

U.S. CLEAN TECHNOLOGY

Alternative Fuels Bulletin: Volume 13

In this note, we review the key provisions outlined in President Obama's speech and discuss the broader implications that this may have on the natural gas, biofuels, and electric vehicle/battery sectors moving forward. In addition, we provide a preview of the upcoming legislative vote regarding the Natural Gas Act, which is set for next week, as well as a snapshot of key metrics across several of the leading biofuel companies.

Top Alternative Fuels News:

- European Union governments may begin talks in the coming months on a proposal to promote greener fuels, potentially black-listing fuels whose production is more polluting, according to Europe's climate chief. *Source: Reuters – March 25th, 2011*
- The Brazilian biofuels business will see more mergers and acquisitions this year because capital and resources are more available, said the head of Codexis Inc., a maker of enzymes used in ethanol. "The industry is ripe for consolidation," Alan Shaw, chief executive officer of Codexis, said at a conference today in Rotterdam, citing a need for increased capacity. *Source: Bloomberg – March 23rd, 2011*
- China is drawing up a national shale gas development plan and aims for commercial production of the alternative fuel as early as possible as it gears up to boost cleaner energy consumption and reduce reliance on carbon-intensive coal. The National Energy Administration (NEA) is drafting the plan, studying relevant policies and establishing a pilot shale gas development area, according to a report posted on the National Development and Reform Commission. *Source: Reuters – March 28th, 2011*
- Dallas Clean Energy McCommas Bluff, LLC, a subsidiary owned 70% by Clean Energy Fuels Corp., has arranged for a \$40.2 million tax-exempt bond issuance led by Senior Managing Underwriter FirstSouthwest Company. The bonds will be repaid from the revenue generated by Dallas Clean Energy McCommas Bluff, LLC ("Dallas Clean Energy") from the sale of renewable natural gas. *Source: Business Wire - March 25th, 2011*
- American electric carmaker Tesla Motors Inc said on Wednesday it is suing the BBC's hit motoring show Top Gear for allegedly faking a race between its electric sports car and a petrol-driven Lotus Elise. The firm said it issued a writ in London's High Court on Tuesday claiming defamation and malicious falsehood over a show, aired two years ago, that supposedly tested its Roadster Sport. *Source: Reuters – March 30th, 2011*

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Investors should consider this report as only a single factor in making their investment decision.

PLEASE SEE ANALYST(S) CERTIFICATION(S) AND IMPORTANT DISCLOSURES BEGINNING ON PAGE 12.

INDUSTRY UPDATE

U.S. Clean Technology

2-NEUTRAL

Unchanged

U.S. Clean Technology

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Reiterating Our Thesis on Clean Transportation Sector

Rising oil prices, greater focus on energy security and technological progress of several competing clean transportation technologies lead us to believe that we are about to enter “the second growth phase of the Cleantech era,” where clean transportation solutions appear poised to challenge several traditional energy concepts and potentially give rise to the next multibillion dollar market cap companies of the Cleantech sector. Not only do we see the policy outlook for clean transportation sector improving (at least relative to the clean power generation sector), but we also see fundamentals for several clean transportation sectors improving significantly over the next decade or so. High oil prices have a direct correlation to the clean transportation sector in contrast to low natural gas prices, which have a direct (negative) correlation to the clean generation sector. Moreover, we believe most of the technological progress in the generation sector has already been made — FSLR’s module costs have decreased from ~\$1.40/W to \$0.75/W currently and shares are likely discounting ~\$0.55-\$0.60/W cost by 2013. Most biofuel/battery companies are, however, still only at the very early stages of cost reduction, and we believe street estimates are nowhere close to discounting the technological progress that is potentially likely at several of these companies.

Biofuels Metrics

We review the input, conversion, and output metrics across several of the leading biofuel and biocatalyst companies in the space. From the sample size, the listed companies have differentiated advantages in terms of feedstock inputs, costs, production methods, and partnerships. Targeted production costs for the industry seems to be in the \$1.00-\$3.00/gallon range, depending on how far along the technology and demo/production plants are running. Current gasoline prices are trending towards \$3.75-\$4.00/gallon, which would make cellulosic biofuels an economic option. Companies with higher production costs are also exploring the renewable chemicals industry as it offers a higher value product for higher ASPs. As production costs are expected to come down in the future and as technology continues to improve, the transition towards biofuel production would become more economical.

Although feedstock procurement may not be a current issue, it could potentially become a growing problem as more cellulosic biofuel refineries and renewable chemical companies come online and the demand for biomass increases. With rising sugar prices and the ongoing food vs. fuel debate for corn, feedstock procurement strategies and costs will be a source of competitive advantage. The majority of feedstock supply would need to be obtained locally to reduce transportation costs and many companies have plans to co-op or build directly next to farm mills to reduce costs.

Figure 1: Biofuels Snapshot

Inputs				Conversion		Output	
Company	Feedstock	Feedstock Costs	Partners	Pathway	Production Cost	Partner	Material
Amyris	Cellulosic biomass	N/A	Guarani, Sao Martinho, Cosan, Bunge	Yeast fermentation process (mevalonate pathway)	N/A	Total, Shell, General Electric, Embraer, Mercedes Benz	Farnesene (Diesel, Chemicals), Jet Fuel
BlueFire Renewables	Municipal solid waste, a residues, paper, wood wastes, various cellulosic biomass	\$15-\$50/ton (tier 2 feedstocks); \$35-\$125/ton (tier 3 feedstocks)	Cooper Marine Timberlands	Concentrated acid hydrolysis	\$1.00/gallon production cost; \$0.50-\$0.55/gallon longer-term target	Tenaska Biofuels (ethanol off-take agreement)	Cellulosic Ethanol
Cobalt Biofuels	Forestry, agricultural wastes, energy crops	~\$40/ton (sugarcane bagasse); \$30-\$50/ton (pulp)	Local sugarcane refineries or pulp & paper refineries	Bacterial fermentation process	\$2.50/gallon (pilot), \$2.00/gallon (2012 target)	N/A	Biobutanol
Codexis	Sugarcane bagasse, wheat straw, corn stover, cellulosic biomass	\$25-\$75/ton (cellulosic feedstocks)	Cosan, Iogen	Cellulase enzymes & fermentation process using yeast	Target to produce \$0.25-\$0.50/gallon of enzyme ASP	Shell (Raizen Plant), Cosan (Raizen Plant), Iogen	Chemicals, Cellulosic Ethanol
Gevo	Corn and sugarcane (today), agricultural residue and wood (future)	\$0.40-\$0.50/bushel	Acquires corn from local farmers in Luverne, MN	Biocatalysts & microorganisms to metabolize sugars to produce isobutanol	\$1.09/gallon lower cost for bio-isobutanol than petro-isobutanol	Off-take agreement with Shell, joint development with Total	Isobutanol (Drop-In Fuels and Chemicals)
LS9	Sugarcane syrup, wood chips, agricultural residues, sorghum	N/A	Local sugar cane mills	1-step fermentation process using "Designer Microbes"	N/A	N/A	Drop-in Fuels, Sustainable Chemicals
POET	Corn cobs (today), switchgrass & woodchips (future)	N/A	POET Biomass (works with local farmers in Emmetsburg, Iowa to procure corn biomass)	Hydrolysis (enzymes) and fermentation process	\$2.35/gallon (first year production), current target of \$2.00/gallon, within 5-7 years	Novozymes (enzymes)	Cellulosic Ethanol
Qteros	Corn stover, sugarcane bagasse, and switchgrass, etc.	\$50-\$60/ton	Future plans to bolt-on to existing sugarcane mills for direct access	"Consolidated Bioprocessing" using the "Q Microbe"	\$2.38/gallon production cost in Nov 2010 \$0.90/gallon longer-term target by 2013	Praj Industries	Cellulosic Ethanol
Solazyme	Plant-based sugars	N/A	BlueFire Renewables	Cellulosic heterotrophic algae production	\$3.44 per gallon (if produced in a built-for-purpose commercial plant)	Chevron, UOP Honeywell	Diesel and Jet Fuel
Terrabon	Energy crops (previous), municipal solid waste (current)	\$40/ton (energy crops), free for wastes	Waste management companies, local grocery stores	MixAlco Conversion Process	\$2.50/gallon (~5mm facility), \$1.75/gallon (~25mm facility)	N/A	Drop-in Fuels (Gasoline, Jet Fuel, Diesel)

Source: Industry Sources, Company Reports, Barclays Capital Research

Key Takeaways from the Obama Energy Speech

Natural Gas

Earlier this week T. Boone Pickens told reporters that he believes that Natural Gas Act, which is scheduled to be released April 6th, will likely be passed. The new legislation will last for five years and provide vehicle tax credits to buyers of natural gas vehicles (NGVs). The subsidies will provide tax credits for up to 80% of the difference in the vehicle price up to \$64,000, which compares to \$32,000 under the previous subsidy program that expired last year. In addition, the subsidies will provide a tax credit equal to 30% of the cost of natural gas refuelling equipment, up to \$50,000. This compares to the \$30,000 under the prior subsidy program which expired last year. Pickens mentioned that his priority is converting garbage trucks and city busses with private passenger cars and trucks as a longer term goal. Obama also made comments supporting natural gas as a transportation fuel in his speech and specifically mentioned building out distribution networks and infrastructure to support alternative fuels, including both natural gas and biofuels. The administration is focused on increasing transparency about fracking chemicals in order to ensure that shale extraction of natural gas is safe and efficient.

Biofuels

The second option to reduce dependency on foreign oil as well as reducing carbon emissions is through biofuels production, particularly made from cellulosic biomass and feedstocks. The President mentioned that the U.S. Air Force plans to source nearly half of its fuel needs through cellulosic means and has already successfully flown an F-22 Raptor using biofuel at the speed of sound. The progress, as detailed in his speech, will need the support of continuing investments in research and technology, greater development of distribution networks, and increased collaboration among manufacturers to improve efficiency and standards. The President also highlighted that the Administration has set a goal of establishing four biofuel refineries, with 20 million gallons of annual capacity each over the next two years.

Electric Vehicles & Batteries

The third option to reduce oil consumption is to shift vehicle adoption towards electric vehicles. The President re-iterated his plan of putting 1 million electric vehicles on the road by 2015. To help increase adoption rates, the FY2012 Budget proposal calls for a \$7,500 tax credit for consumers who purchase electric vehicles as well as offer rewards for communities that promote electric vehicle usage. The President wants America to manufacture 40% of advanced batteries domestically as well as continue investments in R&D to reduce weight and improve efficiencies.

Fuel Economy Standards and Government Fleets

Currently, fuel economy standards are set for vehicles to reach 35.5 miles per gallon by 2016, saving 1.8 billion barrels of oil over the lifetime of the program. The administration plans to introduce legislation in September which will raise this fuel economy even further for passenger vehicles introduced between 2017 and 2025. In addition, the administration plans to introduce a fuel economy standard for commercial trucks, vans and busses built between 2014 and 2018 starting this summer. In addition, the President plans to put an administrative action that would require all new vehicle purchases after 2015 to run on alternative fuels, such as biofuels and electric and hybrid vehicles.

How Does This Affect the Stocks?

CLNE: Given the recent announcement by T. Boone Pickens (see news link below), we believe that Clean Energy Fuels (CLNE) and other natural gas vehicle companies, including Westport Innovations (WPRT, not covered) and Fuel System Solutions (FSYS, not covered), are best positioned to take advantage of the new legislation. While we do not believe subsidies for NGVs are required to make the economics work in the current oil price environment, we believe that the Nat Gas Act will reduce NGV payback periods to below a year, which will drive the sale of both natural gas vehicles and natural gas fuel stations, in our view.

(News Link: <http://www.chron.com/dispatch/story.mpl/business/energy/7496808.html>)

AONE and HEV: Much of the details around electric vehicles in Obama's speech were already known including the \$7,500 rebate for electric vehicles. However, we believe the President's comments on converting 600,000 federal vehicles to alternative fuel vehicles could prove to be an incremental positive. We believe that vehicles with batteries manufactured by A123 Systems (AONE) and Ener1 (HEV) are well positioned to win government contracts as the U.S. government would prefer to work with domestic manufacturers.

CDXS: Codexis (CDXS) is not expected to be impacted by the President's speech as the company does not fully participate in the U.S. biofuels industry as the majority of its future biofuel investments and revenue potential are located in Brazil (Shell/Cosan) and Canada (Shell/Logen). On the other hand, Codexis's approach in the United States is currently more focused on the renewable chemicals and carbon capture segments. Codexis could see some slight upside if the company is awarded additional R&D grants to advance cellulosic conversion technologies (e.g. ARPA-E grants).

Solar/Wind Stocks: We do not expect the President's speech to have a significant impact on non-transportation related cleantech stocks. Although the President did mention that we need to change the way in which we produce and consume electricity, his speech focused on energy efficiency and weatherization programs, not specifically on renewable generation programs, such as solar or wind.

What's Next?

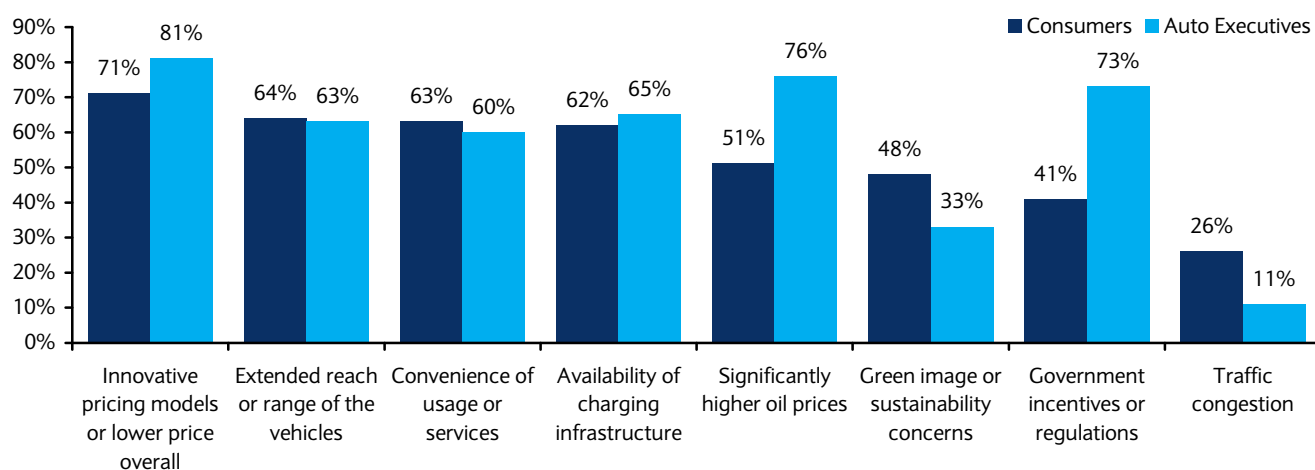
We expect the new version of the Nat Gas Act to be introduced by Representatives John Sullivan, Dan Boren, Kevin Brady, and John Larson on April 6th. Although the bill has struggled to gain traction throughout the House and Senate in the past, Pickens and other politicians believe that this version of the bill has a better chance to pass given the current price of conventional gasoline and the ongoing uncertainty in the Middle East. While we expect to get more details around the bill when it is introduced on April 6th, we believe it will be similar to the bill introduced last year, which provided a tax credit up to 80% or \$64,000 on new NGVs as well as a tax credit for infrastructure equipment of 30%, up to \$50,000.

Regarding the other comments in the President's speech, we would expect to see legislation in the coming months regarding biofuels incentives, fuel economy standards, and new fleet purchases as well as regulations around offshore drilling and natural gas fracking.

Fact of the Week: Key Drivers for Electric Vehicle Adoption

Late last year, the IBM Institute for Business Value surveyed American drivers and auto executives to understand what the most important factor would be to convince drivers to switch to electric vehicles. 71% of consumers and 81% of auto executives believe that a lower price would be the most important factor in deciding to switch vehicles. 64% of consumers and 63% of auto executives cited extended vehicle range, while 63% of consumers and 60% of executives cited convenience of usage or services. Other factors that were cited as key factors in purchasing an EV include availability of charging infrastructure, significantly higher oil prices, sustainability concerns, government incentives, and traffic congestion.

Figure 2: Key Motivating Factors to Switch to an Electric Vehicle



Source: EERE

Top Alternative Fuels News

EU climate chief sees green fuel debate in months

Source: Reuters – March 25th, 2011

European Union governments may begin talks in the coming months on a proposal to promote greener fuels, potentially black-listing fuels whose production is more polluting, according to Europe's climate chief. EU Climate Change Commissioner Connie Hedegaard said default emission values for fuel derived from tar sands and oil shale -- widespread in Canada and Estonia -- will be peer reviewed and included in the proposal. "I now expect that a proposal could be discussed with the member states in the coming months," Hedegaard told EU lawmakers this week. "It is the Commission's intention, at this stage, to present a draft implementing measure ... that will include default values both for oil sands and for oil shale," she added.

Complete Article: <http://www.reuters.com/article/2011/03/25/us-eu-tarsands-idUSTRE72O47Y20110325>

Brazil Biofuels Business Ripe for Consolidation, Codexis Says

Source: Bloomberg – March 23rd, 2011

The Brazilian biofuels business will see more mergers and acquisitions this year because capital and resources are more available, said the head of Codexis Inc. (CDXS), a maker of enzymes used in ethanol. "The industry is ripe for consolidation," Alan Shaw, chief executive officer of Codexis, said at a conference today in Rotterdam, citing a need for increased capacity. "Two-thirds of the sugarcane is under-utilized carbon and there's already huge amounts of biomass on the ground waiting to be converted into something more valuable." Royal Dutch Shell Plc (RDSA) and Cosan Sa Industria & Comercio through its Raizen venture in Brazil hold a 16.5 percent stake in Codexis. They will roll out a technology this year to make biofuels from wheat straw and sugar-cane bagasse, the cellulose- rich waste from cane processing.

Complete Article: <http://www.bloomberg.com/news/2011-03-23/brazil-biofuels-business-ripe-for-consolidation-codexis-says.html>

China energy authority drafting shale gas development plan: NDRC

Source: Reuters – March 28th, 2011

China is drawing up a national shale gas development plan and aims for commercial production of the alternative fuel as early as possible as it gears up to boost cleaner energy consumption and reduce reliance on carbon-intensive coal. The National Energy Administration (NEA) is drafting the plan, studying relevant policies and establishing a pilot shale gas development area, according to a report posted on the National Development and Reform Commission's website (www.ndrc.gov.cn). The government has also set up a special research project for key shale gas exploration and development technologies, Liu Tienan, the head of the NEA, was quoted as saying during a recent meeting with Royal Dutch Shell chief executive Peter Voser.

Complete Article: <http://www.reuters.com/article/2011/03/28/us-china-shalegas-idUSTRE72R0N520110328>

Clean Energy Subsidiary Announces Pricing of \$40.2 Million Bond Issuance

Source: Business Wire - March 25th, 2011

Dallas Clean Energy McCommas Bluff, LLC, a subsidiary owned 70% by Clean Energy Fuels Corp. (Nasdaq: CLNE), has arranged for a \$40.2 million tax-exempt bond issuance led by Senior Managing Underwriter FirstSouthwest Company. The bonds will be repaid from the revenue generated by Dallas Clean Energy McCommas Bluff, LLC ("Dallas Clean Energy") from the sale of renewable natural gas (or biomethane). The bond obligations are secured by the revenue and assets of Dallas Clean Energy and are non-recourse to Dallas Clean Energy's parent companies including Clean Energy Fuels Corp.

Complete Article: <http://www.businesswire.com/news/home/20110325005124/en/Clean-Energy-Subsidiary-Announces-Pricing-40.2-Million>

Tesla sues BBC's Top Gear over Roadster race

Source: Reuters – March 30th, 2011

American electric carmaker Tesla Motors Inc said on Wednesday it is suing the BBC's hit motoring show Top Gear for allegedly faking a race between its electric sports car and a petrol-driven Lotus Elise. The firm said it issued a writ in London's High Court on Tuesday claiming defamation and malicious falsehood over a show, aired two years ago, that supposedly tested its Roadster Sport. It is the latest row to engulf the often controversial program whose presenters were at the center of a diplomatic spat last month for making disparaging remarks about Mexico.

Complete Article: <http://www.reuters.com/article/2011/03/30/us-britain-topgear-tesla-idUSTRE72T4T120110330>

AT&T Buys 101 Natural-Gas-Powered Chevy Vans

Source: Reuters – March 25th, 2011

AT&T committed two years ago to make one of the largest purchases of compressed natural gas vehicles in the U.S. to date. On Friday, the telco released more details on how it will reach that goal: it will buy 101 Chevrolet Express Cargo 2500 natural gas-powered vans. The Chevy compressed natural gas vans (CNG) are the second piece of AT&T's plan to spend \$565 million purchasing 15,000 alternative fuel vehicles, including spending \$350 million on 8,000 compressed natural gas vehicles. The first part of the plan, announced in summer 2009, was that BAF Technologies would convert 600 Ford E-Series vans to run on compressed natural gas.

Complete Article: <http://www.reuters.com/article/2011/03/25/idUS140420117120110325>

S.Africa's Illovo says may opt to produce biofuels

Source: Reuters - March 24th, 2011

South Africa's Illovo Sugar may opt to produce biofuel from sugarcane if it makes commercial sense, its managing director said late on Wednesday. South Africa's Department of Energy said earlier this month it would make a pronouncement on regulated bioethanol and biodiesel prices by March next year. The Biofuels Industrial Strategy targets a 2 percent biofuels contribution to liquid fuels production by 2013, which translates to 400 million litres a year. "Our preference would be to wait until (the Department of Energy) makes public its future biofuels strategy, following which we will be able to assess whether any of the proposals contained therein hold any commercial viability for Illovo," Graham Clark, its managing director, told Reuters in an email.

Complete Article: <http://af.reuters.com/article/investingNews/idAFJOE72N0IZ20110324>

Reno Contracting and Envision Solar team up for solar-power charging stations for electric cars

Source: PV Tech – March 30th, 2011

Envision Solar will be collaborating with Reno Contracting on the development of several Envision Solar Tree solar parking arrays using Envision's CleanCharge and EnvisionTrak technology. The solar-power charging stations for electric cars will be built across various locations in the southwest U.S. The first project is scheduled to commence during 2011's second quarter followed by a multi-location construction at corporate and commercial properties through 2011 and beyond. Along with charging electric vehicles, energy produced at the solar sites may be delivered to the power grid, which would support California's directive for the state to reach 33% renewable energy by 2020. Reno Contracting will help Envision with obtaining project materials, logistics for construction and delivery, entitlement and permitting, master scheduling, pricing and construction management.

Complete Article: http://www.pv-tech.org/news/reno_contracting_and_envision_solar_team_up_for_solar_power_charging_statio

Sierra Club calls on Republican congressman to block funds release to Mascoma project

Source: Biofuel Digest – March 29th, 2011

In Michigan, the Sierra Club has called on Rep. Dan Benishek (R-Crystal Falls) to honor a promise on cutting federal spending by blocking \$58 million in DOE funding for the proposed Mascoma cellulosic ethanol plant in Kinross. The Club claims that the proposed project will generate excessive emissions, and will burn 33 percent more energy in production than the ethanol will ultimately provide.

Complete Article: <http://www.prnewswire.com/news-releases/rising-gas-prices-fuel-demand-for-ford-compressed-natural-gas-powered-commercial-vehicles-118840199.html>

Rising Gas Prices Fuel Demand for Ford Compressed Natural Gas-Powered Commercial Vehicles

Source: PR Newswire – March 29th, 2011

Higher fuel prices, increasing government incentives and more fueling stations are spurring interest in compressed natural gas-powered commercial vehicles offered by Ford Motor Company. Consider Metro Taxi of West Haven, Conn., which soon will take delivery of 20 Transit Connect Taxis powered by CNG. Owner Bill Scalzi said he bought the CNG-powered Transit Connect Taxis because of rising gas prices, government funding and the fact that there will soon be more CNG fueling stations in Connecticut, including one he is adding to his facilities. Scalzi is not alone in wanting to own natural gas fueled vehicles as orders for CNG Transit Connect Taxis are coming from companies in places like Las Vegas, St. Louis, Boston, Chicago and Hartford, Conn.

Complete Article: <http://www.prnewswire.com/news-releases/rising-gas-prices-fuel-demand-for-ford-compressed-natural-gas-powered-commercial-vehicles-118840199.html>

Toyota to restart hybrid output

Source: Reuters – March 24th, 2011

Toyota Motor Corp said on Thursday it would restart production of three hybrid models on Monday after a massive earthquake this month disrupted output across the industry. Production will resume for the Prius, Lexus HS250h and CT200h at the Tsutsumi factory in central Japan and Toyota Motor Kyushu in the south, spokeswoman Shiori Hashimoto said. All 18 factories that assemble Toyota and Lexus vehicles in Japan, including those operated by group units, have been closed by the quake. A further seven plants directly operated by Toyota that make engines and other parts are also affected. The production halt will result in lost production of at least 140,000 vehicles.

Complete Article: <http://www.reuters.com/article/2011/03/24/us-japan-supplychain-idUSTRE72N1H020110324>

Neste Oil Secures €50M loan to fund R&D on renewable raw materials for NExBTL

Source: Green Car Congress – March 28th, 2011

Neste Oil and the Nordic Investment Bank (NIB) have agreed on a €50-million (US\$70.4-million) loan to fund further research on extending the range of raw materials used for producing Neste Oil's renewable diesel NExBTL. Expanding the company's feedstock base is an important strategic goal for Neste Oil. The loan will be used to fund existing research programs and Neste Oil's research infrastructure and will not increase Neste Oil's annual R&D expenditure. Neste Oil has invested around €40 million annually in R&D in recent years, of which around 80% has gone on research into renewable raw materials and technology for refining these inputs.

Complete Article: <http://www.greencarcongress.com/2011/03/neste-20110328.html#more>

U of M researcher uncovers another potential pathway for solar hydrocarbon fuels; microbial production of ketones, cracked to fuels

Source: Green Car Congress – March 24th, 2011

As part of a larger \$2.2-million ARPA-E funded project on direct solar hydrocarbon fuels, University of Minnesota graduate student Janice Frias (who earned her doctorate in January) has determined the biosynthetic mechanism by which a protein (OleA) transforms fatty acids produced by bacteria into ketones, which can be cracked to make hydrocarbon fuels. The university is filing patents on the process. Direct solar fuel technologies typically utilize sunlight as an ingredient in chemical reactions, alongside microorganisms, to produce fuels such as liquid hydrocarbon. The University of Minnesota has already shown that naturally-occurring *Shewanella* bacteria produce hydrocarbons and are tolerant to the same. The ARPA-E project, led by professor Lawrence Wackett, aims to engineer *Shewanella* bacteria to produce higher levels of hydrocarbons from carbon dioxide.

Complete Article: <http://www.greencarcongress.com/2011/03/frias-20110324.html>

ANALYST(S) CERTIFICATION(S)

I, Vishal Shah, hereby certify (1) that the views expressed in this research report accurately reflect my personal views about any or all of the subject securities or issuers referred to in this research report and (2) no part of my compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this research report.

IMPORTANT DISCLOSURES

For current important disclosures, including, where relevant, price target charts, regarding companies that are the subject of this research report, please send a written request to: Barclays Capital Research Compliance, 745 Seventh Avenue, 17th Floor, New York, NY 10019 or refer to <http://publicresearch.barcap.com> or call 1-212-526-1072.

The analysts responsible for preparing this research report have received compensation based upon various factors including the firm's total revenues, a portion of which is generated by investment banking activities.

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Barclays Capital produces a variety of research products including, but not limited to, fundamental analysis, equity-linked analysis, quantitative analysis, and trade ideas. Recommendations contained in one type of research product may differ from recommendations contained in other types of research products, whether as a result of differing time horizons, methodologies, or otherwise.

Materially Mentioned Stocks (Ticker, Date, Price)

A123 Systems Inc. (AONE, 31-Mar-2011, USD 6.35), 1-Overweight/2-Neutral

Clean Energy Fuels Corp. (CLNE, 31-Mar-2011, USD 16.38), 2-Equal Weight/2-Neutral

Codexis, Inc. (CDXS, 31-Mar-2011, USD 11.82), 2-Equal Weight/2-Neutral

Ener1, Inc. (HEV, 31-Mar-2011, USD 2.96), 2-Equal Weight/2-Neutral

Guide to the Barclays Capital Fundamental Equity Research Rating System:

Our coverage analysts use a relative rating system in which they rate stocks as 1-Overweight, 2-Equal Weight or 3-Underweight (see definitions below) relative to other companies covered by the analyst or a team of analysts that are deemed to be in the same industry sector (the "sector coverage universe").

In addition to the stock rating, we provide sector views which rate the outlook for the sector coverage universe as 1-Positive, 2-Neutral or 3-Negative (see definitions below). A rating system using terms such as buy, hold and sell is not the equivalent of our rating system. Investors should carefully read the entire research report including the definitions of all ratings and not infer its contents from ratings alone.

Stock Rating

1-Overweight - The stock is expected to outperform the unweighted expected total return of the sector coverage universe over a 12-month investment horizon.

2-Equal Weight - The stock is expected to perform in line with the unweighted expected total return of the sector coverage universe over a 12-month investment horizon.

3-Underweight - The stock is expected to underperform the unweighted expected total return of the sector coverage universe over a 12-month investment horizon.

RS-Rating Suspended - The rating and target price have been suspended temporarily due to market events that made coverage impracticable or to comply with applicable regulations and/or firm policies in certain circumstances including when Barclays Capital is acting in an advisory capacity in a merger or strategic transaction involving the company.

Sector View

1-Positive - sector coverage universe fundamentals/valuations are improving.

2-Neutral - sector coverage universe fundamentals/valuations are steady, neither improving nor deteriorating.

3-Negative - sector coverage universe fundamentals/valuations are deteriorating.

Below is the list of companies that constitute the "sector coverage universe":

U.S. Clean Technology

A123 Systems Inc. (AONE)	American Superconductor Corp. (AMSC)	Canadian Solar Inc. (CSIQ)
China Sunergy Co., Ltd. (CSUN)	Clean Energy Fuels Corp. (CLNE)	Codexis, Inc. (CDXS)
Comverge Inc. (COMV)	Ener1, Inc. (HEV)	Energy Conversion Devices (ENER)
EnerNOC Inc. (ENOC)	First Solar Inc. (FSLR)	GT Solar International Inc. (SOLR)
Hanwha SolarOne Co., Ltd. (HSOL)	Itron Inc. (ITRI)	JA Solar Holdings Co., Ltd. (JASO)
LDK Solar Company Limited (LDK)	MEMC Electronic Materials (WFR)	Power-One Inc. (PWER)
ReneSola Ltd. (SOL)	SmartHeat Inc. (HEAT)	SunPower Corp. (SPWR)

IMPORTANT DISCLOSURES CONTINUED

Suntech Power Holdings (STP)

Trina Solar Limited (TSL)

Yingli Green Energy Holding Co., Ltd. (YGE)

Distribution of Ratings:

Barclays Capital Inc. Equity Research has 1710 companies under coverage.

43% have been assigned a 1-Overweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Buy rating; 52% of companies with this rating are investment banking clients of the Firm.

42% have been assigned a 2-Equal Weight rating which, for purposes of mandatory regulatory disclosures, is classified as a Hold rating; 44% of companies with this rating are investment banking clients of the Firm.

12% have been assigned a 3-Underweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Sell rating; 34% of companies with this rating are investment banking clients of the Firm.

Guide to the Barclays Capital Price Target:

Each analyst has a single price target on the stocks that they cover. The price target represents that analyst's expectation of where the stock will trade in the next 12 months. Upside/downside scenarios, where provided, represent potential upside/potential downside to each analyst's price target over the same 12-month period.

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IMPORTANT DISCLOSURES CONTINUED

A123 Systems Inc. (AONE)

USD 6.35 (31-Mar-2011)

Stock Rating

1-OVERWEIGHT

Sector View

2-NEUTRAL

Rating and Price Target Chart - USD (as of 31-Mar-2011)

Currency=USD



Date	Closing Price	Rating	Price Target
10-Nov-2010	8.51		12.00
26-Jul-2010	10.70	1-Overweight	14.00
12-May-2010	10.16		12.00
26-Apr-2010	12.98		17.00
25-Feb-2010	16.59	2-Equal Weight	18.00

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Valuation Methodology: Our \$12 price target is based on 2.5x 2012 EV/Sales of \$555 million, discounted by 10%.

Risks which May Impede the Achievement of the Price Target: 1) Lack of near term profitability: With current break-even levels of ~\$100 million, profitability may be unlikely until 2012 in our view.

2) Customer-specific EV ramp timing risk: A123's longer term success is largely dependant upon successful implementation of EV programs, especially at a few key customers

3) Competition from large and experienced players with strong established partnerships: Competition in the battery market is likely to increase from large existing players as well as new entrants.

IMPORTANT DISCLOSURES CONTINUED

Clean Energy Fuels Corp. (CLNE)

USD 16.38 (31-Mar-2011)

Stock Rating

2-EQUAL WEIGHT

Sector View

2-NEUTRAL

Rating and Price Target Chart - USD (as of 31-Mar-2011)

Currency=USD



Date	Closing Price	Rating	Price Target
09-Nov-2010	14.60		15.00
28-Oct-2010	14.33	2-Equal Weight	16.00

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Valuation Methodology: Our \$15 price target is based on 14x 2012 EV/EBITDA of \$70 million and a DCF valuation assuming 30% revenue growth from 2012 through 2020 and EBIT margin of 10% through 2020.

Risks which May Impede the Achievement of the Price Target: i) Balance sheet risk - may require additional capital to fund/build additional fueling stations, ii) Policy risk - demand for NGVs is driven by government subsidies, iii) Demand for NGVs is correlated with spread between price of natural gas and price of oil - low spread can lengthen payback period and decrease demand for vehicles, iv) Volatility of natural gas prices, v) Integration risk between two recently acquired businesses.

IMPORTANT DISCLOSURES CONTINUED

Codexis, Inc. (CDXS)

USD 11.82 (31-Mar-2011)

Stock Rating

2-EQUAL WEIGHT

Sector View

2-NEUTRAL

Rating and Price Target Chart - USD (as of 31-Mar-2011)

Currency=USD



[Link to Barclays Capital Live for interactive charting](#)

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Valuation Methodology: Our price target of \$11 is based on a DCF analysis using the following framework: CAGR of 26% from 2011 through 2020, WACC of 6.4%, and a terminal value of 2%.

Risks which May Impede the Achievement of the Price Target: i) Lack of near-term profitability, possibly until 2013, ii) Shell R&D agreement could end earlier than expected, limiting main source of revenues, iii) Cosan & Shell joint venture may be delayed or cancelled, limiting long-term growth prospects and potential revenue source, iv) biofuels industry may not grow as expected, negatively affecting long-term growth potential.

IMPORTANT DISCLOSURES CONTINUED

Ener1, Inc. (HEV)

USD 2.96 (31-Mar-2011)

Stock Rating

2-EQUAL WEIGHT

Sector View

2-NEUTRAL

Rating and Price Target Chart - USD (as of 31-Mar-2011)

Currency=USD



Date	Closing Price	Rating	Price Target
21-Oct-2010	4.06		5.00
26-Jul-2010	3.35	2-Equal Weight	4.00

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Valuation Methodology: Our \$5 price target is based on 2x EV/2012 sales of \$379M, discounted by 10%.

Risks which May Impede the Achievement of the Price Target: Risks include: (i) slower than anticipated growth of large customers, (ii) competition from large well established battery manufacturers, (iii) weak balance sheet and risk of additional capital raise.

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