Crowd Funding Under The New Jump Start Over Business Start Ups (“JOBS”) Act
 - Allows “crowd funding” or a private financing comprised of pooled investments of up to \$1 million within a 12 month period from many small investors subject to certain restrictions. Such funding must be handled by a broker or “funding portal” registered with the SEC.
7. Global OPIC Model
 - A Global OPIC, funded by governments worldwide, could conduct due diligence on and provide loan guarantees for projects in developed and developing countries. The debt could be repackaged into asset-backed securities that could be sold to investors worldwide.
8. Clean Tech Fund Financed by Sovereign Wealth Funds
 - Focus on debt for 1st commercial projects.
9. High Yield Bond Funds
 - These funds focus on technology risks, such as the established or historic funding of telecommunication’s wireless startups.
 - Recent Energy Example: MidAmerican Energy Company’s 586MW Topaz Solar PV project
 - \$1.2 billion bond financing was oversubscribed at (i) an \$850 million 144A issue at a 5.75% coupon rate with maturity at construction plus 25 years and (ii) a \$250 million 144A issue at a 4.85% coupon rate with a similar maturity.
 - Though financed without a government guarantee, the company was investment grade (Thus, it may not work broadly).

IV. How Do We Succeed in Funding Integrated Biorefineries (cont'd)

E. New Creative Funding Mechanisms (cont'd)

10. ReCharter U.S. Export-Import Bank and U.S. OPIC to permit U.S. lending – FY2012 funding at historical high of \$140 billion.
11. Have Banks Pool Funds for Loan Guarantees.
12. Permit Foundations To “Invest” In Cleantech Companies and Projects – IRS is Reviewing a 1971 Rule.
13. Peru Recently Completed a Major Bond Finance of a Marine Port Without a Loan Guarantee or Insurance Warp and Sold The Long Term Bonds (25 years) to Institutional Investors at 8.125%.
14. “Executive Order On Accelerating Investment In Industrial Energy Efficiency” issued by President Obama in September 2012 to increase Combined Heat & Power (“CHP”) by 40 GW by 2020 (70 GW of CHP is producing today), or by 50%, at biorefinery, food processing, pulp and paper, chemicals, metals and oil refinery manufacturing facilities using feedstocks such as biomass (today 65% of CHP is powered by natural gas). What the incentives will be to implement this Executive Order are still to be determined.