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Creative US and International Debt And Equity Financing Mechanisms For Bioeconomy Projects And Technology Companies

Panel: The Pitch – Solving the Bioeconomy's Toughest Challenges
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- *Has Represented Clients In Renewable And Conventional Energy (Fuels And Power And Infrastructure) Project Finance Since 1975, 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.*
- *Member of the Finance Committee of the Alliance to Save Energy (2015 to present).*
- *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 and 2014 Food, Conservation And Energy Acts, And 2009 American Recovery And Reinvestment Act.*
- *Named One Of The Top 100 Bioenergy Leaders Worldwide – BiofuelsDigest – 2011-2012 (#67), 2012-2013 (#50), 2013-2014 (#56), 2014-2015 (#49) and 2015-2016 (#42).*
- *AV Preeminent Rating By Martindale-Hubbell For Last 20 Years.*
- *Named One Of Washington, DC & Baltimore's Top Rated Lawyers For Business & Commercial By Legal Leaders and Wall Street Journal For 2012-2016.*
- *Vice Chairman For Project Finance, American Bar Association, Section For Energy & Natural Resources Since 2010.*
- *Kilpatrick Townsend Ranked #1 Worldwide For Infrastructure Construction – Chambers – 2011-2015 and #1 in the U.S. in Intellectual Property – Chambers – 2011-2016.*
- *Graduated With JD – Georgetown University Law Center And BA – University of Michigan – Summa Cum Laude And Phi Beta Kappa.*

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Policies That Drive The Bioeconomy

To Achieve GHG Emissions Reduction/Sequestration Goals Directly or Indirectly

- Investments of $5.3 trillion in 0% carbon power, over the projected $7 trillion need for the renewable energy sector over the coming decades, is needed by 2020.
- Advanced Carbon Capture and Storage (DOE Grants for R&D).
- US Department of Transportation ("DOT") Federal Transit Administration ("FTA") Transit Investment in Greenhouse Gas & Energy Reduction ("TIGGER") (DOT Grants).

To Achieve Greater Energy Efficiency

- ARPA-E funding (DOE Grants) for Advanced Biofuels and Renewable Power. On August 24, 2015, President Obama announced $24 million for high performance solar projects through ARPA-E.
- Advanced Biofuels and Renewable Power Funding (USDA REAP/Section 9007 Grants up to $500,000 per applicant).
- Efficient Clean Fossil Energy Systems (DOE Grants).
- Sunshot Grant Program (DOE Grants for Solar Fuels).
- Clean Energy Fund (broad-based DOE Grants).
- USDA Rural Infrastructure Opportunity Fund ($10 billion investment commitment by Co-Bank and managed by Capitol Peak (which is to raise an additional $10 billion) – expect institutional investors to invest or loan – includes Advanced Biofuels, Renewable Chemicals, Biobased Products and Renewable Power).
- Integrated Biorefineries Grant Program (DOE Grants).
- DOE Pilot and Demonstration Facility Grants for Military Advanced Biofuels.
- USDA, Navy, DOE, First Commercial Facility Grants for Military Advanced Biofuels.
- Clean Diesel Grant/Program (EPA grants).
- 3 new USDA Rural Business Investment Companies (Made In and/Rural America - $150 million funds, Meritus Kirchner Capital - $100 million fund and Innova Memphis - $25 million fund for, each for equity investments).

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Policies That Drive The Bioeconomy

To Integrate Urban and Rural Government Funding Programs to Increase US Energy Security

– DOE Section 1703 Loan Guarantee Program, USDA Business & Industry ("B&I") Loan Guarantee Program, USDA Rural Energy for America Section 9007 Loan Guarantee and Grant Program ("9007" or "REAP"), USDA Section 9003 Integrated Biorefinery Loan Guarantee Program, USDA Rural Utilities Service ("RUS") Loan Program and USDA Energy Efficiency and Conservation Loan Program (in the USDA RUS family of loans) for Advanced Biofuels, Renewable Chemicals, Biobased Products and Renewable Power.

To Stimulate Economic Growth and Development of Economy, of Markets After 2008

– FTA Clean Fuels (DOT Grants).

– Energy Efficiency & Renewable Energy (DOE Grants for Advanced Biofuels and Renewable Power).

– Energy Policy Modernization Act of 2015 (S. 2012) – would increase the development of clean energy technologies (passed by the Senate).

– Proposed Clean Energy Victory Bond Act of 2015 (H.R. 4162 – Representative Lofgren (D-California) S.2860 – Senator Boxer (D-California)). $7.5 billion to raise revenue for the purpose of extending renewable energy tax incentives through 2023 and 2024.

To Obtain Economically Feasible Energy Conversion Technologies

– Clean Coal-to-Liquid or Gaseous Fuel Technologies Grant Program (NSF Grants).

– RFS efforts that encourage Advanced Biofuels and, in turn, the development and implementation of Advanced Biofuels Technologies.

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Industry Highlights

Renewable Energy Generation Data

– A December 2015 report by FERC's Office of Energy Projects provided an update on existing and new generating capacity of renewable energy in the US:
  - Renewable energy accounted for 50% of all new US electric generating capacity installed in 2015, making it, for the first time, the largest new generating segment of all new electric capacity.
  - New renewable energy generating capacity in January-December 2015 grew by 10% compared to January-December 2015.

New Generation In-Service (New Build and Expansion)

	December 2015		January – December 2015 Cumulative		January – December 2014 Cumulative	
Primary Fuel Type	No. of Units	Installed Capacity (MW)	No. of Units	Installed Capacity (MW)	No. of Units	Installed Capacity (MW)
Coal	0	0	1	3	3	166
Natural Gas	0	0	51	5,952	82	9,162
Nuclear	0	0	0	0	10	266
Oil	0	0	11	19	19	96
Water	0	0	22	154	19	237
Wind	27	3,022	71	8,186	71	5,319
Biomass	1	1	30	312	92	270
Geothermal Steam	0	0	2	48	7	36
Solar	44	734	282	2,598	426	3,776
Waste Heat	0	0	0	0	4	75
Other *	2	0	17	0	8	22
Total	74	3,757	487	17,272	741	19,425

Sources: Data derived from Velocity Suite, ABB Inc. and The C Three Group LLC which include plants with nameplate capacity of 1 MW or greater. The data may be subject to update.

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Industry Highlights

- **Renewable Energy Reports (November 2014 to April 2016)**
  - Green Innovation Index Report (May 2015) places US as top in cleantech, renewables and electric vehicles globally.
  - World Energy Council Report (November, 2014) projects $48 trillion in capital (including $8 trillion for energy efficiency) is required between 2014 and 2035 to construct the required energy infrastructure supply chain.
  - Bloomberg New Energy Finance in January 2016 reported that global clean energy investments reached an all time high of $329 billion.
  - London School of Economics, Graham Research Institute and Vivid Economics provided a report in April 2016 stating that $2.5 trillion of global financial assets are subject to climate change effects.
- **During 2014-2015, some U.S. biofuels highlights are as follows:**
  - Global biofuels predicted to grow to 61 billion gallons per year ("BGY") by 2018 (ethanol at 40 BGY, biodiesel at 19 BGY and advanced biofuels at 2 BGY) from 55.1 BGY in 2014. In fact, the November 2015 International Energy Agency (IEA) Report projects that the demand for biofuels in transportation will triple through 2040 to an amount exceeding 4 million bbls of oil equivalent per day. The IEA report further notes that much of this will be driven by the more than 60 countries having biofuels mandates in place today.
  - 14.3 billion gallons of **fuel ethanol** produced (13.9 BGY in 2013) with 25.8 billion gallons year worldwide. 2016 is showing a 15.07 BGY production level.
  - 7.4 billion gallons of **biodiesel** produced (1.3 BGY in 2013) per year worldwide.

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Industry Highlights (cont'd)

- **During 2014-2016, some U.S. biofuels highlights are as follows (cont'd):**
  - 800 million gallons year of **advanced biofuels** produced (double the 2011 #s).
    - Defined as nonpetroleum liquid fuel produced from non-food grade biomass feedstock and achieving a 50% reduction in carbon versus 2005 baseline petroleum fuels.
    - E2 (2015 Report) projects 180 companies producing more than 1.7 BGY of advanced biofuels by 2017 in the US.
    - U.S. ethanol production increases to 14.38 billion gallons/year for 2016.
  - 2.4 billion gallons of **Biodiesel** were produced, where roughly equal amounts of 1.2 billion were produced in each of 2014 and 2015. 21 states mandate biodiesel use (5% - 10% blends). 41 states offer biodiesel tax incentives (generally PTC) and usually for pure B-100.
  - Overall, 17.89 billion **RIN**s, says EPA, were generated from January 1, 2015 – December, 2015. 17.2 billion RINs were generated in 2014.
  - D-3 RINs attributed to cellulosic biofuels were 127.39 million in 2015, out of which 2.18 million were for cellulosic ethanol, 72.77 million for biogas-based CNG and 53.16 million for renewable LNG.
  - For 2015: D-4 RINs – 2.794 billion, D-5 RINs – 146.84 million, D-6 RINs – 14.825 billion and D7 RINs – 250,000
  - RIN sales data for the 2014 compliance year demonstrated nearly 50.71 billion transactions. These transactions include 228.2 million for 2014 RINs, 4.08 billion for 2013 RINs and 46.4 billion for 2014 RINS.
- **Renewable chemicals and Biobased Products highlights are as follows:**
  - Current markets for Plastic Additives - $37 billion.
  - 2016+ markets for Bulk Polymers - $300 billion.
  - Current markets for Fragrances - $32 billion.

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Industry Highlights (cont'd)

- **Anaerobic Digester highlights are as follows:**
  - Anaerobic digester was approximately valued at $4.5 billion in 2013 and projected to exceed $7 billion in 2018.

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Growing The Bioeconomy – Challenges And Solutions

1. ***Challenges*** - What are the obstacles to growing advanced biofuels, renewable chemicals, biobased products and biopower?
   - Lack of Funds at the Company and Project Levels.
     - Grants and Equity.
     - Debt.
   - Lack of Certainty in Government Programs.
     - Government Funding Programs – Require Continuing Annual Appropriations for Existing and New Programs.
     - Tax Incentives – Require Extensions of Existing and Creation of New Incentives.
     - Renewable Fuel Standard ("RFS") – Requires Certainty. RFS has been under attack for several years.

2. ***Solutions*** - What are the energy and industrial policies needed to move forward?
   - Creative Debt Financing and Equity Funding – Company, Project and Portfolio Levels.
   - Insurance Protections.
   - Tax Incentives Availability.
   - RFS Certainty.

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Grants And Equity Options

	Type of Funding	Corporate-Level Funding	Project-Level Funding	Dilutive ("D") or Non-Dilutive ("ND")
1.	Grants (State and Federal – DOE, USDA, DOT)	✓	✓	ND
2.	Angel Funding (including Crowdfunding (as modified in June 2015 by Regulation A-Plus), Foundations and Family Offices – Prime Coalition, CREO Syndicated, as part of Clean Energy Investment Initiative -- up to $4 billion (Recent White House Initiative) Equity (Keiretsu – largest/2014 - $24 billion in angel private placements with 6% to cleantech)	✓		D
3.	Venture Capital Equity (Zymergin raised $44 million in series A round for its microbial programming to high value bioproducts from Data Collective, Draper Fisher, HVF, Innovation Endeavors, Obvious Ventures, True Venture and Two Sigma Ventrues)	✓	✓	D
4.	Private Equity (TIAA – CREF North American Sustainable Energy fund - $1 billion; UK's Smart City Enterprise Investment Fund of $150 MM for energy efficiency; Bill and Melinda Gates Foundation is committing $2 billion over 5 years for clean technology)	✓	✓	D
5.	Strategic Equity (Bioeconomy companies raised approximately $1.3 billion in the past 12 months or a 16% increase in deals and 17% drop in deal size per raise)	✓	✓	D
6.	Infrastructure Funds Equity (USDA's 3 new $150 MM, $100+ MM and $25+ MM equity and debt funds – Rural Business Investment Corporations ("RBICs") – Made In Rural America, Meritus and Innova, respectively, KKR raised a 2nd fund of $3.1 billion, and Sovereign Wealth Funds)		✓	D
7.	State (California, Connecticut, Hawaii, Illinois, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New York, Washington) and Federal Green Funds, State Revolving Funds (tend to be grants, loans, loan guarantees and not equity as government entities shy away from investments)		✓	ND
8.	International Green Funds (Australia, Brazil, Canada, Caribbean Energy Security Initiative ($20 million US fund), European Investment Bank (Euros 8 billion), India, Malaysia, UK) (tend to be grants, loans, loan guarantees and not equity as government entities shy away from investments)	✓	✓	ND
9.	Tax Equity – ITCs, PTCs, Bonus and MACRs Depreciation and NMTCs		✓	Initially D to later ND
10.	Sponsor Equity – Project Developers, Hedge Funds (use has grown in last 2 years) and YieldCos		✓	D
11.	Portfolio Equity - MLPs/ REITs/ YieldCos		✓	D

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Grants

1. DOE

- Appropriations:
  - DOE was appropriated $1.69 billion in FY2013, $1.9 billion in FY2014, and $2.3 billion in FY2015 (discretionary dollars) for the Energy Efficiency and Renewable Energy ("EERE") program.
  - DOE was appropriated $250 million in FY2013, $280 million in FY2014, and $325 million in FY2015 (discretionary dollars) for the Advanced Research Projects Agency - Energy ("ARPA-E") program.
  - No funding was appropriated for large-scale R&D projects.
  - DOE was appropriated $280 million for bioenergy, including advanced biofuels, in each of the FY2014 and FY2015 Omnibus Appropriations Act.

- Clean Energy Investment Center (CEIC):
  - DOE created the CEIC as a result of the Paris COP21 Meeting in November 2015 to provide clean energy technology companies access to information on funds, technical assistance, and access to U.S. Government funding programs.

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Grants (cont'd)

1. DOE (cont'd)
   - Open grants for biofuels, renewable chemicals, biobased products and renewable power:
     - The DOE's Office of EERE issued a program entitled "Solar Energy Evolution and Diffusion Studies II – State Energy Strategies" for approximately $20.9 million to cover two topics: 1 - increasing foundational understanding of technology evolution, soft costs, and barriers to solar deployment in the US. 2 - tackling soft costs and market barrier challenges at the state and regional level by maximizing the benefits of solar electricity through energy and economic strategic planning. Closing application date – May 2, 2016.
     - The DOE's Office of EERE, on behalf of the Buildings Technologies Office (BTO), announced an FOA for Buildings Energy Efficiency Frontiers and Innovation Technologies (BENEFIT) 2016. This FOA combines early-stage topics (Innovations) with later-stage, roadmap-driven topics (frontiers) that complement the core funding provided by the program. Closing application date – April 19, 2016. Award ceiling of $2MM.
     - The DOE's Office of EERE announced the "Bioproducts to Enable Biofuels" program, through which grants are made to address the develop biomass to hydrocarbon biofuels conversion pathways that can be modified to produce advanced fuels and/or products. Application closing date is April 15, 2016. $11.3MM Award ceiling.
     - ARPA-E in mid-March 2016 provided $30 million to the Terra Project for the use of drones to breed fast growing drought resistant biofuel
     - DOE reopened its Integrated Biorefinery Pilot/Demo Grant Program with FY2016 funding on May 6, 2016. This program has 2 phases for each of pilots and demo units with up to $90 million available (and potential to add an additional $128 million) with a 50% cost share. Phase 1 would make 8 – 16 awards in 3 topic areas for each of pilots and demos for feasibility studies, business plans, etc. It then intends to compete these winners to select up to 3 further awardees for each of pilots and demo units.

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Grants (cont'd)

1. DOE (cont'd)
   - Open grants for biofuels, renewable chemicals, biobased products and renewable power:
     - The Fuel Cell Technologies Office (FCTO), part of the DOE's EERE portfolio, operates the "Hydrogen and Fuel Cell Technologies Research, Development, and Demonstrations" program. It is geared to support a technology–neutral approach towards research, development, and demonstration to address challenges for fuel cells and hydrogen fuels (including institutional barriers such as hydrogen codes and standards). Award ceiling: $3MM.
     - DOE on June 16, 2015, announced to Clean Energy Impact Investment Center as part of the Administration's White House Clean Energy Investment Summit, where private industry pledged $4 billion for investment.
     - On May 18, 2015, Senator Ron Wyden (D-OR) introduced the Bioenergy Act of 2015 to provide cost-sharing grants at DOE and USDA and a new loan program at USDA for biomass technologies.
     - DOE, on July 9, 2015, issued $18 million in grants to six (6) algae-based biofuels technologies through the Office of Energy Efficiency and Renewable Energy.
     - DOE, on August 20, 2015, announced $9 million for the design of sustainable bioenergy systems for 3 cellulosic biorefineries in Iowa and Kansas.
     - DOE, on August 24, 2015, awarded $9 million for the design of cellulosic bioenergy systems to Antarco Group, Inc.
     - DOE, on August 25, 2015, opened an $18 million solicitation for advanced PV technology in its Sunshot Program.

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Grants (cont'd)

1. DOE (cont'd)
   - Open grants for biofuels, renewable chemicals, biobased products and renewable power:
     - DOE, on August 26, 2015, opened a $10 million funding for advanced biofuels and bioproducts.
     - DOE, on August 27, 2015, announced $4 million of awards to Texas A&M ($2.5 million) and Ohio University ($15 million) on top of $17.3 million issued in October 2014 to 5 projects for the development of $3 per gallon cost competitive advanced biofuels.
   - Closed grants for biofuels, renewable chemicals, and biobased products and renewable

Opportunity Title	DE-FOA-000	Amount	Each Award Size and Cost Share	RFP Issued	Concept Paper Due Date	RFP Close Date
ARPA-E (previously open in 2009 and 2012)	1261	$125,000,000	$500,000 - $10,000,000 and 20% cost share	1/7/15	2/20/15 Notice & 2/27/15 Concept Paper	Closed
Landscape Design for Sustainable Bioenergy Systems	1179	$14,000,000	N/A	10/20/14	11/21/14	Closed
Sustainable and Holistic Integration of Energy Storage and Solar PV	1108	$15,000,000	N/A	10/29/14	12/16/14	Closed

     - $25 million for targeted algal biofuels and bioproducts (RFP issued 9/22/14, concept paper due 10/30/14 and RFP closed 12/15/14).
     - $35 million for biomass R&D in Biomass Research & Development Initiative.

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Grants (cont'd)

1. DOE (cont'd)
   - Closed grants for biofuels, renewable chemicals, and biobased products and renewable power.
     - $40 million for military advanced biofuels – $20 million for each of FY2012 and FY2013.
     - $10 million for algae-to-biofuels – (20% cost share) (announced 1/17/13, concept paper due 2/11/13 and full application due 4/1/13).
     - $10 million for high-performance biofuels (each award size from $0.5 to $2 million and 20% cost share) (announced 2/25/14, concept paper due 3/31/14 and full application due 5/23/14).
     - $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).
     - $10 million for advanced biofuels – (20% cost share) (announced 4/15/14, concept paper due 5/1/14 and full application due 6/13/14).
     - $7 million for clean energy and energy efficiency on tribal lands – (50% cost share) (announced 7/16/14 and full application due 10/2/14).
     - $4.5 million for alternative fuel and advanced vehicle deployment initiatives – (announced 7/16/14 and full application due 10/1/14).
     - $7.25 million for advanced marine and hydrokinetic energy (6 awardees).
     - $14.3 million for clean energy fund for storage projects (3 awardees).

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Grants (cont'd)

2. EPA

   - Clean Diesel: A $26 million funding opportunity was announced in February 2016 for the Clean Diesel Funding Assistance Program. The Program solicits proposals nationwide for projects that achieve reductions in diesel emissions. Proposal closing date: April 26, 2016.
   - Clean Diesel: $5 million in grants for reducing emissions from marine and inland water ports located in areas of poor air quality – closed.
   - Bioenergy: $20 million in grants for clean diesel projects – closed.
   - New Water Program administering grants for water clean up technologies through the Office of Water.

3. DOT

   - Transportation Investment Generating Economic Recovery ("TIGER") Grant Program – open, on-going rolling grant.
   - FTA Clean Fuels Grant Program (competitive grant program) – closed.
   - FTA Transit Investment in Greenhouse Gas and Energy Reduction ("TIGGER") Grant Program (competitive grant program) – closed.

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Grants (cont'd)

4. USDA

- On February 11, 2014, the House (Rep. David Loebsack (D-Iowa)) introduced a bill (H.R. 4051), the "Refuel Act," which would add a new Section 9014 to the Farm Security and Rural Investment Act of 2002 to establish a competitive grant for renewable fuels. If this bill is reintroduced this Congressional Session and passed into law, the grant will be funded by 1% of the royalties received by the U.S. for the production of oil under oil and gas leases granted under Section 8 of the Outer Continental Shelf Lands Act. Each individual grant awarded under the Refuel Act would be capped at $100,000.
- Section 9007 offers up to $500,000 in grant funding for projects, $12.38 million in total available for grants and $57.8 million for loan guarantees for FY2014. The Farm Act of 2014 provides $50 million for grants, loans and loan guarantees for each of FY2014 – FY2018. This mandatory funding amount of $50 million for FY2014 and FY2015 is broken into $80 million for grants and $20 million for loan guarantees which is subsidy-scored by the OMB at 10 to 1, providing $200 million for loan guarantees. Further, USDA recently stated, along with the issuance of its 9007 Final Rule, that the subsidy score for 9007 loan guarantee authority could rise to 16 to 1 for FY2016 and 20 to 1 for FY2017 and FY2018.
- Discretionary funding is $20 million for each of FY2014 through FY2018. Unlike Section 9003, Section 9007 was not expanded to renewable chemicals and biobased products.
- USDA issued a final rule for Section 9007 on December 29, 2014. There are two application deadlines for 2015 – April 30 and June 30 for FY2014 through FY2018 grant funds. Loan guarantee applications will be reviewed and processed as received with monthly competitions.

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Grants (cont'd)

4. USDA (cont'd)
   - On June 1, 2015, USDA announced its Biomass Crop Assistance Program ("BCAP") RFP grants for purpose-grown energy crops solicitation of $11.5 million.
   - USDA published a final rule on May 8, 2015 for its Value-Added Producer Grant Program for agricultural commodity producer's to manufacture value-added products.
   - On May 29, 2015, USDA announced a $100 million Biofuels Infrastructure Partnership competitive grant program for up to $100 million.
   - USDA also has competitive grant programs in the following programs: Biomass Research & Development Institute ("BRDI"), National Institute for Food & Agriculture ("NIFA") and Institute for Biomass Management.
   - On April 21, 2015, USDA announced a new $150 million "Made In Rural America" fund to facility private equity investments in agriculture related businesses. Advantage Capital Partners will manage the fund.

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Grants (cont'd)

5. National Science Foundation
   - $13 million grant program for clean coal-to-liquid or gaseous fuel technologies – closed.
6. The Following New Funding Statutes Were Enacted In 2014:
   - Farm Act of 2014 with mandatory funds and authorized discretionary funds.
   - Omnibus Appropriations Act of 2014 with appropriated funds.
7. US Energy Security Trust
   - President Obama 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.
8. Bloomberg Philanthropies
   - Bloomberg Philanthropies has raised $48 million in grant funding to support collaborative, state-based approaches that encourage utilities to fund technologies that will accelerate the transition of the US power fleet to clean electricity generation.

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Angel Funding and Crowdfunding Equity

1. Angel Funding
   - Angel funding can be a great source of funding for companies looking to take their technology from the R&D level to a level that can attract VC funding. For example, Keiretsu Forum is the largest angel investor group and deploys the most such funding in the U.S. with chapters nationwide. Historically, the group has invested 1/3 in technology (including clean tech), 1/3 in consumer products and 1/3 in real estate. The investments are often in a range of $200,000 to $3 million.
   - In funding energy projects, angel funding faces some of the same challenges as VC funding does in achieving ROI in a short time frame. In addition, the uncertain political landscape and status of tax credit extensions has been a difficult hurdle for angel investors to overcome. Solar and wind received 5 year tax incentive extensions in December 2015; while biopower, biofuels, waste-to-power, geothermal, hydropower, marine and other renewable technologies received extensions only through December 31, 2016.

2. Crowdfunding
   - Crowdfunding Under the 2012 Jump Start Over Business Start Ups ("JOBs") Act
     - Allows "crowdfunding" 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.
     - The new "Regulation A-Plus" Crowdfunding rule (issued in July 2015) will allow companies to raise funds from a wider pool of investors with less red tape.

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Angel Funding and Crowdfunding Equity (cont'd)

- Crowdfunding provides a significant advantage to financing renewable projects in that it:
  - Eliminates middle parties and allows a project developer to reach out to investors directly, thus allowing for "testing" the market with technologies that the mainstream investment market may not have an appetite for.
  - Allows for innovative business models, such as in the example of the Windcentrale crowdfunding platform (based in the Netherlands), which allows investors to acquire windmills and then use the energy generated by those windmills to power their homes at prices lower than they would otherwise have to purchase from the utilities or elsewhere.
  - On October 30, 2015, the U.S. Securities and Exchange Commission issued its final rules on crowdfunding under the 2012 JOBS Act and which are effective on May 16, 2016.
- Over $34 billion was raised between 2009 and 2015 on over 450 crowdfunding platforms worldwide.
- In renewable energy, two top crowdfunding platforms, Mosaic (specializing in solar projects) and Abundance (specializing in renewable energy), raised $8 million and $10 million, respectively, since their debut in 2013 and 2011, respectively.
- The average ROI for the top crowdfunding platforms in renewable energy has been approximately 5 – 7.5%.
- The ROI for such crowdfunding platforms is too low for some VCs who are looking for double-digit returns, but it appeals to retail investors who are looking for steady income.

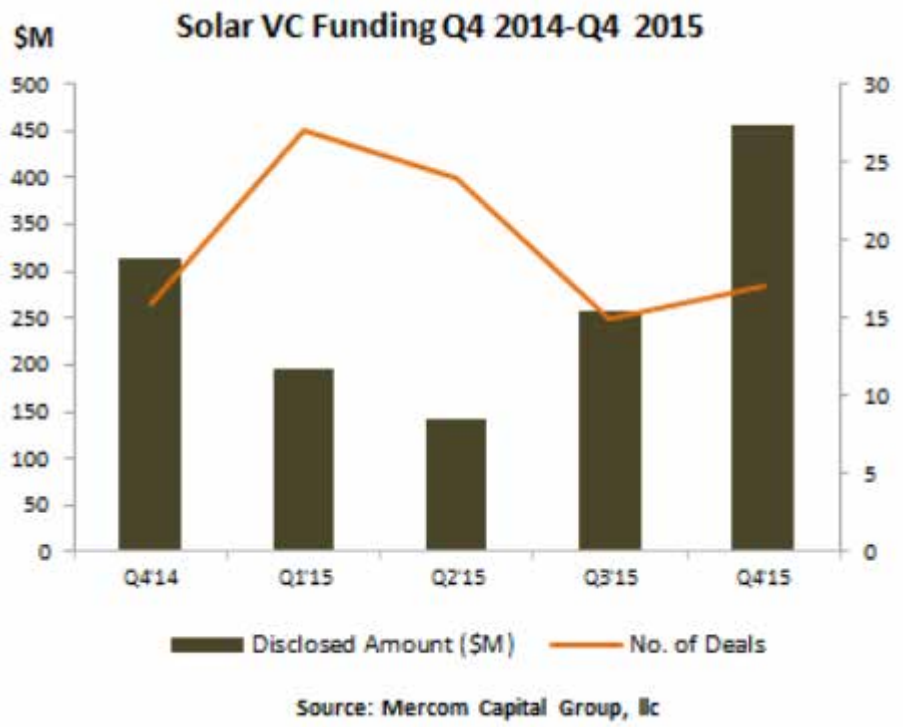
3. Family offices – may provide funds at this very early funding stage.

Venture Capital Equity

- 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. In 2014, such financings have been further reduced. In 2015, venture capital and private equity funding was $564 million in 2nd Quarter 2015, down 31% from 1st Quarter 2015 and 60% from 2nd Quarter 2014 as reported by Bloomberg New Energy Finance ("BNEF"). BNEF reported that clean energy investments worldwide were $53 billion in 2nd Quarter 2015, down 28% from 2nd Quarter 2014. However, by year's end 2015, global cleantech VC investment rose significantly to $10.8 billion globally, or up 11% over 2014's $9.7 billion
- That said, renewable energy project financings increased significantly by 16% from $268 billion in 2013 to $310 billion in 2014, or very close to the $318 billion record high set in 2011, as reported by BNEF. This increase occurred despite the precipitous drop in oil prices from nearly $110/bbl in early 2014 to nearly $40/bbl in late 2014/early 2015 and to nearly $26/bbl in early 2016.
- VC funds for renewable energy have decreased markedly for 2014 – a trend that started in the past few years. That said, between 2013 and 2015, venture capital funding is up generally 41% reports the National Venture Capital Association. Many of the VC funds have refocused on sectors that scale rapidly, provide greater investor returns and enable earlier exits – such as social media and IT. Also, such funds had pivoted to new natural gas technologies until low oil and gas prices, renewable energy tax incentive extensions, COP21 proceedings and new EPA emissions reductions rules for carbon dioxide and landfill methane caused a refocus on cleantech industries.
- The top corporate cleantech VC investors for 2015 were GE Ventures, Intel Capital, Samsung, EON, Air Liquide, Engie, Google Ventures and Tencent.
- Total U.S. VC investments in the renewable energy portion of cleantech dipped through the last quarter of 2015, totaling $700 million, with only a fraction of this amount invested in early-stage projects.

Venture Capital Equity (cont'd)

- Industry sector examples include:
  - **SOLAR –** The solar sector raised the following VC funding in 2015:
    - Q1: $200 million in 27 deals.
    - Q2: $150 million in 25 deals.
    - Q3: $250 million in 15 deals.
    - Q4: $460 million in 17 deals



  - Solar VC funding came in at $406 million in 22 US deals in Q1 2016, or an increase in the number of transactions and decrease in the associated costs over Q4 2015.

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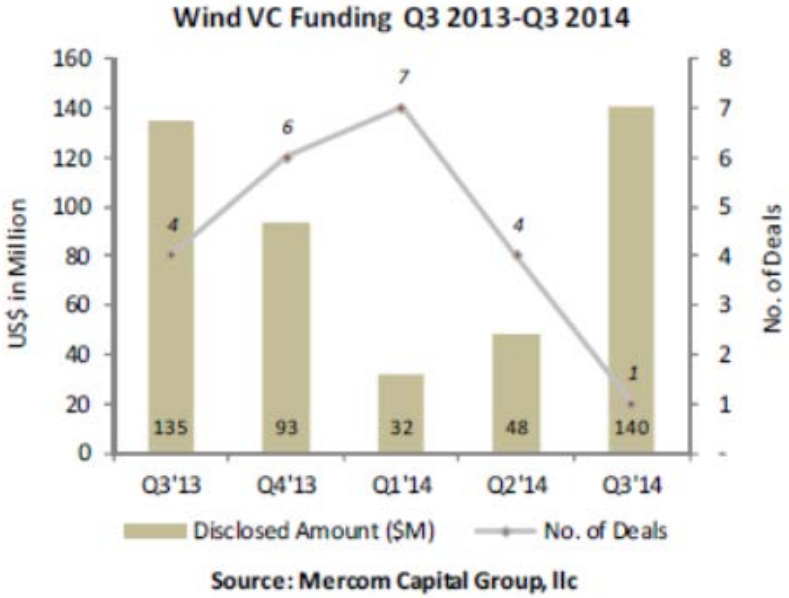
Venture Capital Equity (cont'd)

- At the project level, approximately 100 GW of solar and wind power capacity were constructed in 2014, up from 74 GW in 2013. The continuing 30% ITC for solar power (through 12/31/16) and 1 year retroactive 30% ITC for wind power (through 12/31/14) contributed to this increase.
- Solar power overall grew approximately 36% worldwide in 2015 alone with approximately 55 GW of installation. In the U.S., solar grew by 7.5 GW in 2015, representing $30.2 billion of investment. In 2016, the solar industry expects to install more than 14.5 GW, or a 94% increase over the 7.5 GW installed in 2015.
- The recent 5 year extension of the ITC could add 25 GW of new solar at approximately $40 billion over that 5 year period. Solar CAPEX costs are expected to fall below $1.00 per Watt by 2020. Solar CAPEX costs are expected to fall below $1.00 per Watt by 2020.

Venture Capital Equity (cont'd)

- **WIND –** The wind sector raised the following VC funding in 2014:
  - Q2: $48 million in 4 deals.
  - Q3: $140 million in 1 deal, out of a total of $5.4 billion including VC funding, public market financing, and debt financing.



Source: Mercom Capital Group, llc

- In 2015, VC wind funding was $520 million in 14 deals (compared to $311 million in 14 deals in 2014).
- Wind power installation worldwide exceeded $8.5 billion CAPEX in 2014. However, in 2015, global wind power installation was $14.7 billion or 73% over 2014. Further, globally, 8.6 GW of wind power was installed in 2015, with 9.4 GW under construction in 2016. Wind costs are to fall 26% to 5 cents/KwH for onshore wind power and fall 35% to 12 cents/KwH for offshore wind power by 2025.
- Globally, in Q1 2016, renewable power transactions amounted to $7.1 billion in financial closings.
- By 2040, solar and wind will account for approximately 64% of the 8.6 TW of new power added worldwide requiring 60% of the $11.4 trillion invested in clean energy.

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Venture Capital Equity (cont'd)

- The 5 year retroactive ITC extension for wind/solar thru December 31, 2019 will drive more project growth and VC funding.
- During 2015 upward VC investment trends - compared to 2014 - occurred for advanced biofuels and biopower as was the case for solar/wind. In the advanced biofuel space for example, 37 ventures raised $1.328 billion in new capital between 3rd Quarter 2014 and 2nd Quarter 2015 (up 8% compared to preceding year).
- The Administration's ridiculous pivot from its touted renewable fuels support, as evidenced in its proposed reduction in the RVO, has "chilled" investments into advanced biofuels, renewable chemicals and biobased products. Also, the steep reduction in oil prices has caused potential investors to pause regarding biofuels.
- Barrons, last October 2014, predicted an oil price drop to $35/bbl and adjusted its downward prediction in December 2014 to nearly $20/bbl. In early 2016, oil prices did fall as low as $24/bbl. It further noted that it expects the oil price to settle between $60/bbl to $70/bbl in the future, without providing a date. The Saudis can produce oil at less than $5/bbl, as it publicly fights the threat of US shale oil and gas at low prices. That said, Bloomberg New Energy Finance stated in January 2015 that the shift is to clean energy in the form of renewable power despite low cost oil, because the CAPEX and OPEX per KwH continues to drop markedly and annually for such electricity. US-Iran Nuclear Agreement with reduction in sanctions will free up Iranian oil that can further low prices for years to come.
- Traditionally, VCs are looking at double-digit returns in 7-10 years in high-risk companies with low capital requirements. Popular VCs, such as Kleiner Perkins and Khosla Ventures, have had trouble with investments in certain renewable technologies. Other VCs, such as Mohr Davidoff, have left the renewable energy and biochemicals spaces.

Venture Capital Equity (cont'd)

- One of the main challenges VCs face in the clean energy space is the very expensive need for infrastructure investments. Because of this infrastructure gap, VCs often avoid investing in an energy-generating technology itself.
- To the extent VCs invest in the renewables energy space, VCs invest in energy software, process-improvement projects, and new technologies (particularly in solar, batteries, energy storage and advanced biofuels and biochemicals). These are projects that typically grow quickly to provide the desired ROI, although historically, energy companies achieve such ROI rates over many decades.
- In the shale oil and gas sector, VC funds are concentrated in the "midstream" sector, financing pipelines, processing units and storage facilities.
- Because of the limited projects that attract VCs, in renewable energy, VCs are the most expensive form of capital (more expensive than public equity, late-stage private equity, bonds, or loans).
- 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." This environment continues in 2016.

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Private Equity

- Private equity, strategic equity and infrastructure funds often cross lines into each other's spaces.
- Pension funds, insurance companies, sovereign wealth funds, family offices and traditional private equity funds and companies invest equally as much in renewable energy, renewable chemicals and biobased products projects, as in shale oil and gas.
- For the first time, 5 US-based private equity funds made it onto the Infrastructure Investor list of top 30 funds due to investments in shale gas and oil. Those 5 funds together raised $21.2 billion in 2014, and they are:
  - Energy Capital Partners
  - First Reserve
  - EnerVest
  - LS Power Group
  - Energy Investors Funds
- Cambridge Associates reported in March 2014 that private equity was being deployed for renewable energy generally as follows: 30.2% for renewable power manufacturing, 30.6% for renewable power development, 22.9% for energy optimization and 16.3% for resource solutions (including bioenergy and biochemicals).
- Top fund on the Infrastructure Investor list was Macquarie Infrastructure and Real Assets (based in Australia), which raised $27.3 billion in the last five years for private equity and infrastructure, including investments into the energy sectors.

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Private Equity (cont'd)

- In January 2016, the Abu Dhabi Bank committed to lend or invest $10 billion in clean energy projects over the next 10 years.
- In April 2016, 8 banks and insurance companies (Bank of America, Massachusetts Mutual Life Insurance Company, Crédit Agricole CIB, the European Investment Bank, HSBC Group, International Finance Corporation, AllianceBernstein, Babson Capital Management, Natixis Group and Aligned Intermediary) pledged to invest $8 billion in clean energy projects globally.
- Antin Infrastructure Partners (based in Paris, France) was a new entry in the top 30 funds in 2014 and it is the second-largest infrastructure fund in Europe since 2009. Antin stopped investing in utilities and other low-risk energy sectors, and instead, diversified in the private equity market with investments in transportation and operator services.
- Warburg Pincus recently raised a $4 billion private equity fund for renewable energy projects and technologies. This fund is its 2nd energy fund – the first being a $4 billion renewable energy fund run by First Green Partners.
- Goldman Sachs, among other investors, remains bullish on renewable energy and expressly states that it is committed to invest $150 billion in renewable energy technologies and projects as a private equity investor over the next 10 years.
- KKR closed a $2 billion private equity fund to invest in North American energy of all types. In June 2014, KKR, through the fund, acquired a stake Spain's Acciona Energia International (for $567 million), the renewable energy subsidiary of Acciona S.A.

KILPATRICK TOWNSEND

Private Equity (cont'd)

- Blackstone Group LP closed its second fund for energy, a $4.5 billion energy private equity fund. Over the past several years, Blackstone has invested approximately $8 billion throughout the energy industries.
- Aligned Intermediary (using pension funds such as New Zealand Superannuation Fund, Alaska Permanent Fund, TIAA-CREF and family office-Tamarisk) to fund early stage clean energy projects with initial funding at $1.5 billion.
- Climate Investor One – a $1 billion funding facility for debt and/or equity to take emerging clean technology projects from an idea to reality.
- Vision Ridge Partners – a $430 million fund for clean energy technology companies and late stage projects.

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Strategic Equity

- Increased role for strategic investors is required.
- Strategic Investors, such as feedstock suppliers, offtakers of products, EPCs, O&Ms are taking equity positions in projects and technologies.
- Strategic Investors are coming into projects and technology companies at earlier stages of development due to the pivot of traditional renewable energy VCs into social media, IT and natural gas.
- Strategic Investors are taking on greater roles too, as developers/technology providers plan a portfolio of projects beyond their first commercial projects.
- Strategic Investors may include private equity and infrastructure funds, when they intend to invest beyond the initial project and take a portfolio approach.

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Infrastructure Funds Equity

- Rural Infrastructure Opportunity Fund
  - Announced on July 24, 2014 by the White House.
  - Will provide pension funds and large investors the opportunity to invest in energy and infrastructure projects in rural US.
  - The initial $10 billion of the fund is committed by CoBank, a cooperative bank and member of the Farm Credit System. This amount is to be matched by an additional $10 billion by one of CoBank's investment bankers – Capitol Peak, along with various equity funds. We work closely with these groups, as we assist them to target client projects and technology projects with their funds.
- In the first half of 2014, infrastructure funds worldwide raised $13.6 billion, compared to $25 billion in the first half of 2013. The financial industry believes the decrease is due to pension funds and sovereign funds cutting costs and investing directly in infrastructure assets, rather than through infrastructure funds, as they had been doing previously.
- $10.7 billion, $4.4 billion and $13.1 billion in total capital were raised by unlisted infrastructure funds during the first, second and third quarters of 2015, respectively.

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Infrastructure Funds Equity (cont'd)

- The top 30 infrastructure funds (as reported by the Infrastructure Investor) are composed of: 69% fund managers (fund-of-funds), 29% pension funds, and 2% sovereign funds.
- The top 5 cities for raising funds in infrastructure funds in 2008 – 2013 are:

TOP 5 CITIES

Capital centre	5-year fundraising total ($bn)	No. of institutions
Sydney	31.27	3
New York	31.16	7
Toronto	20.30	4
London	12.94	3
San Francisco	6.79	2

- The Breakthrough Energy Coalition (BEC), formed by Bill Gates and a coalition of 27 major investors from 10 countries at the Paris COP21 meeting in November 2015, will commence with an initial investment of $1 billion from Bill Gates personal funds. The BEC will invest clean electricity generation, storage, transportation, industrial use, agriculture and energy efficiency under a public private partnership (PPP) financing model.
- Generate Capital – raised more than $150 million in 2015 for cleantech asset backed lending, project finance, asset warehouses and other short term and custom financing.
- Joule Assets – raised a $100 million fund in early 2016 to finance energy efficient retrofit technologies to create energy savings in buildings, *e.g.*, efficient HVAC systems, LED lights and thermostats that are programmed for such savings.

Source: Infrastructure Investor

State and Federal Green Funds

State Green Bank Funds typically involve grants, loans and loan guarantees, as state and Federal governments historically have shied away from equity investments. State Green Banks typically leverage public sector funds with private sector money (as a traditional public-private partnership) to provide credit support, co-investment and warehouse facilities. Over time, such funds may become more aggressive in their approach to equity positions.

1. Connecticut Green Bank Fund
   - Established July 2011.
   - $50 million plus in available funds.
2. New York Green Bank
   - Established January 2013 and located in NYSERDA – NY State Energy R&D Authority (which has $2.7 billion in funding).
   - $1 billion plus of NY State government and private sector funds, with $782 million in funding available at present.
   - Principally will provide guarantees as credit enhancement and loans. Assuming a conservative default rate of 10%, 1 million of those guarantees could mobilize more than $100 million in construction capital.)
   - On September 10, 2013, Governor Cuomo authorized the commencement of the fund and the reallocation of approximately $165 million in already-available NY State funds. In January 2013, New York contributed another $53 million in its share of the Regional Greenhouse Gas Initiative ("RGGI"). Together, these contributions from the New York State government total $218 million.
   - The initial transactions, announced by Governor Cuomo on October 24, 2014, will produce investments totaling more than $800 million and reduce 575,000 tons of CO2.
   - Currently is accepting funding applications on a rolling basis.

State and Federal Green Funds (cont'd)

- NY stepped up these efforts in late June 2015, as Governor Cuomo finalized a 2015 NY State Energy Plan with goals to reduce GHG emissions by 40%, generate 50% of the State's electricity from renewable power and increase energy efficiency by 23% by 2030.
- In January 2016, New York launched a $5 billion Clean Energy Fund to oversee the funding for the Green Bank, NYSERDA, Innovation Research Agency ($717 million), NY Sun Fund ($961 million) and other state clean energy initiatives, including the funding for those organizations.

3. Hawaii Green Bank
   - To be funded up to $150 million by green bonds and may become a model for other states. The new 100% RPS in Hawaii by 2045 will require this amount and more.
4. California Green Bank
   - Established in 2012.
   - $13 billion plus in available funds, raised through State tax-exempt bonds.
   - Funds are available for sales and use tax exclusion for California-based manufacturing, advanced transportation projects that reduce greenhouse gases, clean diesel truck lending, and tax-exempt project bonds that reduce pollution.
   - California has a $100 million grant program for clean fuels and vehicles, which is annually refunded. California's governor proposed to earmark $30 million of this amount for Anaerobic Digestion ("AD") and waste-to-biofuel projects.
   - AD technologies are expected to grow in California, New York, and New England in the next 2 years. California, in particular, is expected to double its AD facilities each year in the next few years. AD technologies are promising in that they may eliminate organic waste while enabling market participants to meet renewable fuel standards.

5. Michigan Green Bank
   - A new funding source expected to leverage $105 million into approximately $3 billion in clean energy development projects.
6. Rhode Island Green Bank
   - The new green bank would initially leverage approximately $16 million in public funds.
7. Kentucky, Iowa, Pennsylvania and Ohio are planning to set up green banks.
8. Washington State Clean Energy Fund
   - $36 million in state funding, initially attracting $60.5 million in private sector funds, for R&D grants for smart grid, energy storage, wind, solar and other renewable energy technology development.
9. State Revolving Funds
   - Funds created from a $3 billion DOE allocation under the 2009 Recovery Act in varying amounts, state-by-state. These funds typically are used for working capital, reserve accounts, credit enhancements and grants.
10. State Funds Created from Shale Gas Revenues
    - Alaska, North Dakota, Pennsylvania.

State and Federal Green Funds (cont'd)

11. Federal Green Bank
    - On April 30, 2014, Rep. Van Hollen (D-MD) introduced bill H.R. 4522 "Federal Green Bank Act of 2014" to establish a federally-owned independent green bank to finance clean energy and energy efficiency projects, modeled on the Connecticut Green Bank. On the same day, Sen. Murphy (D-CT) introduced an identical bill in the Senate, S. 2271. These bills require reintroduction into the current Congressional session.
12. Clean Energy Investment Initiative
    - President Obama, on February 10, 2015, announced an initiative to raise $2 billion in philanthropic investments to fight climate change and reduce carbon emissions. He also proposed on February 2, 2015, a $4 billion Clean Power State Incentive Fund in his FY2016 Budget Proposal to assist states to reduce carbon emissions.

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International Green Funds

Similar to State and Federal Green Funds, International Green Funds typically provide grants, loans, credit enhancements and not equity.

1. Australia
   - Australian Renewable Energy Agency ("ARENA") is offering $3.2 billion in funding for pilot and demonstration projects for renewable energy – available until 2022. In late April 2016, ARENA provided a $3 million grant for an $800 million advanced biofuels project in North Queensland.
   - Clean Energy Finance Corporation ("CEFC") is offering $10 billion in funding for renewable energy and energy efficiency – commenced operations on July 1, 2013. In December 2015, CEFC committed $100 million to bioenergy investments through funding its new Australian Bioenergy Fund.
   - $170 million also is available for R&D on low-pollution and energy efficiency technologies – commenced operations on July 1, 2012.
   - CEFC has provided more than $1.4 billion in projects valued at more than $3.5 billion since inception.
   - Australia, on June 26, 2015, enacted a new $11 billion renewable energy funding law.
   - In February 2016, Australia launched the $1.42 billion Powering Australia Renewables Fund.
   - In late March 2016, Australia set up the $1 billion Clean Energy Innovation Fund jointly owned by ARENA and CEFC. It will focus on loans and loan guarantees.
   - Australia is moving to be 100% renewable powered by 2030.
2. United Kingdom
   - UK Green Investment Bank provides funding with an initial capitalization of approximately U.S. $5 billion – opened on April 1, 2012.
   - Climate Private Public Partnership ("CP3") is initially a $3 billion green energy fund for post first commercial projects in developing countries.

International Green Funds (cont'd)

3. Canada
   - Sustainable Development Technology Canada ("SDTC"): SD Tech Fund ($590 Million) (grants - pilots/demos for renewable energy technologies of all types) and Next Gen Biofuels ("NGB") Fund ($500 Million) (takes pilots/demos to 1st commercial project through loans). May see some new initiatives with the new Justin Trudeau Administration.
4. India
   - IFC-Tata Ltd-"Tata Cleantech Capital Ltd." 1st private sector green bank and funded up to $1 billion for issuance of low-cost loans.
   - The Government of India (GOI) plans to raise $25 billion through 5 new funds to promote "green energy" – advanced biofuels, biopower, solar power, wind power and hydro power – to create an "energy revolution" in India.
   - The GOI is launching a $1 billion private equity fund for renewable energy in addition to a potential $16 billion National Clean Energy Fund.
5. 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.

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International Green Funds (cont'd)

6. Brazil
   - Brazil's Development Bank ("BNDES") launched the Brazilian Climate Change Fund Program in 2009 to provide funding for projects that reduce GHG emissions in machinery and equipment that improve efficiency of wood coal production, provide for clean plastic production, and contribute to power efficiency. In 2012, the Program funding was expected to reach approximately $500 million by 2014, however, updated data for FY2013 – FY2016 is not available.
7. Malaysia
   - MLS Capital Fund II, LP is a $150 million Biogreentech Venture Fund ("Fund"), managed by Spruce Capital Partners and Xeraya Capital. It is the successor to the earlier $162 million Malaysian Life Science Capital Fund. The Fund invests in biogreentech companies from early to later stages.
   - The Fund has invested in companies like Verdezyene Glycos Bio, Chromatin, Codexis, LanzaTech, Cobalt, Segetis, Gevo and others.
8. Asia
   - Asian Infrastructure Investment Bank ("AIIB") expected to be funded at $100 billion by approximately 57 founding countries by year end 2015.
   - Shell and IFC have created a clean energy debt fund for Asia and Africa with a $30 million initial closing.
   - I Square Capital closed a $3 billion Global Infrastructure Fund for renewable energy and natural gas with one-third slated for Asia and two-thirds for North America and Europe.
   - Asian Development Bank is to double its annual financing of $6 billion in the next 5 years.

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International Green Funds (cont'd)

9. Europe
   - Santander, with Canada's Ontario Teacher's Pension Fund and Public Section Pension Investment Board, recently launched a $2 billion renewable energy and water fund.
   - European Investment Bank raised $559 million for a renewable energy fund.
10. Africa
   - Green Wish Africa REN fund in July 2015 raised $17 million of an approximate $60 million solar power fund.
11. World Bank's Global Environmental Fund (GEF)
   - GEF has created a $100 million fund to finance low-carbon energy assets.
12. United Nation's Green Climate Fund (GCF)
   - The GCF recently funded $168 million for 8 international environmental projects (in Africa, South Asia and Latin America.
13. Climate Investor One Fund (CIOF)
   - The CIOF was formed in November 2015 as a $1 billion facility to fast track renewable energy investments with an initial focus on 10 renewable power projects in Africa, Asia and Latin America. However, it will provide funding throughout the developing world.
14. Saudi Arabia Public Investment Fund (PIF)
   - The new Saudi PIF will provide approximately $2 trillion for clean energy investments globally.

KILPATRICK TOWNSEND

Tax Equity – ITCs, PTCs, Bonus Depreciations And NMTCs

1. Tax Equity generally includes funding for ITCs, PTCs, Bonus Depreciation and New Market Tax Credits ("NMTCs"). Such funds may be difficult to secure, where:
   - required funds are small (less than $50 mm);
   - investments involve complicated and expensive structures;
   - transactions may require syndicators to secure multiple providers;
   - such incentives are subject to short term, politically-driven, legislative extensions; and
   - investors come from dissimilar industries with little knowledge of the intricacies of varying renewable energy industries.
2. Often the universe of such funders is not large, as these funders require certainty in the projects, but may give up some economic upside to achieve such certainty. They also are more apt to remain in their traditional funding "comfort zones." J.P. Morgan notes that, in 2015, 20 wind and 28 solar tax equity investors were active

KILPATRICK TOWNSEND

Tax Equity – ITCs, PTCs, Bonus Depreciations And NMTCs (cont'd)

3. New Market Tax Credits
   - Community Development Enterprises ("CDEs") obtain allocations from Treasury on an annual competitive basis. They "invest" from these allocations into projects employing residents in qualified economically depressed areas that are also below the national census average ("NMTC zones"). NMTC zones may be found state-by-state on the Treasury – provided maps located at www.treasury.gov.
   - Allocations "invested" often may amount to up to 10% to 20% of the total project costs (depending on the project's size) for qualifying projects ultimately on a non-dilutive funding basis, after the CDE realizes its entire tax incentives from the qualifying project after 7 years.
   - In return for the "investment," CDEs obtain 39% in tax credits from a qualifying project realized over a 7-year period.
   - Congress extended the NMTC provisions through December 31, 2019 at $3.5 billion per year in the 2016 Omnibus Appropriation Act signed into law on December 18, 2015.

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Tax Equity – ITCs, PTCs, Bonus Depreciations And NMTCs (cont'd)

4. Tax Incentives Extension

- Congress provided a short tax incentives extenders package in early December 2014. The President enacted into law on December 19, 2014, The Tax Increase Prevention Act (HR5771), for one year retroactively (and not two years) through 12/31/14. Thus, the ITCs, NMTCs, Renewable Fuels Production Tax Incentives and Related Depreciation Provisions, all having expired by years end 2013, were extended for 2 weeks to year's end 2014 and retroactively to January 1, 2014.
- On December 18, 2015, the President enacted the Omnibus Appropriation Act of 2016 and Protecting American from Tax Hikes (PATH) Act of 2015, which extended many tax incentives for renewable energy projects as follows:

Production Tax Credits

Extension for Qualifying Wind Facilities through 2019.

The legislation revises the Section 45 ten (10)-year production tax credit (PTC) to provide that qualifying wind facilities for which construction commenced prior to January 1, 2017, will be eligible for the current PTC rate (2.3 cents per kilowatt, adjusted for inflation). Qualifying wind facilities for which construction commences on or after January 1, 2017 and prior to January 1, 2020, will be eligible for PTCs at a reduced rate, as set forth on the following schedule:

- 20% reduction of the current PTC rate, for projects for which construction begins in 2017;
- 40% reduction of the current PTC rate, for projects for which construction begins in 2018; and
- 60% reduction of the current PTC rate, for projects for which construction begins in 2019.

KILPATRICK TOWNSEND

Tax Equity – ITCs, PTCs, Bonus Depreciations And NMTCs (cont'd)

4. Tax Incentives Extension (cont'd)

Qualifying wind facilities that commence construction after 2019 will not be eligible for the PTC. The 30% investment tax credit (ITC) election in lieu of the PTC is also preserved for qualifying wind facilities and phases down as follows:

- 24% for qualifying wind facilities for which construction begins in 2017;
- 18% for qualifying wind facilities for which construction begins in 2018; and
- 12% for qualifying wind facilities for which construction being in 2019.

Extension for Other Renewable Energy Facilities through 2016.

The legislation also extended the 10-year PTC at the current PTC rate for projects for which construction commences on or before December 31, 2016 for the following: closed loop biomass facilities, open loop biomass facilities, geothermal facilities, landfill gas facilities, trash facilities, qualified hydropower facilities and marine and hydrokinetic renewable energy facilities. The 30% investment tax credit election in lieu of the PTC is also preserved for these qualifying renewable energy facilities through 2016. Senators Sanders and Wyden are trying to further extend these particular incentives through 12/31/2022.

Extension of the Investment Tax Credit for Qualifying Solar Facilities.

The legislation also provides for an extension of the 30% ITC rate for qualifying solar facilities if *construction commences* prior to January 1, 2020. This change is a significant departure from prior law, which required that qualifying solar facilities be placed in service during the applicable credit year. Qualifying solar facilities for which construction commences on or after January 1, 2020, will be eligible for ITCs at a reduced rate, as set forth on the following schedule:

- 26% for projects for which construction begins in 2020;
- 22% for projects for which construction begins in 2021;
- 10% for projects for which construction begins after December 31, 2021.

KILPATRICK TOWNSEND

Tax Equity – ITCs, PTCs, Bonus Depreciations And NMTCs (cont'd)

4. Tax Incentives Extension (cont'd)

The revised rules further provide, that unless the qualifying solar facility is placed in service prior to January 1, 2024, any project for which construction begins before January 1, 2022, will be entitled to a 10% ITC. The Section 25D credit for residential solar energy systems is also extended for systems placed in service prior to January 1, 2022, and is subject to the same reduced rates as the ITC.

Other Renewable Energy Provisions Affected by the Legislation

- *Section 168(k) Bonus Depreciation* was extended for qualified property acquired and placed in service during 2015 – 2019 (with an additional year for certain such property with a longer production period) phased down as follows:
  - January 1, 2015 – December 31, 2017 – 50%
  - January 1, 2018 – December 31, 2018 – 40%
  - January 1, 2019 – December 31, 2019 – 30%
- *Section 25C Nonbusiness Energy Tax Credit* of 10% of the qualified energy expenditures up to a lifetime cap of $500 was extended through December 31, 2016.
- *Section 40 Second Generation Biofuel Producer Credit* of $1.01 per gallon was extended through December 31, 2016.
- *Section 40A Biodiesel and Renewable Diesel Incentives* of $1.00 per gallon were extended through December 31, 2016.
- *Section 168(l)(2)(D) Special Allowance for Second Generation Biofuel Plant Property* extended through December 31, 2016 the 50% bonus depreciation for cellulosic biofuels facilities. The amendment applies to property placed in service after December 31, 2014.
- *Section 6426(d) and (e)(3) Alternative Fuels Related Tax Credits* extended through December 31, 2016 the 50 cents per gallon alternative fuel tax credit and alternative fuel mixture tax credit. The amendment is effective for qualified fuel sold or used after December 31, 2014.

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Tax Equity – ITCs, PTCs, Bonus Depreciations And NMTCs (cont'd)

4. Tax Incentives Extension (cont'd)

Other Renewable Energy Provisions Affected by the Legislation (cont'd)

- *Section 41(h) and 38(c)(4)(b) Research Tax Credit* extended the research and development (R&D) tax credit permanently.
- *Section 45D New Markets Tax Credit* of 39% of qualifying expenditures was extended through December 31, 2019 at funding levels of $3.5 billion per year.
- *Section 179D Energy Efficient Commercial Buildings Deduction* for certain energy efficient commercial building property placed in service up to a per building maximum of $1.80 per square foot was extended through December 31, 2016.
- The 5 year ITC and PTC extensions, Bloomberg New Energy Finance reports, will build upon $400 billion in past decade investments to add an additional 37 GW of new renewable power projects at over $73 billion in new investments.

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Tax Equity – ITCs, PTCs, Bonus Depreciations And NMTCs (cont'd)

5. H.R. 3390 (Congressman Bill Pascrell – D. N.J.) and S.2271 (Senators Debbie Stabenow (D-MI), Chris Coons (D-Del.) and Al Franken (D-Minn.) provide an incentive allowing renewable chemical producers to elect PTCs (15 cents per pound) ITCs (30% of qualified equipment) available now to other renewable energy producers.

6. H.F. 536 and S.F. 517 in Minnesota would create state PTCs for advanced biofuels ($2.1053 per MM BTU) renewable chemicals (3 cents – 6 cents per pound) and biomass thermal ($5 MM BTU) projects for 10 years after COD.

7. In Iowa, Governor Branstad signed into legislation (S.F. 2300), effective July 1, 2016 – June 30, 2021, to provide a PTC of 5 cents per pound with a ceiling of $1 million for startups and $500,000 for existing companies. The PCT is capped at $105 million. Eligible renewable chemicals and biobase products must have 50% biomass content and not be sold for food, feed or fuel.

8. To date, Congress has not passed any Renewable Chemical or Bio Based Product Tax Incentive.

9. In February 2016, President Obama included in the Federal Budget for FY 2017 a proposed $10/bbl tax on crude oil.

10. On May 5, 2016, the IRS/Treasury issued a written guidance (IRS Notice 2016-31) to further clarify the triggers of "in construction" for each of the PTC under IRC § 45 and ITC under IRC § 48. As part of this guidance, developers are allowed a "safe harbor" period of up to 4 years to place new projects in service, without having to demonstrate that construction has been "continuous."

11. Proposed Agriculture Environmental Stewardship Act of 2016 (HR 54890) would provide a new 30% ITC for qualifying biogas and nutrient recovery systems.

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Sponsor Equity – Project Developers, Hedge Funds and YieldCos

Sponsor Equity frequently includes equity from project developers, hedge funds and YieldCos, among others.

1. Project Developers
   - Project Developer Equity generally comes from the developers of projects who often are start-ups using some of the funds from their company-level private placements for use in their projects.
2. Hedge Funds
   - Hedge Funds frequently come in to displace Tax Equity or where Tax Equity is not readily available or available at all.
   - This class of funding has grown in the renewable energy space in the last 1.5 years.
   - Hedge Funds often are shorter term investments (with foreseeable exit events) and they require 20% plus IRRs.
3. YieldCos
   - YieldCos, discussed in depth below in Portfolio Equity, also become a type of Sponsor Equity in a sellers' market or as take-out buyers, when projects ultimately are sold.
   - As a source of low cost capital, YieldCos, to date, principally have been used for the development of renewable and conventional power projects. Notwithstanding, they can be used for the development of additional renewable fuels, renewable chemicals, biobased products commercial projects during the successful operation of a first commercial project.
   - Furthermore, YieldCos become Sponsor Equity when purchasing portfolios of existing assets from others and then operating the acquired assets. With the use of low cost capital, they can pay more for such assets, particularly when competing to become the new owner.

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Debt – Government Loan Programs

Loan Guarantees Offer Low Cost – Long Term Financing Options

Department of Energy

– **Section 1703 (commenced in 2005)**

1. Renewable Energy and Energy Efficiency ("REEE") – $4.5 billion – 9 increased to 13 competitive rounds of applications – Advanced Biofuels, Renewable Chemicals and Bioproducts from Waste Energy and Renewable Power technology projects are qualified and encouraged. At present, DOE has received a couple of battery storage applications.
   – However, no funds are obligated as no term sheets are yet executed with Part 2 applicants. Through Round 8, approximately 35 applications have been filed with approximately 30 invited into Part 2 and approximately 10 of them have filed their second applications. The 24 Part 2 invited applicants represent approximately $7 billion - $8 billion in senior debt. Several of the Part 2 applicants are now in due diligence. Notwithstanding, DOE has not obligated any of its funds. That said, this program is becoming more competitive, as funds are difficult to obtain.
2. Clean Fossil Energy ("CFE") – $8.5 billion – 11 increased to 15 competitive rounds of applications – biomass/clean hydrocarbon produced energy could be a part of clean fossil energy project and eligible for this funding if structured properly.
   – However, no funds are obligated, as no term sheets are yet executed with Part 2 applicants. Through Round 10, approximately 18 applications have been filed with approximately 13 of them invited into Part 2 and approximately 8 of them have filed their second applications. These invited Part 2 applicants represent approximately $12 billion - $14 billion in senior debt. Several of the Part 2 applicants are now in due diligence. Notwithstanding, DOE has not obligated any of its funds. That said, this program is becoming more competitive, as funds are difficult to obtain.
3. Last Part 1 and Part 2 is November 30, 2016 for REEE and CFE due to June 22, 2016 amendments.
4. Nuclear - $12 billion – 3 competitive rounds of applications. To date, DOE has received two nuclear applications for Rounds 1 or 2, Part 1. Final applications are due, unless extended, as follows: Part 1 – July 20, 2016 and Part 2 – November 23, 2016.
5. Advanced Technology Vehicle Manufacturing ("ATVM") - $16 billion – rolling application process.
6. Total **– $41 billion for four programs** – battery technologies may fit in this program if for vehicle use as part of the vehicle engines. DOE also is considering the use of stationary energy storage systems as part of the infrastructure to provide charging for electric vehicles.
7. Uncapped Senior Debt Amounts.

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Debt – Government Loan Programs

Loan Guarantees Offer Low Cost – Long Term Financing Options (continued)

Department of Energy

– **Section 1703 (commenced in 2005) (continued)**

8. Four "Gating" issues for loan guarantees: (a) "First commercial" means not three or more identical technologies running commercially in the U.S., (b) U.S. site, (c) GHG emissions reduction and (d) reasonable likelihood of repayment.
9. Federal Finance Bank funding at Treasury rate + 37.5 basis points + credit rating spread for 22 year average term.
10. Fees – application, facility, maintenance, underwriting costs and credit subsidy.
11. Can finance 100% of 80% of total project costs, but request 65% coverage and 35% equity (and equivalents – state grants, tax equity, etc.), along with co-lending. Further, DOE can provide up to a 30 year term, but averages a tenor of 22 years.
12. Kilpatrick attorneys were involved in the closing of all 33 awards representing $34 billion of senior debt in previous rounds. In current rounds, Kilpatrick clients' applications represent more than 50% of the senior debt available in the Clean Fossil and Renewable Energy Loan Guarantee Programs.
13. On June 23, 2015, DOE amended each of its REEE and CFE Loan Guarantee Programs to include the production of chemicals from renewable energy or fossil energy, respectively.
14. On August 24, 2015, President Obama announced the set aside an additional of $1 billion in loan guarantees at DOE for renewable and fossil energy distributed energy projects using innovative technologies.
15. On August 24, 2015, DOE amended each of the REEE and CFE Loan Guarantee Programs to permit the building of qualified multiple phases or facilities through a Facility Plan of significant senior debt for a Distributed Energy Project through one application. In a recent response to a Frequently Asked Question ("FAQ") on its website, DOE now will permit the payment of the credit subsidy fee at the closing on each phase or facility.
16. On October 21, 2015, DOE amended each of the REEE and CFE Loan Guarantee Programs to extend the rounds for REEE from 9-13 and CFE from 11-15, with last round application for Part 1 due on or before July 13, 2016 and Part 2 on or before October 19, 2016.
17. Senator Murkowski's S. 1223 would require borrowers to pay at least 25% of the credit subsidy fee as calculated by DOE. Thus, if DOE calculates the credit subsidy to be 10%, or $10 million, on $100 million of senior debt, then S. 1223 would require that at least 25% of the $10 million, or $2.5 million, will be payable by the borrower. At present, the borrower is required to pay at least 7% of the senior debt as a credit subsidy in the renewable energy loan guarantee program, while DOE funds the balance above 7% up to $17 million. As such, in this example, the borrower would make out better under S. 1223 by paying $2.5 million instead of $7 million.

KILPATRICK TOWNSEND

Debt – Government Loan Programs

Loan Guarantees Offer Low Cost – Long Term Financing Options (continued)

US Department of Agriculture

– **Section 9003 of Farm Bill - Integrated Biorefineries (commenced in 2008)**

1. Farm Act of 2014 expanded program from advanced biofuels to include renewable chemicals and biobased products (with a 15% restriction on available program funds), along with electricity with a new Interim Final Rule, dated June 24, 2015, and a new Notice of Solicitation, dated July 6, 2015, with initial Phase 1 due dates as of October 1, 2015 and April 1, 2016, in a 2 phase program.
2. Approximate $1 billion for current rounds of FY14 - $100 MM + FY15 - $50 MM (minus $20 MM) + FY16 - $50 MM (plus $20 MM) = $200 MM x OMB subsidiary score of approx. 3 to 1 to 5 to 1. $0 for each of FY17 and FY18. However, in the Omnibus Appropriation Act of 2016, signed by the President on December 18, 2015, Congress held back $23.5 million of the FY2016 $70 million (or approximately $100 million - $150 million of subsidy scored funding) to be used in FY2017.
3. USDA received 24 LOIs on or before September 1, 2015 representing approximately $1.2 billion of senior debt. However, it only received 6 applications from those filed LOIs on or before October 1, 2015 for Phase 1 of Round 1 representing approximately $600 million. Recently, USDA invited 4 of the 6 applicants to apply for Phase 2.
4. Round 2, Phase 1 LOIs were due on or before March 2, 2016, and USDA received 4 LOIs. Applications thereto were due on or before April 1, 2016, and USDA received 1 Application. Round 1, FY 2017 Phase 1 due dates are an LOI due on or before September 2, 2016 and an application due on or before October 1, 2016. Much of the funding from previous FY 2016 rounds will be available.
5. Competitive and project sites can be located in non “rural” areas.
6. First Commercial = First Commercial. – Not like DOE’s definition – for Biorefineries. However, Biobased Product Manufacturing Facilities may have up to 3 commercial projects over a 5-year period.
7. $250 M senior debt cap, with 60% - 80% loan guarantee coverage at 20% in non-Federal funds and up to 90% similar coverage with at least 40% in non-Federal funds. Borrowers must commit significant cash equity determined by USDA on a case-by-case basis.
8. Term – 20 years. Interest rates are fixed, variable or a combination of both.
9. Fees – nothing like DOE, 1% - 2% of senior debt at closing and 0.5% - 1.0% annual renewal fee with 80% senior debt coverage, depending on size of project. 3% of senior debt at closing and 1% annual renewal fee with 90% senior debt coverage.
10. Parent Guarantees may be negotiated downward or eliminated under the new Interim Final Rule through a new non-recourse “project financing” structure.
11. Multiple qualified projects can be bundled under one application, so long as funds are available.
12. In the previous 3 rounds, Kilpatrick attorneys clients have been 15 for 15 in reaching the finals and/or receiving conditional commitments.

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Debt – Government Loan Programs

Loan Guarantees Offer Low Cost – Long Term Financing Options (continued)

US Department of Agriculture

– **Section 9007 of Farm Bill (commenced in 2008)**

1. $200 MM in loan guarantees and $80 MM in grants combining F14 and FY15 funding levels, with loan guarantees only subsidy-scored by OMB at 10 to 1 (20 x 10 = 200 MM) – expect to see FY16 subsidiary scoring at 16 to 1 and FY17 – FY18 potentially at 20 to 1 for the $50 MM available per year under the new Form Act of 2014. On August 7, 2015, USDA announced the award of $64 million in loan guarantees and grants for 264 renewable energy and energy efficiency projects. REAP currently is accepting applications for loan guarantees and grants for FY2016.
2. Competitive and required project sites in a "rural" area of less than 50,000 person census tracts.
3. Commercial – means at least one year of operations – can be a tough standard to meet!
4. $25 MM senior debt cap, or up to 75% of total project costs (whichever is less), at 60% to up to 85% loan guarantee coverage. Interest rates are fixed or variable.
5. Equity – 25% of total project costs.
6. Term – 15 years or useful life of equipment for energy projects (7 years for working capital and 30 years for real estate).
7. Fees – nothing like DOE, approx. 1% of senior debt at closing and 0.25% annual renewal fee.
8. Final rule issued in December 2014.
9. Commercial Advanced Biofuels And Renewable Power, but not Renewable Chemicals and Biobased Products, technologies are qualified financeable projects for 9007 loan guarantees and grants.
10. Previously, two separate legal entities with identical shareholding could obtain $25 MM in senior debt coverage each for each of the 9007 and B&I loan guarantee programs for a single project. Further, one legal entity could obtain $25 MM in aggregate funds from the B&I and 9007 loan guarantee programs. USDA published the B&I final rule on June 3, 2016, effective August 2016. As such, when on effective rule, one legal entity can obtain up to $25 MM of senior debt coverage for each of the B&I and 9007 loan guarantee programs for the same project, or $50 MM in senior debt.

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Debt – Government Loan Programs

Loan Guarantees Offer Low Cost – Long Term Financing Options (continued)

US Department of Agriculture

– **Business & Industry ("B&I") Program (commenced in 1972)**

1. $1 billion approximately available in loan guarantee funds annually. As USDA is under a 3-month Continuing Resolution with the rest of the U.S. government, then approximately one-quarter of last year's appropriation is now available for FY2016.
2. Non-competitive and project sites must be located in "rural" areas of less than 50,000 person census tracts.
3. Commercial – more flexible than 9007 Program – not necessarily one year of commercial operations.
4. $25 MM Senior Debt Cap, unless a rural cooperative applicant where the Senior Debt Cap is $40 MM. Interest rates are fixed or variable.
5. Equity – 25% – 40% tangible balance sheet equity for energy projects.
6. Term – 15 years or useful life of equipment for energy projects (7 years for working capital and 30 years for real estate). Loan guarantee coverage is 60% to 80% of senior debt.
7. Fees – Closing – 3%/Annual Renewal – 0.5%. The new B&I rule expects to change to 1% closing and 0.5% annual fees.
8. Final B&I Rule published June 3, 2016.
9. Commercial Advanced Biofuels, Renewable Chemicals, Biobased Products and Renewable Power projects are qualified financeable projects.
10. Parent Guarantees can be negotiated downward and eliminated.
11. Previously, two separate legal entities with identical shareholding could obtain $25 MM senior debt coverage each for each of the 9007 and B&I loan guarantee programs for a single project. Further, one legal entity could obtain $25 MM in aggregate senior debt coverage from the B&I and 9007 loan guarantee programs. USDA published the B&I final rule on June 23, 2016, effective August 3, 2016. As such, when on effective rule, one legal entity can obtain up to $25 MM of senior debt coverage for each of the B&I and 9007 loan guarantee programs for the same project.
12. New B&I final rule eliminates restriction of 51% minimum US project equity and provides loan guarantee coverage for subordinate debt and the leveraged loan in a NMTC transaction.
13. B&I, with its new final rules, "opened up" the universe of non-regulated lenders who could work in its program as qualified lenders of record – such as private equity companies under certain circumstances.

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Debt – Government Loan Programs

Loan Guarantees Offer Low Cost – Long Term Financing Options (continued)

US Department of Agriculture

– **Rural Utility Service ("RUS") Program For Electricity (commenced in 1935)**

1. No Appropriations cap as borrowing is from Treasury.
2. Non-competitive and project sites can be located in non-rural areas, but power must be sold to cooperatives, municipalities or qualified utilities who resell the electricity in "rural" areas of less than 20,000 person census tracts.
3. Uncapped corporate financing - 100% recourse loan financing at Treasury rate + 12.5 basis points fixed for term of the shorter of 35 years or PPA term from Treasury's Federal Finance Bank.
4. Uncapped project financing - 75% non-recourse loan financing at same terms as item #3 and 25% equity, each percentage applied against total project costs.
5. Fee – Annual fee is 0.125% of unpaid principal balance.
6. Renewable power combined with Biorefineries and Biobased Product Manufacturing Facilities can be structured as part of a qualified USDA RUS financing.

– **RUS For Waste Water – Pipelines, Clean up (with Anaerobic Digestion)**

1. Direct loans of up to a 40 year tenor at 2% - 2.5% - use Federal Finance Bank.
2. Loan Guarantees with qualified Lenders of Record – up to $25 million in senior debt with up to 90% coverage for up to 40 years.

KILPATRICK TOWNSEND

Debt – Government Loan Programs

Loan Guarantees Offer Low Cost – Long Term Financing Options (continued)

US Department of Agriculture

– **Energy Efficiency and Conservation Loan Guarantee Program**

1. Uncapped loan guarantees with up to a 90% senior debt coverage to finance energy efficiency (including energy storage projects otherwise not eligible for RUS funding) and conservation projects sited in rural areas of less than 20,000 person census tracts.
2. Interest Rate – Fixed or variable as negotiated between lender and borrower and as approved by USDA.
3. Projects will:
   - Improve energy efficiency and/or reduce peak demand on consumer slide of meter including energy storage.
   - Modify electric load to reduce electric demand.
   - Stimulate a more efficient use of electric facilities.
4. Portions of Biorefineries and Biobased Product Manufacturing Facilities possibly may be structured to satisfy the requirements of this program.
5. Fees – One time guarantee fee – 1% of loan amount times the percentage of the guarantee which is between 60% and 90%.
6. Term – Up to 40 years or the useful life of the facility.

– **US Small Business Administration (SBA)**

1. The SBA Section 7(a) Loan Guarantee Program's authorization recently was increased to $23.5 billion.

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Debt – Other Financing Mechanisms

Other Project Financing Mechanisms

- **Taking non-investment grade project company debt to investment grade financing**
  - Use AAA rated govt. loan guarantees to credit enhance non-investment grade project debt on a low-cost/long term basis.
  - Covered bonds. Credit enhanced project bonds historically with pools of mortgages, but attempts to shift to higher credit enhancements like AAA-rated Treasury Strips.
  - Holdco Loans – back–leveraged debt secured by cash flow allocated to sponsor equity shares and not secured by project assets.
  - WHEEL – Warehouse for Energy Efficient Loans – a first of a kind debt mechanism created by Citigroup and Renew Financial, where they issued asset-backed securities (ABS issues) to secure a $12.58 million pool of otherwise unsecured residential energy efficiency loans.
  - TELPs – Tax Exempt Lease Purchases used as installment sales of a project to a municipality. A TELP is structured to appear that the project sponsor is leasing the project to the municipality. However, the municipality has an option to purchase the project for a nominal sum at the conclusion of the lease term. Lease payments may be treated as tax-free interest on installment debt.
- **Potential Clean Power Plan Allowance Funding**
  - Currently, Kilpatrick Townsend is developing a new and innovative 100% project funding program under EPA's new Clean Power Plan (CPP) for waste-to-energy projects. In this regard, we would sell to coal-fired power plants GHG emissions reduction allowances generated and bundled from closing landfills (abating methane and CO^2 emissions), constructing biofuels/biochemical projects (abating CO^2 emissions) and using the biofuels in cars (biochemicals in other applications) and hydrogen in fuel cells from the project (abating CO^2 emissions). These allowances would be sold to coal-fired power plants to offset their GHG emissions into the atmosphere for a per ton price. These allowances would be sold under long term (15 years plus) agreements to pay for 100% of the CAPEX by annually paying all principal, interest, insurance and tax costs for constructing the project. Project debt would come from state or project company bonds. Despite the recent stay imposed on the CPP Rule by the Supreme Court, the proposal currently is being drafted into a state CPP plan for subsequent approval by the EPA. We are working on a similar 100% allowance offsets funding structure under the proposed Landfill Methane Emissions Reduction Rules expected to be issued as final rules by July 15, 2016.

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Debt – Other Financing Mechanisms

Other Project Financing Mechanisms

– **Green Bonds**

- Green bonds are intended to enable developers raise capital for projects with environmental benefits. Some of the largest banks and market players (13 major banks, led by Citibank, and the World Bank, European Bank for Reconstruction and Development, Organization of Economic Development and Cooperation, International Finance Corporation, and European Investment Bank) participated in developing the Green Bond Principles, which were released in January 2014. The Green Bond Principles are intended to further a discussion on transparency and disclosure recommended for the financing of environmentally beneficial projects. In December 2015, China launched its national green bond standards developed by the People's Bank of China.
- It is anticipated that green bonds will provide financing for advanced biofuels, renewable chemicals, biobased products, renewable power, energy efficiency, energy storage, sustainable waste management, sustainable land use, biodiversity conservation, clean transportation, and clean water projects. Some financial institutions predict a $1 trillion to $2 trillion market for green bonds, which will be used to scale up clean energy projects. Experts believe the green bond market will grow by $100 billion in late 2015 and to $158 billion by 12/31/2016. It currently is approximately $53.2 billion according to the UK's Climate Bond Initiative. Green bonds provided $40 billion for green projects in 2014, or 8 times the amount raised in 2012.
- **Banks:** Renewable power, advanced biofuels, renewable chemicals and biobased products and other bioenergy technologies developers should attempt to be included in this financing methodology. Citibank concluded the first of these Green Bond Transactions with a major Japanese Auto company at approximately $1.2 billion in green bond financing.

Debt – Other Financing Mechanisms

– **Green Bonds *(continued)***

- **Banks:** In September 2014, Barclays pledged to invest at least $1.3 billion in the green bond market (followed by another $1.5 billion in November 2015). In July 2014, the insurance company Zurich pledged to invest $2 billion in the green bond market, as well. Since February 2015, Deutsche Bank pledged to invest $1 billion, ANZ Bank issued $464 million, German mortgage lender, Berlin Hyp, issued $543 million, India's Export-Import Bank issued $500 million and India's Yes Bank similarly pledged to invest approximately $500 million in green bonds. In late May, Goldman proposed $1 billion securitized Japanese renewable energy bonds. ANZ Bank announced on May 21, 2015 that it would issue its first green bond, in an undisclosed amount, to refinance an existing portfolio of wind and solar power projects, along with energy efficient buildings in Australia and New Zealand. In August 2015, the Asian Development Bank invested $240 million green bond deal, followed by the European Investment Bank at $677 million, Nederlandse Waterschopp Bank at $1.3 billion and the India Renewable Energy Development Agency launched a $305 million green bond. In November 2015, green bonds were issued by the IFC ($500 million [upsized to $700 million in March 2016] in addition to a 2013 $1 billion green bond), India's IDBI Bank Ltd ($350 million) and Mexico's Development Bank Nacional Financiera ($500 million). In January 2016, the European Investment Bank issued $536 billion in green bonds.
- **Insurers:** Zurich doubled its green bond investment in Summer 2015 to $2 billion from that set in 2013.
- **Corporates:** On September 22, 2014, Abengoa announced it plans to issue and guarantee a $643 million green bond issued by its subsidiary, Abengoa Greenfield. This will be the first green bond issuance by a high-yield European issuer. The note will have two tranches (one – a $300 million dollar tranche, and the other – a €265 million euro tranche) with have a term of 5 years at a rate of 6.5% for the dollar tranche and 5.5% for the euro tranche. The proceeds will be used for water supply and renewable energy projects. This issue was followed by 3DF Renewables 2nd green bond issue of $1.25 billion. Southern Power increased its green bond to $1 billion in November 2015. In February 2016, Apple issued $1.5 billion in green bonds to finance clean energy projects at its facilities globally.

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Debt – Other Financing Mechanisms

– **Green Bonds *(continued)***

- **Corporates:** Energia Ecolica launched a $204 million project green bond to refinance two newly operational wind farms at a 6% coupon rate. U.K.'s waste company, Shanks, is scheduled to issue a $160 million green bond fund in Summer 2015. In September 2015, Hannon Armstrong raised $105 million of the $125 million asset-backed securitization, its third in a series of so called "Sustainable Yield Bonds." India's CLP Wind issued a corporate green bond of $91.2 million in September 2015 followed by India's ReNew Power issue of a $68 million green bond. In November 2015, Schneider Electric issued a $215 million green bond.
- **Stock Exchanges:** London Stock Exchange is the first exchange to create an extensive range of segments devoted to the green bond market.
- **Alliance to Save Energy:** Offering a new CO^2 certification to ensure that green bond funding is truly tied to GHG emissions reductions.
- **Green Bond Index:** The Solactive SPG IG Low Carbon Bond Index comprises investment grade corporate, eurodenominated bonds issued by firms that are "less dependent on fossil fuels." It comprises approximately 670 bonds issued by 156 companies.
- **Municipal Transit Authorities:** New York Metropolitan Transit Authority, Los Angeles Metropolitan Transportation Authority and Central Puget Sound Regional Transit Authority have issued green bonds for various projects at nearly $1.5 billion in aggregate funding.
- **States:** In late April 2015, Connecticut sold a $250 MM green bond to fund water projects in the state. Similarly, in August 2015, Rhode Island and New York issued $56 million and $367.6 million in green bonds, respectively. In September 2015, Vermont and Washington respectively issued a 29.6 million and $51 million green bonds.
- **Universities:** Marymount University - $65.5 MM for new energy efficient and green energy building upgrades and new construction of a building meeting LEED (Leadership in Energy & Environmental Design) standards.

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Debt – Other Financing Mechanisms

- **New insurance policies:**
  - wrap technology risk with investment grade (A to AA rated) credit.
  - credit enhance senior debt.
  - protect revenue streams.
  - protect tax equity with respect to Investment Tax Credits (ITCs) and New Market Tax Credits (NMTCs).
  - provide price collars for feedstock and fuel supply agreements and price floors for offtake agreements.
  - provide investment grade credit (A to AA rated) to counter: (i) inability to obtain long-term feedstock contracts and (ii) perceived risks of inadequate feedstock supply.
  - Alliance Risk Transfer has issued a 10 year wind revenue hedge with an annual fixed payment to provide revenue certainty. This new insurance protection may be available beyond wind projects.
- **PACE – Property Assessed Clean Energy Program:**
  - Tax assessment on commercial buildings to pay back bank loans for energy efficiency. PACE legislation has been passed in 31 states and has financed approximately $1 billion in projects. On August 24, 2015, President Obama announced new guidelines with the Federal Housing Administration (FHA) to remove existing PACE barriers and accelerate the use of PACE funding. One restriction removed is allowing PACE liens in states to be subordinate to FHA single family first mortgage financing. Bonds are awardable under PACE. For example, the Ygrene Energy Fund (Santa Rosa, CA) completed a $150 million securitization of 6,210 energy and water conservation projects in residential and commercial properties in several states.
- **Capital stacks for projects:**
  - In addition to the financing mechanisms already discussed, some other mechanisms can include:
    - On the equity side of the capital stack – NMTCs, ITCs and MACRs for tax equity (generally dilutive equity until the tax incentives are realized by the funder); state revolving funds (funding from DOE for grants, working capital); and state grants through state economic development agencies.
    - On the debt/collateral side of the capital stack – tax exempt bonds and other tax exempt financing, state revolving funds (reserve accounts as collateral for debt, credit enhancements); and state loans and loan guarantees.

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Debt – Other Financing Mechanisms (cont'd)

– **International Debt**
  - The US Export Import Bank (Ex-Im), Overseas Private Investment Corporation, International Finance Corporation, each have loaned $1 billion in each of the last several years for clean energy projects. Ex-Im received additional Congressional authorization enacted into law on December 4, 2015, to continue as a lender through September 30, 2019. One change is that loans exceeding $10 million must be approved by the Ex-Im's board.
  - The IFC is to increase its climate investments from $2.4 billion to $3.5 billion annually by 2020.
  - Additional Export Credit Agencies and Multilateral Development Banks are lending billions of dollars to clean energy projects. The International Bank for Reconstruction and Development intends to leverage $13 billion of private capital per year by 2020.
  - The European Investment Bank recently has approved more than Euros 8 billion in project financing for energy efficiency, advanced biofuels, renewable chemicals, biobased products, renewable power and energy infrastructure projects throughout Europe.

Portfolio Equity – MLPs, REITs and YieldCos

Project And Portfolio Equity – Capital Markets Funding Mechanisms – M&A/IPO Low Cost Capital Raising Mechanisms

1. MLPs
   - Approximately 149 energy-related MLPs constitute 82% of all existing publicly-traded MLPs representing a market capitalization exceeding $650 billion as of 12/31/15 ($500 billion as of 12/31/13, $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 returns at approximately 7.3% (which had increased above 25% before the reduction in shale gas and oil prices). MLPs have been decreasing to low oil and gas prices, distribution cuts and leverage issues as a result of a downturn in the U.S. economy.
   - 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. MLPs may own qualifying assets outside of the US. Assets are assigned tax free into this vehicle.
   - Would require a statutory amendment to include renewable power generation and such bills were already introduced in Congress. I co-authored the MLP Parity Act moving through Congress with bipartisan support for the past 3 years plus. On June 24, 2015, Senators Coons (D-DE) and Moran (R-KS) and Congressmen Poe (R-TX) and Thompson (D-CA) re-introduced the respective measures into the current Congressional session. The American Petroleum Institute fully supports these measures. Currently applicable passive loss and at risk depreciation rules require renewable power assets to be assigned into the entity after the 5-year clawback period on monetized ARRA Section 1603 Cash Grants and ITCs and after the longer use of PTCs.
   - Developers and utilities should not think of MLPs as a substitute for ITCs, PTCs, or depreciation credits, but rather as a new long-term financing mechanism.
   - 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.

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Portfolio Equity – MLPs, REITs and YieldCos (cont'd)

1. MLPs (cont'd)
   - MLPs are tax efficient as they are subject to one level of taxation as pass through entities (LLCs or Partnerships) and raise low cost capital through IPOs.
   - Sol-Wind, in late December 2014, filed an S-1 to raise approximately $100 million on the public market as an MLP IPO with an aggregation of 184 MW of mostly solar, but some wind, power assets located in the US, Canada and Puerto Rico. This hybrid MLP structure involves a partnership MLP that owns a "blocker" corporation (a limited liability company organized in Delaware that makes an election to be taxed as a corporation and not a partnership) which in turn owns the renewable power assets in another corporation ("MLP Hybrid"). This structure allows the tax incentives to be monetized within a corporation – like a YieldCo – and not like an MLP where the incentives could not be realized. It further permits MLP treatment of raising low cost public money in a tax efficient one-tier tax vehicle notwithstanding that Congress has not passed the MLP Parity Act. In fact, Sol-Wind's MLP structure is like "an upside-down YieldCo." A YieldCo is a public entity that owns a partnership; whereas Sol-Wind's structure is a partnership that owns a corporation with a blocker company between them.
   - Advanced biofuels, renewable chemicals, biobased products, renewable power, and energy storage units/projects are assets that are not yet, without legislative qualification, qualified for standalone MLP treatment. However, they may be assigned tax-free into a similar MLP Hybrid structure below the actual MLP to drive down the low cost public market funding generated by an MLP into the corporation holding the assets. Further, the Hybrid MLP, unlike a traditional MLP, will permit the energy storage assets to monetize any of their tax incentives.
   - Buried in President Obama's FY2016 Budget Proposal was a proposal to tax fossil fuel MLPs as corporations instead of as partnerships. This approach would remove the key tax friendly structure which causes widespread use in the hydrocarbon investment sector. It was never passed by Congress.
   - On May 5, 2015, the IRS issued proposed regulations defining qualified income for MLPs under IRC Code Section 7704. Further, it included a 10 year "transition-out" period for existing MLP assets that no longer would meet this proposed new definition. Comments were due by August 4, 2015. Certain biomass feedstock facilities were qualified for MLPs – such as wood chip facilities – because IRS views them as natural resources. Enviva in April 2016 raised $230 million through a MLP IPO for wood pallets – the first such MLP.

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Portfolio Equity – MLPs, REITs and YieldCos (cont'd)

2. REITs
   - As of 2/1/16, publicly-traded and private placement-initiated REITs represented $900 billion equity market capitalization with average dividends yields for overall REITs (including mortgage) of approximately 4.03-4.83% since 2009. In 2013, REITs raised a total of $84.1 billion in initial debt and equity capital offerings. As of July 31, 2014, REITs raised a total of $46.2 billion in 201 deals. However, in 2014, REITs were some of the "hottest stocks" of the year.
   - On August 27, 2014, Paramount Group Inc. filed a prospectus with the SEC looking to raise more than $2.7 billion in the largest-ever REIT IPO.
   - 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. MLPs do not have this requirement.
   - May require a statutory amendment to include renewable power generation) or a Treasury guidance to accomplish the same (we have been working with DOE, Treasury and White House on this approach).
   - REITs raise low cost funds through IPOs or private placements with one level of taxation as a pass through entity.
   - 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 certain solar and energy efficiency technologies have obtained a similar private letter ruling through the Hannon Armstrong Private Letter Ruling.

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Portfolio Equity – MLPs, REITs and YieldCos (cont'd)

2. REITs (cont'd)
   - 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 as solar, energy efficiency, etc.).
   - Hannon Armstrong recently purchased a wind portfolio from JP Morgan through its REIT by structuring the acquisition below the REIT in a corporation with a "blocker company" LLC in between the REIT and the corporation ("Hybrid REIT") to comply with this definition of "real property." In this regard, in October 2014, Hannon Armstrong, a REIT, invested $144 million in a portfolio of 10 wind farms, following a $107 million acquisition of a solar and wind portfolio in May 2014. These transactions are the first of their kind in wind acquisitions by a REIT. Advanced biofuels, renewable chemicals, biobased products, and renewable power are projects that could qualify under a Hybrid REIT structure, but not under a plain REIT structure without additional Congressional legislation.
   - Energy storage units/projects are assets that may, without legislative qualification, be qualified for standalone REIT treatment. In this regard, the Hannon Armstrong private letter ruling qualifying energy efficiency and certain solar may permit the treatment for certain energy storage assets. However, these assets also may be assigned tax-free into a similar REIT Hybrid structure below the actual REIT to drive down the low cost public market funding generated by an REIT into the corporation holding the assets. Further, the Hybrid REIT, unlike a traditional REIT, will permit the energy storage assets to monetize any of their tax incentives.
   - Treasury issued a new public rulemaking for a guidance on solar REITs earlier in Summer 2014.
   - Digital Realty, a data center specializing REIT finance mechanism, in June 2015 issued a milestone green bond of $500 million for energy efficient buildings and renewable energy.

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Portfolio Equity – MLPs, REITs and YieldCos (cont'd)

3. YieldCos

- Bulge Bracket Banks (such as Citi Group, Bank of America, Barclays and JP Morgan) and other banks (such as Key Bank), already are pursuing this structure with clients, as it requires no new legislation to qualify asset sources such as renewable and conventional energy. 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 – as at risk and passive loss rules do not apply and restrict as in MLPs and REITs. This structure may be available for renewable power, energy storage, advanced biofuels, renewable chemical and biobased projects with long-term contracts and strong cash flows.
- These banks project 12 to 15 of these yieldcos to list on the U.S. stock exchanges in 2015 (with 2 completed to date this year) versus 7 listed in 2013 – 2014 combined. Greentech Capital Advisors at the Bloomberg New Energy Finance Conference in April 2015, predicted today's YieldCo market of approximately $27 billion would grow to more than $100 billion in the near term. In 2014, U.S. YieldCos acquired more than 3.8 GW of operational renewable power assets, up by nearly 50% against similar 2013 acquisitions.
- The YieldCo serves as an umbrella acquiring assets tax-free and then lists in an IPO, which unlocks additional equity to allow the YieldCo to develop further and provides investors with high-yield, low-risk, and steady long-term returns. The objective is for YieldCo to be a tax-preferred vehicle, similar to the MLPs and REITs.
- Typical investor returns in a YieldCo typically are 5-6% per year. The mechanism also has a much lower cost of capital than private equity or project bonds. That said, SunEdison, in its TerraForm Power YieldCo, has obtained a 25% cash on cash return in the initial year of its YieldCo, as it has acquired a substantial amount of foreign power assets for its entity. Further, Abengoa Yield (21%) and NRG Yield (136%) had significant stock appreciation since initially listed. These yields have reduced significantly in the past year due to low oil and gas prices, expiration of renewable power tax incentives, etc.
- SunEdison currently has added new solar storage projects into the Terra Form Power YieldCo. In March 2015, SunEdison acquired a pipeline of 100 MW of solar grid storage representing 4 projects from Solar Grid Storage. CSP projects with storage can provide a capacity factor as high as 90%. Abengoa, NRG Yield and Next Era Energy, each having CSP in their YieldCos, likely will add storage too. However, each of SunEdison and Abengoa have encountered severe financial distress and may file across – the – board for bankruptcy protection. Terra Form recently has sued its SunEdison parent company.

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Portfolios Equity – MLPs, REITs and YieldCos (cont'd)

3. YieldCos (cont'd)
   - The YieldCo can acquire projects in the development phase once it has reached a solid platform from which to invest in development rather than new acquisitions.
   - YieldCos are particularly favorable for financing renewable power, energy storage, advanced biofuels, renewable chemicals, bio-based products and other bioenergy projects because these assets are generally large and, unless structured under a YieldCo, earn less revenue individually on the books of the parent company.
   - The returns for such large assets are maximized under a YieldCo, because:
     - First, aggregating renewable power, energy storage, advanced biofuels, renewable chemicals, bio-based products and other bioenergy assets under one umbrella would lead to optimal economies of scale;
     - Second, renewable power, energy storage, advanced biofuels, renewable chemicals, bio-based products assets are generally large enough to provide for a solid base on which to acquire more assets; and
     - Third, the YieldCo diversification would allow for a variety of renewable power, energy storage, advanced biofuels, renewable chemicals, bio-based products and other bioenergy technologies to be included with conventional fuel and other conventional energy projects without unduly placing a technological risk on the investors, all the while permitting developers to finance new technologies that would otherwise not be financed.
   - YieldCos, although taxed at 2 levels unlike MLPs and REITs that are taxed at 1 level, are taxed at a lower percentage rate capital gains level of approximately 20% versus MLPs and REITs which are taxed at higher percentage ordinary income tax level of 35%+.
   - Experts predict that YieldCos will expand into non-renewable energy assets such as infrastructure assets.
   - Recently, YieldCo returns have suffered substantially from the reduction in oil prices and their adverse effects on renewable energy after a rapid dividend growth over the past 3 years. Only 3 of 9 US YieldCos are not experiencing significant share reductions. Several companies, during this downturn, instead are placing assets into greenfield and brownfield, "warehouse" entities until the yields return. Warehouses are structures that use 3rd party debt and equity to fund asset construction (greenfield warehouses) and/or acquisitions (brownfield warehouses) before a drop-down into a YieldCo. At a restoration of the yields, these companies should begin assigning these warehoused assets into their YieldCos. In August 2015, Goldman invested $300 million in SunEdison's warehouse facility – Wall Street Infrastructure Partners III – a 5 year facility. First Reserve, Macquarie and John Hancock have also funded warehouses with more than $800 million. The project finance boom expected to be triggered by the long term restoration of the renewable energy tax incentives should restore interest in the YieldCo model.
   - Recently, however, Yieldcos are gaining new traction as energy prices rise and tax certainty has occurred.

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Portfolio Equity – MLPs, REITs and YieldCos (cont'd)

3. YieldCos (cont'd)
   - Some companies that have employed a YieldCo in the energy space:
     - NRG Energy was an approximate $468 million IPO for a portfolio of 1.3 MW of 15 projects in natural gas, solar, and wind facilities across California, Colorado and Ontario, Canada. NRG Yield recently purchased a 795 MW portfolio of gas-fired and wind power assets from parent NRG for $480 million, a 1 GW wind farm from Alta Wind for $870 million, a 25%/$285 million stake in 550 MW Desert Sunlight solar farm and more than 15,000 solar leases of 65 MW. NRG has faced management changes and has spun out its renewable energy assets during the recent price downturn.
     - Pattern Energy was an approximate $352 million IPO for a portfolio of 8 assets of 1 GW of projects: 6 operational and 2 in development. Pattern recently acquired a 150 MW Amazon wind farm for its YieldCo providing it more than 26 GW of renewable power. Its YieldCo requires no additional equity at present and has fared well in the downturn.
     - SunEdison's TerraForm YieldCo (TERP) was an approximate $500 million IPO for a portfolio of 524 megawatts (which has increased to more than 800 MW) of solar farms in the US, Canada, the UK, and Chile. On November 19, 2014, Sun Edison and its Terra Form YieldCo acquired First Wind for $2.4 billion. Of the purchase, Terra Form YieldCo obtained 521 MW of wind and solar power plants from Atlantic Power; while Sun Edison acquired 1.6 GW of similar assets from the transaction. It expects to assist finance this acquisition through a $300 million green bond, the first in a YieldCo. Recently, it also added 25 MW of solar power from Invenergy. On September 29, 2014, SunEdison announced a second YieldCo IPO, SunEdison Global (GLBL) focused on generating clean power in emerging Asian, African and South American markets with the recent acquisitions of traditional portfolios totaling 75% more of wind, solar, and for the first time, hydropower projects with a 750 MW renewable power portfolio (with 50% of the assets from its Renova acquisition). It also has added solar storage assets into its Terra Form Power YieldCo. In July 2015, it announced a $2.2 billion acquisition of Vivant Solar and its 523 MM of residential rooftop solar projects. Recently, SunEdison twin YieldCos (TERP and GLBL) have suffered from their parent, SunEdison's over-leveraged balance sheet. As such, TERP's and GLBL's respective stock prices plunged.
     - Terra Form recently has sued its SunEdison parent company. Also, on April 21, 2016, SunEdison filed for chapter 11 bankruptcy protection in the New York federal district court. The two SunEdison Yieldcos, however, are not part of the bankruptcy proceedings.

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Portfolio Equity – MLPs, REITs and YieldCos (cont'd)

3. YieldCos (cont'd)
   - NextEra Energy Partners YieldCo was an approximate $442 million IPO to purchase shares in an affiliate company that holds project assets. NextEra recently purchased 4 wind form assets increasing its YieldCo to 1,923 MW. NextEra's YieldCo is seen as the strongest in the current downturn.
   - TransAlta was an approximate $200 million IPO for a portfolio of 1.1 GW of assets in 28 wind and hydro projects. It has increased its portfolio to 1.8 GW of gas, hydro, and wind projects in July 2015. In the current YieldCo price dip, TransAlta has suffered less than others.
   - Abengoa Yield was an approximate $721 million IPO for a portfolio of 1.1 GW and 1,018 miles in solar, wind, and electric transmission assets in Arizona, California, Mexico, Chile, Peru, Uruguay, and Spain. As some assets reached the commercial stage, revenue was up 92% and operating cash flow increased by 109% from a year earlier. Recently, Abengoa announced that it would transfer its 3 CSP projects from Abengoa solar and additional renewable power assets from Africa and Spain into Abengoa YieldCo to significantly increase its overall asset base. In early 2015, Abengoa closed a $2 billion warehouse facility for its assets as priced dropped in Abengoa Yield. Recently Abengoa Yield changed its name to Atlantica Yield and sought new sponsors following its parent Abengoa S.A.'s filing for insolvency in Spain.
   - Light Beam Electric Co. filed an S-1 for a YieldCo to raise $100 million and manage 239 MW of solar, wind, a biopower assets located with US and UK.
   - First Solar and Sun Power, vertically integrated solar developers and competitors, raised $420 million in the first joint-owned YieldCo in 2nd Quarter 2015, called 8point3 Energy Partners. It initially holds 432 MW of solar assets. Also, a new phenomenon has oil giant, Total, investing $1.4 billion into SunPower. To date the 8point3 YieldCo has fared very well and expects to assign assets into it in 2016. In this regard, and despite the market's concerns with/affects on YieldCos generally, 8point3 Energy assigned of solar projects into its YieldCo in early April 2016.
   - ENEL is planning a YieldCo for its North American renewable power assets.
   - Canadian Solar recently filed an S-1 for a YieldCo IPO.
   - Other companies, such as Trina, Jinko and PNE Wind, are considering YieldCos for 2016
   - As discussed, 2014- and 2015-era YieldCos are largely off their IPO prices. SunEdison's TERP fell 57% in 2015 and GLBL fell 63% from its July 31 IPO price of 15. 8point3 fell 23% in 2015 from its June IPO price of 21. NRG Yield fell 41% in 2015.

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Portfolio Equity – MLPs, REITs and YieldCos (cont'd)

3. YieldCos (cont'd)
   - Pan-European Asset Aggregation YieldCo Structure
     - High-yield investment mechanism for assets operating in the European Union. The mechanism works under the same principle as its US-"YieldCo, Inc." structure. The EU YieldCo allows investors access to assets across the EU.
     - Photon Energy Investments, a subsidiary of Photon Energy NV, announced the launch of an EU YieldCo IPO to take place on a major European exchange in 2015. Photon's EU YieldCo would contain only solar assets. The target portfolio size for the IPO is 250 MW and the long-term objective is to aggregate a 1 GW portfolio by 2017.
     - The UK has listed 6 YieldCo: (1) Foresight Ltd. ($1.5 billion in solar PV), (2) Next Energy Capital Limited (solar PV), (3) Bluefield (solar PV), (4) Greencoat UK Wind Ltd (onshore and offshore wind), (5) The Renewable Infrastructure Group ("TRIG") (solar and onshore wind) and (6) John Long Environmental Assets ("JLEN") (renewable power, waste and water treatment facilities). Next Energy is to file shortly a second YieldCo of similar solar assets for $563 million. Similarly, Bluefield is to float a second YieldCo at $222.8 million on the London Stock Exchange.
     - GCL YieldCo Holding has listed the 1st Asia YieldCo on the Hong Kong Stock Exchange and owns 1 GW of solar power assets based in China (projecting to increase the portfolio to 5.5 GW by 2018). Goldman Sachs recently purchased a 45% interest in this YieldCo.
     - UK and Asian YieldCo yields have not been as affected adversely as have those of US YieldCos.
- Total YieldCo capitalization
  - Per Bloomberg New Energy Finance, at least 15 YieldCos have had IPOs between 2013-2015, raising over $12 billion in capital.

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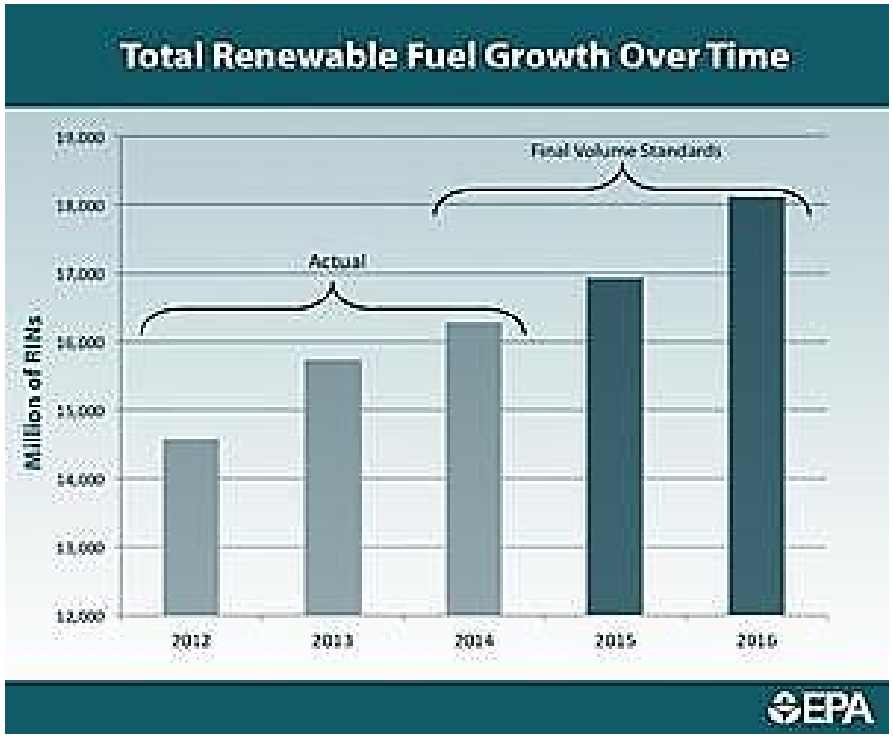
Tax Incentives

Renewable Energy Tax Incentives

- ARRA Section 1603 Cash Grant.
- Section 48 of the IRS Code (“IRC”) Investment Tax Credit (“ITC”).
- Section 45 of the IRC Production Tax Credit (“PTC”).
- Bioenergy Tax Credits and Bonus Depreciations for Renewable Power, Biodiesel, Green Diesel and Cellulosic Biofuels.
- All such incentives (55 for energy) which had expired (except generally for solar) by January 1, 2015, were extended as discussed above and tax certainty is largely in place for the foreseeable future.

RFS Certainty

- Renewable volumetric obligation ("RVO") was finally established for FY 2014, FY 2015 and FY 2016. EPA finally issued the final RVO on November 30, 2015 as a new Final Rule.
- The Final EPA RVO 2015 Rule (for 2014 – 2016) provided the following:



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RFS Certainty (cont'd)

Final Renewable Fuel Volumes				
	2014	2015	2016	2017
Cellulosic biofuel (million gallons)	33	123	230	n/a
Biomass-based diesel (billion gallons)	1.63	1.73	1.90	2.00
Advanced biofuel (billion gallons)	2.67	2.88	3.61	n/a
Renewable fuel (billion gallons)	16.28	16.93	18.11	n/a
(Units for all volumes are ethanol-equivalent, except for biomass-based diesel volumes which are expressed as physical gallons.)				

Final Percentage Standards			
	2014	2015	2016
Cellulosic biofuel	0.019%	0.069%	0.128%
Biomass-based diesel	1.41%	1.49%	1.59%
Advanced biofuel	1.51%	1.62%	2.01%
Renewable fuel	9.19%	9.52%	10.10%

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RFS Certainty (cont'd)

– New May 18, 2016 Proposed EPA RVOR (for 2017 – 2018) provided the following:

Renewable Fuel Volumes Requirements for 2014–2018

	2014	2015	2016	2017	2018
Cellulosic biofuel (million gallons)	33	123	230	312*	**n/a**
Biomass-based diesel (billion gallons)	1.63	1.73	1.90	2.00	**2.1***
Advanced biofuel (billion gallons)	2.67	2.88	3.61	4.0*	**n/a**
Renewable fuel (billion gallons)	**16.28**	**16.93**	**18.11**	**18.8***	**n/a**

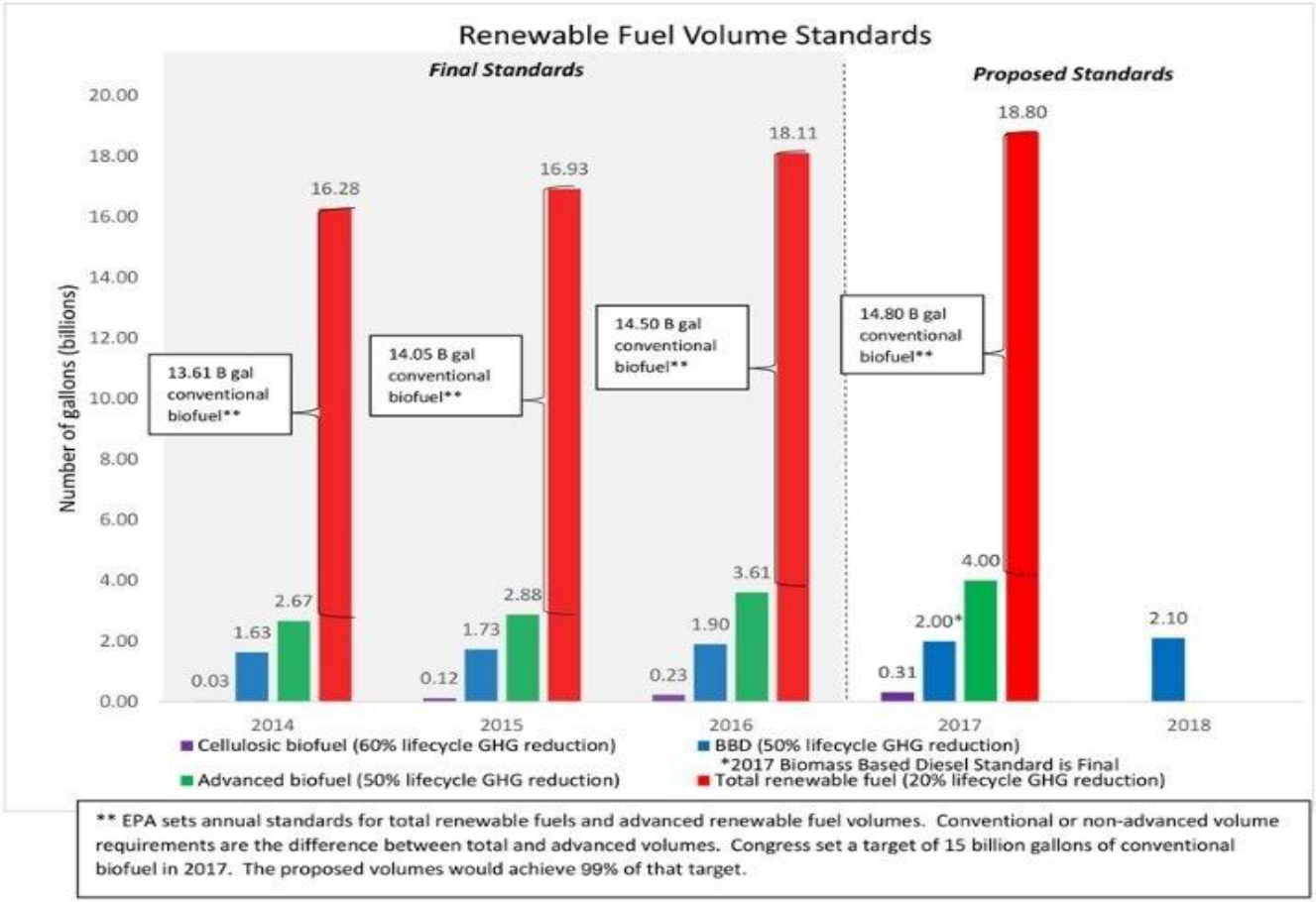
(*Proposed Volume Requirements)

Proposed 2017 Percentage Standards

Cellulosic biofuel	0.173%
Biomass-based diesel	1.67%
Advanced biofuel	2.22%
Renewable fuel	10.44%

RFS Certainty (cont'd)

– New May 18, 2016 Proposed EPA RVOR (for 2017 – 2018) provided the following (cont'd):



** EPA sets annual standards for total renewable fuels and advanced renewable fuel volumes. Conventional or non-advanced volume requirements are the difference between total and advanced volumes. Congress set a target of 15 billion gallons of conventional biofuel in 2017. The proposed volumes would achieve 99% of that target.

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RFS Certainty (cont'd)

– The proposed volumes, as stated by EPA, would represent growth over historic levels:

- Total renewable fuel volumes would grow by nearly 700 million gallons between 2016 and 2017.
- Advanced renewable fuel — which requires 50 percent lifecycle carbon emissions reductions — would grow by nearly 400 million gallons between 2016 and 2017.
- The non-advanced or "conventional" fuels portion of total renewable fuels — which requires a minimum of 20 percent lifecycle carbon emissions reductions — would increase by 300 million gallons between 2016 and 2017 and achieve 99 percent of the Congressional target of 15 billion gallons.
- Biomass-based biodiesel — which must achieve at least 50 percent lifecycle emissions reductions — would grow by 100 million gallons between 2017 and 2018.
- Cellulosic biofuel — which requires 60 percent lifecycle carbon emissions reductions — would grow by 82 million gallons, or 35 percent, between 2016 and 2017.

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RFS Certainty (cont'd)

- The RFS was enacted with strong bipartisan support by Congress to expand production of renewable fuels in order to decrease our nation's dependence on oil, aggressively reduce greenhouse gas ("GHG") and toxic air emissions, and enhance our nation's energy and economic security. By enacting the RFS, Congress intended to annually increase market access and demand for renewable fuels, thereby incentivizing investment in and development of these fuels.
- The RFS has been one of our country's most successful renewable energy policies when implemented according to statutory intent. The RFS has tripled biofuel production in this country since 2005. Biofuels producers have been able to meet the overall RVOs every year the obligations have been in place. The RFS has reduced our dependence on petroleum, reduced volatile price swings at the pump, cut greenhouse gas and ambient air emissions from the transportation sector, and increased jobs and tax revenue through the country. Today, the country's economic, security, and environmental interests in expanding the renewable fuel industry remains as vital as ever.
- EPA's 2014 – 2016 final RVOs (and 2017 for biodiesel) and new 2017 proposed RVO (and 2018 for biodiesel) are an improvement for advanced drop-in biofuels and biodiesel over the prior NPRM released in November 2013. However, these RVOs should all be increased to accurately account for biofuel production. EPA's decision to reduce total renewable fuel RVOs below what the industry is capable of producing and continued reliance on the "blend wall," a false assessment about available infrastructure as a justification for waiver authority, are of serious concern. The D6 RIN market has a 15 billion gallon capacity. Yet, 2016 RVOs permit only 14 billion gallons of ethanol. The proposed RVOs are creating a contracting market for an expanding industry.

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RFS Certainty (cont'd)

- Further, the interpretation of "inadequate domestic supply" that underlies the proposal is contrary to statutory intent. It also redefines the RFS program as one based on demand rather than the ability to supply our fuel system. Congress enacted the RFS to significantly increase a biofuel production beyond the "blend wall," with ambitious targets that spur investment, innovation and commercial development. The biofuel industry is capable of responding to these targets and meeting higher total renewable fuel production levels. EPA's decision to restrict biofuel production levels to the artificial constructs of the fictitious 'blend wall' weakens our country's most comprehensive renewable energy and GHG reduction policy which is a key component of the Clean Air Act. Such action raises concern throughout the renewable energy industry.
- Advanced Biofuels investment has been chilled since the proposed 2014 RVOs. In fact, since EPA announced the 2014 RVOs in the November 2013 Notice of Proposed Rulemaking (NOPR), there has been an estimated $13.7 billion shortfall in biofuel investment. Further, due to this NOPR, nearly 80 percent of U.S. biodiesel producers scaled back production and almost 6 in 10 idled production altogether in 2014.
- EPA's RVO treatment, or lack thereof, has had a similar impact on investment into renewable chemicals and biobased products notwithstanding that these higher-valued bio-derived chemicals and products do not have a similar RFS incentive. Investors have short attention spans and often fail to distinguish between these industries.

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RFS Certainty (cont'd)

- D-3 RIN Cellulosic waiver credit ("CWC") until recently was based on a 2013 number (42 cents) – or an average 2012 RBOB gasoline –
  - The 2013 CWC price was outdated and causing prospective manufacturers to not execute long-term offtake agreements which, in turn, delayed project equity and debt.
  - On April 3, 2015, EPA issued a "Final Direct Rule," separating this pricing issue from the volumetric issues of the RVO rulemaking. Through this Final Direct Rule, EPA issued the CWC prices for 2014 at 49 cents and 2015 at 64 cents. It also provided a formula that obligated parties must adhere to and which should assist proposed biofuels producers obtain economic contracts enabling them to move equity and debt off the sidelines as the RVO is finalized for 2014-2016 in November 2015.
- Low Carbon Fuel Standard (LCFS) credits available in California, British Columbia and Oregon will incentivize new biofuels production in those states. The LCFS grew nearly 300% in 2015 reaching as high as $125 per ton in California in March 2016, or equivalent to $0.90 to $1.00 per dge RNG and per gallon on biofuels. As part of the readopted LCFS in California, and for cost containment measures, the state has imposed a $200 per ton cap on the incentive for 2016. To date, in California, the California Air Resources Board (CARB) has issued more than 30 LCFS pathways.
- New EPA Climate Rules/Clean Power Plan will drive additional advanced biofuels, renewable chemicals, biobased products, renewable power, energy storage and efficiency projects.

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Conclusion

We live in a difficult period of sputtering economies, constrained cash flows, increasing risk aversion and other negative influences, as we attempt to expand and vary the world's energy assets.

As such, the continued creation of new, and refinement of existing, highly sophisticated debt financing and equity funding mechanisms are critical to the development and construction of new energy projects of all types.