

EHEC Draft PEIS Comments – 17 March 2015

Date Rec'd	Format	Name	Organization	Topic	Comment
1/24/2015	Email	Reda Wahb		Technology offering/ non-substantive	<p>Planning for Refresh and advancement of the national economyAn invitation to investment in three field high-Profit Earn Projects. Invite all trade chambers in the world and all economic conference in the world specially in America , Chine , Russia, Japan , Korean , Brazil , India and Arab gulf countries and Union Europe countries – Also I call on the management conference to support the Egyptian economy to view this planning for the advancement of the national economy in Egypt during the five years to establish a high-profit investmentprojects based on the use of local raw materials for display on the support of the Egyptian economy in the March 15, 2015 conference in the Egyptian city of Sharm el-Sheikh .Because the success of any project depends on the availability of good climate and naval ports for import and export, or shipping. And The water is warm and quiet beaches or not by the storms, and these features are available in Egypt as well as it's located in the Center of world or the Center of connection between the five continents. And because any agricultural or industrial projects in Egypt or any other country in the world needs a permanent electricity and water source - and the production of electricity also needs to be a permanent source of waterFirst group investment at projects depended on sea water as raw material Planning for integratedAgriculture – Industrial Area by Installations Agriculture Area 600,000 acres + Industrial Area 60,000 acres Depended on Sea water as Raw Material The projects contain three parts as following ; -First part: instillation infrastructure worksSecond part; Sea water desalination process to use treated water in agriculture work and separation and extraction hydrogen and lithium and other element from sea water salts. Third part; Industrial area contain the following projects. Industrial area with wide 3 km and length 45 km contain 80 solar power generation plant every one with capacity 250 megawatt and total capacity = 20,000 megawatt + manufacture hydrogen buses factories + manufacture hydrogen vehicles factories + manufacture fuel cell electrical generation unite with different capacity + manufacture hydrogen train and metro factories + manufacture lithium-ion batteries + steel structure factories specialized in manufacture steel frame for CSP panel for solar power energy + all factories feeds for solar power energy and hydrogen and buses and vehicles factories + hydrogen and Chlorine cylinders manufacture factories + chemical industries depended on sea water salts ... etc. 2 – Infrastructure roads, paving and cable net for distributed electric power. infrastructure of roads and paving and planting olive trees, high-quality and production on both sides of roads and transmission net pipes and distribution of electricity and light columns and the design of branches treatment plants to agriculture and the overall drinking and design of branches pumping stations from the sea immediately.3 –Infrastructure the distribution irrigation pump stations as well as a net pipes sprinkler - study the details of an area of about 600,000 acres divided in 6 areas every one with area about 100,000 acres and length of 21 km and width of 21 km-divided this area into areas of similar each piece approximately area 3.048 acres with length 4 km and wide 3.2 km - this area is irrigated with sea water desalination plant with capacity 20,000 m³ / day working to desalination the salts of 36 g/l , a salinity approximate water of the Red Sea or the Mediterranean or the Persian Gulf to be used in agriculture capacity of 20,000 m³/day, which is enough for the cultivation of 3,048 acres- For spray irrigation net feed pipe will be design and planning on the basis of the use of sprinkler irrigation and that any kind of modern irrigation and water-saving or water-saving and will be determined not transgressed thelimits of a public in the design or planning The acre needs 20 m³ of water every three days when using the method of agriculture spray Based will divide the irrigation system to the group of pipelines feeding diameter 15 cm mounted and supported 26 sprinkler everyone irrigated 10 m. in all directions and the amount of water that consumed 1.5 m³/h at a pressure of 2.7 bar meaning that the line feeding one line needs pump with capacity 40 m³/hour to an area of about 2 acres and therefore will be the distance between each two sprinkler = 18 m meaning that the length of the pipe feeding 468 m or the equivalent area of 2 acres .- the agriculture area with length 500 meters includes buildings and roads - Based on the above, the pumps feeding net pipes sprinkler irrigation will be the capacity of the disposal of 40 m³ if we consider the efficiency of the pump need capacity = 50 m³/h when lifting pressure = 3 bar - If assuming that the pump operates 14 hours a day to be the number of feed lines of sprinkler = 14 line consumes 560 m³ water and as every 4 irrigation pump feed from a one treated storage tank is consumption of 4 pumps = 2240 m³ per day and we will design the net pipes the basis that one branches treatment plant feed 8 tanks subset and 4 tanks meaning that the reservoir sub-serve the area or 381 acres and needs a day to the amount of treatment water = 2240 m³ per day and feed into the treatment plant per 8 tanks subset of any amount of treated water required per day = 20,000 m³, and as well work 20 h/day the capacity of the treatment plant = 20,000 m³/day to irrigate an area1016 acres/day and 3.048 acres/3 day.Second part; Sea water desalination process to use treated water in agriculture work and separation and extraction hydrogen and lithium and other element from sea water salts . Overview for component of Sea water Desalination Plant with Capacity 740,000 m³/daySea water Desalination Plant with Capacity 740,000 m³/day contains as following1- 8 Raw sea water feed pump station2 - 74 Sterilizer and Crystallizer cylindrical tankEstimation of plant capacityCapacity of one Sterilizer and Crystallizer cylindrical tank with diameter 36 m x 2.5 m high =18 x18 x 3.14 x 2.5 m = 2543 m³ / one cycle six hours .Capacity of one Sterilizer and Crystallizer cylindrical tank per day = 4 cycle x 2543 = 10,175 m³/day.Total capacity for plan contain 74 Sterilizer and Crystallizer cylindrical tank = 740,000 m³/ day Total capacity for plan contain 74 Sterilizer and Crystallizer cylindrical tank = 740,000 m³/ day .Time Operation cycle = 6 hours include sum of 1.5 h for charge cylindrical tank + treated time about 0.5 hours = time of Sedimentation time about 2 .5 hours + Discharge cylindrical tank about 1.5 hours = 6 hoursThe filtrations porousrate =10,175 / 2500 = 4 m³/ day = 165 L/m² / hour .Sterilizer and Crystallizer tanks design We shall use three element for treatment on Sterilizer and Crystallizer tanks as following; –1- Compress air as disinfection and oxidation Associate 2- Mechanical mixing as mechanical force for Crystallization Associate 3 -Ultraviolet light for oxidation and Crystallization associate and Sterilizer.3 - 74 Slow Sand Filter area with filtration media with porousrate 0.165 m³/m²/h Estimation of slow sand filter filtrations necessary surface media neededWe shall choose filtrations battery with surface area = 100 m² and we shall choose slow sand filter contain 24battery with total filtration surfacearea = 24 x 103 m³ = 2490 m² for every one Sterilizerand Crystallizer cylindrical tank with capacity 10,175 m³/day 24 hours or 4 operation cycle every one with time= 6 hours. Every battery filling by 100 m³ = 100 m² x 1 m high over filtration media every cycle this meaning the operation pressure</p>

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					<p>over filtration media = 2 bar .Slow Sand Filter Specification 1. slow sand filter consists of 24 battery filtration area each battery 100 m2 in length 12.5 m and wide 8.5 meters and a total area of 2400 m2 for the amount of water given to candidates of 10,000 m3/day at a porous rate of 165 L/m2/h. 2. filtration media will be manufactured and tested outside as 3 layer every one contain 247 sand brick with form dimension 60 cm x 60 cm with thickness about 25cm for every layer and the installation site in the form of block prefabricated for every layer and not allows the passage of dissolved salts in the water and central component of the filtration media of the gravel diameter granules 2: 3 cm and a height of about 25 cm and a mixture sandgranules diameter about 1: 1.5 mm is installing the pot lid and squeeze its contents with the use of a mechanic vibrator to integrate the center components filtration to give a porous rate of the nomination of 165 liters / m2 / h and tested so as not to allow for the passage of the candidate sea salts diameter up to 3 micron and need each filtration battery need about 750 Block for every layer prefabricated be installed higher basin of collection filtered water and fill the intervals between them with an adhesive suitable for assembly.SPENT FILTER BACKWASH WATERFilter backwashing is an integral part of treatment plant operation. Filters are typically cleaned by flushing them with mixed compress air and water with pressure = 2 : 3 bar in the reverse direction to normal flow. The water flow must have sufficient force to separate particles from the filter media, so a greater than normal flow is used. The resulting water, which carries particles flushed from the filters including microbes (such as Cryptosporidium), raw water particles, and particles from the coagulation process, is called waste or spent filter backwash water. The backwash period generally lasts for 15 minutes at a rate of approximately 100 m3 + 100 m3 air at pressure 3 bar , and produces a significant volume of spent filter backwash that meaning we need washing water pump with capacity 400 m3 /h and head = 30 m also we need screw air compressor with capacity 400m3 at pressure 3 bar to produce 100 m3 air + 100 m3 water through washing time 15 minute . Of all the processes that produce residual streams, filter backwash typically produces the largest volume of water and at the highest rate. - Frequency and QuantityFilter runs generally last between 24 and 72 hours in length, but vary from plant to Plant and we shall choose a porous rate 165 L /m2 /h to achieve passing 1 m3 / 6 h and we take it as measure for spent filtration media and necessary need to BACKWASH if raise of water over filtration media after 6 hours not reduce 50 cm .In this time we well start the steps for backwashing filter media as the following :-1- we close input valve of the filter in second cycle and wait some times about four hour to allow for passing the water over filtration media and closed filtration water output valve .2- we open the backwashing water output valve . 3- we well start up washing water pump and air compressor to produce and charging mixed 100 m3 water and 100 m3 compress air at pressure 3 bar for 15 minutes .4 - after washing filter media we shall start on discharge the water storage under filtration media through discharge pipe connected to washing water storage tank and discharge the air through relive valve erected on discharge pipe .5 – after the complete washing filtration media which need about six hours or time of cycle we repeated the battery to work in a new cycle 4- Eextractedelemental hydrogen and chlorine and liquefies Useremoved from the previous operation or saline sea salts Center in lithium production and is the main ingredient in the fuel cell industry and lithium and batteries that are used to generate electricity using hydrogen fuel, which is now used a substitute for oil in six US states - and is in addition to use in 12 another state by 2017.- And is extracted elemental hydrogen and chlorine and liquefies large quantities of sodium chloride salts solution - for domestic use as fuel for cars and buses and the subway and hydrogen instead of natural gas and diesel fuel.Salts separated will be in the form of high brine concentration represents 10% of the nutrient water station which is about a total of 600,000 m3/ day containing 320 kg / m3 water and a total 192,000 tons of salt per day is the use of modern technology to be separated to produce 1,000 tons of lithium / day 1,000 tons / Day potassium +1000 tons / day sodium hydroxide +10,000 tons / day hydrochloric acid +10,000 tons / day acetic acid 10,000 + tons / day of hydrogen + 70,000 tons chlorine - in the different images dissolved in water or in cylinders Packer + any other salts be extracted economically .5 - Calculation irrigation area can be irrigated by sea water desalination plant with capacity = 732,000 m3/day produce = 661,000 m3/day treated water .Firstly we assumed amount of treated water needed for sprinkler irrigate one acres = 20 m3 / every three days .Total area can be irrigated every day =661,000 m3 / 20 m3 = 33,300 acres /day .Total area can be irrigated every irrigation cycle three day 33,333 x 3 = 100,000 acres Third part - Industrials Area 60,000 acres Two Industrial area every one with wide 3 km and length 45 km contain 40 solar power generation plant every one with capacity 250 megawatt and total capacity = 10,000 megawatt + manufacture hydrogen buses factories + manufacture hydrogen vehicles factories + manufacture fuel cell electrical generation unite with different capacity + manufacture hydrogen train and metro factories + manufacture lithium - ion batteries + steel structure factories specialized in manufacture steel frame panel for solar power energy + all factories feeds for solar power energy and hydrogen and buses and vehicles factories + hydrogen and Chlorine cylinders manufacture factories + chemical industries depended on sea water salts ... etc4 - Instillation 80 solar power plants every one with capacity 250 mw with total power 20,000 mw in every area to operate all projects when field of production at latitude at 30 degree north - and we can use hydrogen fuel cell generator power plant when the site of production at cooled and hot atmospheric Overview for Solar Power Plant with Capacity 250 mw designWe design solar power plant with capacity 250 mw contain two plants every one contain 100 raw every row contain 100 CSP Panels – Egyptian ModulesPanels- every panel contain 42 PV modules . We shall choosmodules Type - Mono-crystalline Silicon Solar modules with Maximum power (Wp) 285wp and Size of module =1650 x 992 x 50 mm (156x156mm cell)Calculation of Capacity of Solar Power Plant 250 mwNotes ; We shall depended on the simulation models for basic calculation of design To explain the operationsystem for solar power plant with active power capacity 250 mw we will divided the day to three period time as following ; -First Stage of produced and storage energy direct from sun as sunlight At Egypt time from clock 6 ; clock 19 as summer or clock 7 ; clock 17 during winter as months December , January and February The PV Panels work with complete efficiency and products = 160.8 mw = 160,800 kw/h = 160,800 x 13 hour = 2,090,400 kwh / day as the following ; - 1-PV panel capacity = 250 W x 42 = 10500 W 2- PV raw capacity =10,500 x 100 =105,000 w 3-PV capacity of plant =105,000 x 100 raw =105,000,000 w = 105 MW4-If we consider the efficiency for invert DC to AC 380 V =</p>

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					<p>80 %5-The active PV electric power generation from plant= 105 MW X 0.8 = 80.4 The active PV electric power generation from plant= 80.4 MWCalculate Electric Generation from CSP Unites To Estimate for CSP Panels Capacity we Consider the solar thermal radiation effect = 800 w/m21- CPS Panels surface area = 7.4 m x 10.25 = 75.85 m22- CPS Panels capacity = 75.85 x 800 w/m2 = 60,680 w3-If consider the reflection efficiency for panels and pv modules = 80 %4-The active thermal effect for panels =60,680 w x 80 % = 48,544 w5-The active thermal effect for raw = 48,544 w x 100 = 4,854,400 w6-The active thermal effect for plant =4,854,400 w x 100 raw =485,44 mw7-If consider the thermal efficiency for Rankin cycle = 40 %8-The active thermal power generation from plant =The active thermal effect for plant x 40% = 485,44 mw x 40% = 194.176 mwThe Active CSP Electric Power Generation from unit 1 =194.176 mwThe Active PV Electric Power Generation from unite 1 = 80.4 MWThe CSP Solar Power plant with Capacity 388 mw Contain 2 unit every one with CSP Capacity 194.176 mw divided 2 unites to work at Sunlight with Total CSP Capacity = 2 x 194.176 = 388 mw The PV Panels work with complete efficiency and products = 160.8 mw = 160,800 kw/h = 160,800 x 13 hour = 2,090,400 kwh / dayCompleteOne CSP thermal effect for plant = 4,854,400 w x 100 raw =485,44 mw will be Storage Energy as sunlight in Concrete Storage thermal Energy to use it at night when the sun go with capacity = 485,44 mw = 48,544,000 kw/h The total amount of thermal energy products from 1 unite with capacity 250 mw every day about eight clock = 8 x 48,544,000 = 3,106,816,000 kwh/day these amount of energy 3,106,816,000 kwh/day will be divided to 4 section every one = to feed three unite of concrete storage unite + one to feed three line from concrete heat exchanger every one = 776,704,000 kwhSecond stage at night when sun go And all power energy generation resource at night from storage energy as following; -We choose four Steam turbine (3+1) low pressure one stage and one case complete with all accessories and controlled system for parabolic trough solar field capable of generating about 110 MW(th) of solar heat at a temperature of 400° C, 100 bar every one 77 MW(e) single casing to work through sunlight with rate 2 worked by direct steam from unite No.1 and the third working by reheat steam coming from re-heaterThe amount of Energy Storage as sunlight in Concrete Storage Energy to use it at night =8 x 48,544,000 = 3,106,816,000kwh/day . The time of storage energy start from time clock 9 to clock 19 hour at season of summer = 10 hours/day when temperature more than 25 degree centigrade and 9 hours at winter season when temperature reduce 20 degree centigrade. The amount of CSP storage energy per day = 8 x48,544,000 = 3,106,816,000 kwh/day. This amount of energy storage at latent heat in concrete storage unites at degree 500C To use this latent heat at night we shall divided it for two period time . 1- from clock time 18 to clock 3 = with time length = 9 hours when the temperature of concrete storage arrive to temperature 450°C. 2- from clock time 3 ; 10 clock at second day with time length = 7 hours when the concrete storage arrive to temperature 350°C We choose steam turbine as following: - 1- Supply and erected four Steam turbine (3+1) low pressure one stage and one case complete with all accessories and control system for parabolic trough solar field capable of generating about 110 MW(th) of solar heat at a temperature of 400° C, 100 bar every one 77 MW(e) single casing to work through sunlight 2- Supply and erected four Steam turbine (3+1) low pressure one stage and one case complete with all accessories and control system for parabolic trough solar field capable of generating about 60 mw to work at night up to 60 MW or equalizer it special to use in solar power plant The turbine one turbine, for generator drive. It has a compact and flexible design with a high degree of standardization. Used for power generation applications. Technical data Power output up to 60 MW Inlet pressure 100 barn Inlet temperature 400°C Rotational speed up to 12,000 rpm Controlled extraction up to 45bar/655psi and up to 400°C Bleed up to 60barn Exhaust pressure (back pressure) up to 16barn Exhaust pressure (condensing) up to 0.3barn Exhaust area 0.28–1.6m2/3.0–17.2sq.ft. To generate energy at night Steam Turbine products = 3 x 60 mw =180 mw We add 70 mw from batteries storage energy Total energy generation at night = 180 mw + 70 mw = 250 mw The =Total PV Panels energy production every day = 2,090,400 kwh / dayNotes If we Consider the efficiency batteries Efficiency = 85 %The actual amount of PV energy = 1,947,400 kw x 0.85 = 1,655,290 kwh =1,655.290 mw to use at night .If we Consider the efficiency Concert Storage Energy Efficiency = 85 %Also the actual amount of CSP power energy generation at night = 8 x 48,544,000 = 3,106,816,000kwh /day x 0.85 = 2,640,793,600 kwh/day Secondly groups investment projects depends on the sewage water as a raw material include.1 - Sewage treatment to products sterilize and separate fecal sludge and then use the treated water in the desert cultivation back to the governments provinces 2 - drying fecal sludge resulting from the treatment process which estimated at about 30 Kg / m³ in special furnaces for the production of high-quality organic fertilizer is sold in the world market at a price of 200 \$ / ton.3 –Separation component of exhaust gases of sludge dryer resulting by using the same technology and process which used in petroleum refinery to production of hydrogen , methanol and ethanol, which is used as a fuel and the production of chemical elements, such as nickel and boron and sulfur compounds such as sulfuric acid and ammonia, and other compounds .- hydrogen fuel can use for the production of electricity through power generators operate by hydrogen fuel cell to produce quantities up to 20,000 kw/h is enough to run the station and neighboring regions . Thirdly groups investment projects to generate solar power energy by using dual production system combines PV modules + CSP system .Registered patented by my name on Egyptian patent office in dated 06.13.2012 and No. 1084/2012 and this system produces electricity at a cost of up to about 0.06 ; 0.07 \$/KW and can produce electricity with this system to provide electricity for industrial zones such as the October 6 or Sadat city or cement factories or iron which high consumption energy .- can also produce solar energy with sharing and cooperation with European companies and investor for installation large solar power plant for the purpose of export energy to Europe countries, which is sold to the consumer where the price of kw/h an average 15; 20 cents Euro .I invited all investment's insolar energy at latitude 30 degree north of the equator which passing through south Morocco , Tunes, Algeria , Libya, Egypt, North Saudi Arab – South Iraq to produced amount of energy enough to Europeans Union Countries and north African countries .Also latitude 30 degree passing through South of USA with passing through South states as Texas state , Louisiana state Mississippi states , Alabama states and Florida states to produced amount of hydrogen enough to middle and north states .Notice1-I am offering for any Conference management Planning for the establishment of an integrated -agro-industrial areas dependent on renewable sources of energy as a source of</p>

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					energy - such as solar power plants in areas at latitude 30north - or generateelectricity with hydrogen in cold and hot regions stations are ready to invest - asshow on the conference management that I function coordination among implementingthis technology companies and the investment companies or investors willing toinvest in these projects- Attend the conference only for offering these projects with a fee paid in advancewhen the sign contract amount of 300,000 \$ and accommodation expenses other thanmoving and travel expenses and visa costs instead of theestablishment and transfer of furnishings- The wage coordination after conference - with companies producing technologiesthat will be contracted and investors will be contracted in exchange for apercentage of the value of construction costs of each individual project are asfollows- I get paid a wage in exchange for planning for the project at a rate of 1% of thetotal cost ofeach project- 1% versus writing technical specifications for eachproject and compile quotations from executingcompanies and discuss these presentations and write a report on quotations andspecifications provided by the executing companies to offer to investors to choosewhat suits him of quotations and technical specifications- 1% compared to overseethe implementation- 1% against the supervisionof the operating tests and training programs for workers operating for ayear of primary receipt.2-I prepared this projects studying by cooperation with U.S. Department of Energy These studies have been prepared by me – Ikeep a copy of the details for implementation if requesting it can contact me atthe following address Cairo– Egypt Engineer/ Reda Mohamed Ahmed Wahb Mobile Phone: 00201223178476 reda_wahb@yahoo.com
1/28/2015	Website	Amanda McBride	Alabama Historical Commission/SHPO	General	The Alabama State Historic Preservation Office has reviewed the EHEC PEIS and concurs with the DOE's findings. We understand that activities will be confined to disturbed plowzone, and that any project activities that will disturb ground beyond this depth or otherwise cause ground disturbance will be submitted for our review per Section 106 on an individual basis.
1/30/2015	Website	[REDACTED]	[REDACTED]	General	I worked for [REDACTED] to develop high performance genetically engineered (GE) trees (freeze tolerant Eucalyptus spp.). Are these technologies going to be part of the PEIS?
2/1/2015	Voicemail	Tim Scheetz	Scheetz , Inc.	Technology offering/ non-substantive	Dr. Burbaum, I am Tim Scheetz and we are in the process of building a rapid harvester mobile pelletizing machine that will be able to turn any biomass crop into energy pellets. We will be exporting the pellets worldwide and we are in the process of building the machine now. If you would like to know more about it call me at (309) 649-5559. We are also building rubber-track tractors for the off-road industry. We will be exporting those to Mexico, South America, etc., and there is more information provided at endeavorbrand.com. Thank you
2/1/2015	Voicemail	Eric Wind	Tyton BioEnergy Systems	General	Hi Dr. Burbaum, My name is Eric Wind on behalf of Tyton BioEnergy Systems. I am calling in regards to the public hearing on February 17 at the Holiday Inn Washington Capitol. I just wanted to check that an RSVP is not required for attending. I will send an email to the comments email address. My phone number is (573) 836-2531. Thank you
2/1/2015	Email	Eric Wind	Tyton BioEnergy Systems	General	Hi Dr. Burbaum, I just wanted to check that an RSVP is not required for attending the public hearing on February 17 at the Holiday Inn Washington Capitol. Thank you so much. We have been extremely excited by the draft PEIS. Best regards, Eric Wind - Tyton BioEnergy Systems Mobile: (573) 836-2531

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2/7/2015	Email	Global Biobusiness	Global Biobusiness	Technology offering/ vendor	<p>Dear Below you'll find the latest articles published at Global Biobusiness. Last publication at Global Biobusiness Biofuel mandates and subsidies around the world As with many new industries, biofuels have also enjoyed a number of government incentives. These have come in various flavors and methods but they all share the common idea of encouraging its production and use and that they should originate from the public and not the private sector. In this paper, Alkol studies a number of government techniques used to encourage the biofuel industry such as mandates, subsidies, tax cuts, import barriers, blending ratios, etc. The paper studies those incentives in countries in America, Europe, Asia, and Africa continents, and it is a must to investors and project managers involved in new biofuels projects. Top biofuels news of the week CIDE tax on gasoline saves Brazilian ethanol producers BP selling 26 sugarcane farms in Brazil Funding from BNDES to ethanol producers to drop on 2015 Brazilian automaker association rejects new ethanol mix UNICA president to leave post Newly-formed bioeconomy alliance calls for EU action The good, the bad, and the ugly: our European inferiority complex Ethanol market quotes Cepea/Esalq market data ?timo% Crystal Sugar US\$ Amorphous Refined Sugar R\$ Packaged Crystal Sugar R\$ Anhydrous Ethanol R\$ Ethanol Hydrated R\$ Ethanol Hydrated Other Purposes R\$ Source: AE Broadcast / FINANSite Source: AE Broadcast / FINANSite This email was sent by Global Biobusiness, a bioenergy portal and consulting company. Your privacy is our main concern. If you do not want to hear ever again from us CLICK HERE and you'll be opted-out, or send email requesting to info@globalbiobusiness.com. No confirmation, bureaucracy, or red-tape: a click and that's it Click here to advertise in this newsletter</p>
2/10/2015	Website	[REDACTED]	[REDACTED]	Technology offering/ vendor/ "Geographic Scope"	<p>Hello We are in USVI developing Giant King grass (see: [REDACTED]) Plant material is [REDACTED] and we have amazing yields in several acres trials for long term (between 20 and 35 oven dry tons / acre.year for BIOMETHANE. Our team is highly reputed and we have all permits and long term interest for development in The Caribbean. Company involved in farm management: [REDACTED] Let us know if we could apply, Eligibility and Terms and Conditions required. Project development will be in US VIRGIN ISLANDS (St. Croix Island). best wishes [REDACTED]</p>
2/17/2015	Public Hearing (oral comment)	Leslie Griffith	Environmental Law Institute	General	<p>Hello. Hi. My name is Leslie Griffith, and I represent the Environmental Law Institute, a nonpartisan research organization based in Washington, D.C. We work to promote a healthy environment, prosperous economies, and vibrant communities founded on the rule of law. ELI's research suggests that the Engineered High Energy Crop program, or EHEC program, may result in the introduction and spread of invasive plants. If DOE funds cultivation of potentially invasive plants and does not require best management practices to reduce the risk of escape, this program may lead to invasions that cause significant environmental and economic harm. We believe that DOE can improve the draft PEIS for the EHEC program in several important respects.</p> <p>First, we seek clarification on the scope of the EHEC program and its relationship to the APHIS BRS permitting system. The Draft PEIS definition suggests that both GE crops and crops engineered through other methods could fall within the EHEC program. DOE does not use the same definition of "genetic engineering" used by the USDA, and it does not clearly explain why or what the differences will mean in practice. And the PEIS does not clearly discuss whether or how DOE will assess risks associated with EHECs that are not regulated by USDA. DOE can improve the PEIS by clarifying the scope of the program and the relationship between the program and USDA regulatory processes. Though the Draft PEIS states that confined field trials will require permits from APHIS, we urge DOE to clarify whether and how this process will extend to non-genetically engineered EHECs or what alternative project specific assessment and risk mitigation measures will be used for projects not subject to USDA permitting. Next, DOE needs to explain how project specific analysis will proceed and who will conduct the analysis. The Draft PEIS refers several times to site specific analysis that would take place later in the EHEC process. However, it is unclear whether this refers to the APHIS BRS permitting process to additional project specific NEPA analysis or to both. Other than discussing the APHIS BRS permit process, DOE does not explain what this analysis would consist of or what agency will be responsible. DOE can strengthen the PEIS by explaining who will conduct the required additional analysis and what the framework for doing so will be. It should also explain whether project specific findings will translate into binding decisions on project approval.</p> <p>Next, project specific evaluation should include a weed risk assessment for every proposed crop and exclude plants identified as high risk. Weed risk assessments are a peer reviewed, cost effective, decision support tool to predict the invasive risk of bioenergy plants. The Draft PEIS refers to the possibility of conducting such assessments during site specific analysis, but it doesn't clearly state that they will always be performed or how DOE will use the results. We urge DOE to require weed risk assessments for every application and to exclude projects for EHECs that indicate a high risk of invasion. Relatedly, DOE should not rely solely on the USDA noxious weed risk to screen out potentially invasive crops. This Federal noxious weed list is not intended to be predictive or comprehensive, and it does not include many known invasive species, including some proposed bioenergy crops. DOE should not fund projects involving listed noxious weeds, but it also should not rely on this list as an indication of the invasion risk associated with plants that are not listed.</p> <p>Next, DOE should consider a default list of best management practices to apply and make funding contingent on their use. The Draft PEIS is not clear about whether BMPs are required or voluntary or about how BMPs will be selected for specific projects. BMPs are a crucial tool in mitigating the risk of escape and enabling more effective</p>

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2/24/15	Webinar, written	Robert Natelson		Impacts	Thank you for the draft PEIS and web event. Are there any guidelines or restrictions so far in proposing intro cropping of an EHEC and a second non-EHEC crop? Work to evaluate crops and soil before and after an EHEC are also of interest.
2/25/2015	Email	Don Ogden	The Enviro Show WXOJ & WMCB	General	<p>In this era of climate disruption we need to move away from burning trees or mono-crops to create energy. Incineration is a technology of the past. We strongly urge you not to proceed with any program of GMO tree propagation for biofuel.</p> <p>Don Ogden, Producer The Enviro Show WXOJ & WMCB 140 Pine St. Florence, MA 01062 <lionoak@gmail.com></p>
2/26/2015	Email	Mary Giacoletti		General	<p>Reconsider the folly of burning biomass. In the hierarchy of pollutants, the worst material to burn is green waste; slightly better is dung; then there is wood; better than wood is coal. And we all know how bad coal is. So why would you turn your attention to something worse; why devote energy to doing something more harmful. Think. Before the planet is completely destroyed.</p> <p>M. Power Giacoletti 9349 Jasper Way San Simeon, CA 93452 (805) 924-1690 mpowergiacoletti@gmail.com</p>
2/26/2015	Webinar, oral	Aviva Glaser	National Wildlife Federation	Various	<p>My name is Aviva Glaser. I am a senior policy specialist with the National Wildlife Federation. I want to thank the Department of Energy for the opportunity to comment on this draft PEIS. NWF has 4,000,000 members per quarter across the country including many in the southeastern U.S., so we are very concerned about invasive species.</p> <p>We do believe that it is important to transition to renewable energy and we appreciate all the work that the DOE has been working and doing to identify and promote new sources of renewable energies, including bioenergy. However, we do think it is important that moving forward with new energy sources it needs to be done in a way that doesn't threaten or harm natural resources and wildlife and doesn't have unintended consequences, and with energy crops we have this fundamental problem as you know in that the characteristics that make a bioenergy crop a good crop are the same characteristics things like clip growing, hardy, tolerant, the same characteristics that describe an invasive species. And, many of those are the characteristics that are likely to be enhanced through engineering, which can significantly increase the risk of invasion.</p>

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					<p>Also, genetic modification can raise risks of breeding with wild type species, resulting in essentially invasive hybrids. I do want to acknowledge and thank the DOE for recognizing in the draft PEIS that engineered high energy crops may prevent an invasive species risk; however, we do have some concerns about the analysis. We are going to be submitting more details and in-depth comments in writing, but I did want to briefly raise a few issues as we have this opportunity to do so today.</p> <p>First, we are concerned about the draft PEIS conclusion that impacts from potential escape of engineered high energy crops into the environment would be minor. Invasive species are known to pose significant threats and costs to regional ecosystems as well as local economies, and we think this conclusion should be revisited and at the very least we would certainly appreciate any additional explanation for that finding.</p> <p>Second, we believe that Department of Energy should require a weed risk assessment for every proposed species, and should exclude crops that are identified as high risk through the weed risk assessment. Weed risk assessments, including the weed risk assessment that was created by USDA recently, are proven tools that can be used to identify those plants with a high risk causing environmental or economic issues, but the draft PEIS currently does not require the use of these tools when considering engineered high energy crops. So we urge DOE to require weed risk assessments across the board and to condition project approval on an acceptable weed risk assessment outcome.</p> <p>The last point I just wanted to briefly touch on is that we certainly appreciate the discussion of best management practices to reduce the risk of invasion, and indeed best management practices can be an important tool reduce invasion risk. However, it's not clear in the draft PEIS whether the best management practices would be voluntary or mandatory, how they are chosen for each project and type, so we recommend that DOE create a default list of best management practices that can then be tailored almost as a checklist to each project species and each specific site, and then importantly we recommend that the funding for projects be contingent upon the use of best management practices.</p> <p>So to kind of wrap up and conclude our points, we urge you to revisit the conclusion that invasion risk from escape of engineered high energy crops into the environment would be minor, and we think that funding for engineered high energy crops should be contingent upon the use of best management practices and have a low risk outcome using best management practices that are tailored to each site and project.</p> <p>That's all I have today so thank you very much for your time. I really appreciate all the opportunities that we have had so far and will continue to have to weigh in as this program moves forward and we certainly look forward to continuing to engage with you on it.</p>
2/26/2015	Webinar, written	Rachel Smolker		General	<p>Here is my question in full. I am concerned about how these genetically engineered energy plants will be contained during testing so there are no escapes. Will USDA be overseeing DOE's trials in the same way it does in other GE field trials? If so, how will field trials of the growing list of genetically engineered energy crops USDA has decided not to regulate be managed? For example, will DOE step in and regulate field trials of GE plants that USDA is refusing to regulate, many of which are engineered specifically as energy crops, such as series high biomass sorghum or Arpogens high wood density loblolly pine. How will these be treated by DOE?</p>
3/2/2015	Email	Todd Newland		General	<p>I am against the planting of any DNA altered plants and trees. There are other plants available that grow like weeds, and are weeds that would substitute for industrial use. Hemp and bamboo should be used for these purposes.It's time to stop playing God.Thank you,Todd Newland<togo4aride@att.net></p>
3/2/2015	Email	Nancy Strong		General	<p>Please,do not release he trees into our environment!!</p> <p><strongnancy77@yahoo.com></p>

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3/11/2015	Email	Joyce Stanley	DOI	Various	<p>ER 15/0046 9043.1 March 11, 2015</p> <p>Jonathan Burbaum, Program Director Advanced Research Projects Agency-Energy (ARPA-E) U.S. Department of Energy ATTN: EHEC PEIS 1000 Independence Avenue, S.W., Mailstop-950-8043 Washington, DC 20585</p> <p>Re: Comments and Recommendations on the Draft Programmatic Environmental Impact Statement (DPEIS) for Engineered High Energy Crop Programs for the Southeastern United States</p> <p>Dear: Mr. Burbaum:</p> <p>The U.S. Department of the Interior (Department) has reviewed the DPEIS for Engineered High Energy Crop Programs for the Southeastern United States. The High Energy Crop Program is for the development and demonstration of engineered high energy crops (EHECs). These EHECs are agriculturally-viable photosynthetic species containing genetic material produced through biotechnology, interspecific hybridization, or other engineering processes. A main component of the proposed EHEC Programs is Federal funding for confined field trials to evaluate the performance of EHECs that will facilitate the commercial development and deployment of biofuels. Confined field trials may range in size and could include several scales: development scale (up to 5 acres), pilot scale (up to 250 acres), or demonstration scale (up to 15,000 acres). We offer the following comments.</p> <p>General Comments The DPEIS scope covers the entire Southeastern United States; however, throughout the DPEIS there are statements that the EHEC will have no effects to threatened or endangered species or critical habitat. This conclusion is presumptive as no specific project sites have been identified. We recommend DOE include a discussion about how it will implement a tiered approach to include additional Endangered Species Act (ESA) consultations on a site-specific basis.</p> <p>We strongly recommend that any species on the International Union for the Conservation of Nature (IUCN) list of invasive species not be used for biofuels in the Southeastern US. We acknowledge that the proposed EHEC Program list of excluded crops includes those plants that the United States Department of Agriculture (USDA) has determined to be either a noxious weed or an invasive species, or has the potential to be invasive or noxious as determined by the Secretary of Agriculture in consultation with other Federal or state agencies. We also agree with the statement "It is the bio-geographical context of a given plant that is important in determining whether it may be invasive in a particular location." However, the examples of potential EHECs given in the document (i.e., Elephant Grass, Camelina, Jatropha, and Reed Canarygrass) are known invasive species in the southeast that are already requiring millions of dollars to control. In 2010, IUCN found that it is "Likely that the cost of an invasion by a biofuel feedstock or associated pest would, in the long run, outweigh any economic benefit offered by biofuel development." The IUCN list of invasive species provides a more comprehensive list of known invasive species.</p> <p>The Department recognizes the EHEC proposed program would be limited to those areas that have been previously disturbed and are in existing agricultural space. However, the Department is concerned that depending on the success of the program it has the potential to result in the conversion of native forests and grasslands to EHECs. Therefore, we recommend a discussion of Department of Energy's commitment that if the program moves from demonstration scale to production scale all incentives and program eligibility would be limited to previously converted agricultural spaces.</p> <p>Farm infrastructure and EHEC production should also emphasize reduction of water consumed; avoid and minimize the use of herbicides and pesticides whenever possible; and avoid the discharge of herbicide, pesticides, and nutrients into waters of the United States.</p>

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					<p>The Department is concerned that the same biological properties that make EHECs desirable for use as fuels may also make them preferred by wildlife as a food source. We recommend that you designate US Department of Agriculture Wildlife Services as lead agency tasked with the prevention of EHECs becoming ecological traps for fish and wildlife. Once EHEC grant recipients are identified, they should be encouraged to work with our Partners for Fish and Wildlife Program biologists to facilitate participation in candidate conservation and Habitat Conservation Plans for the conservation and recovery of threatened and endangered species, as appropriate.</p> <p>The Department recommends that EHEC grant recipients should be encouraged to co-locate projects with other renewable energy projects whenever practical as co-locating sites can reduce the effects of these projects on fish and wildlife habitat.</p> <p>We recommend expanding the effects analysis to include indirect and cumulative effects. The effects analysis in the DPEIS is limited to crop production and harvesting in the field trails. Effects associated with post-harvest activities, such as transportation effects and the emissions from burning of EHEC to produce energy, are not considered. The indirect or cumulative effects may vary depending on the scale of the project (5-acres versus 15,000-acres), on the surrounding habitats, water quality, water availability, migratory birds, and air quality.</p> <p>The DPEIS does not evaluate multiple alternatives to the project. There is a Proposed Action (Section 2) and the No Action alternative. The Proposed Action does describe three different scales of field trials representing a very wide range of potential acreage effects. However, the DPEIS does not “rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.”</p> <p>Specific Comments:</p> <ul style="list-style-type: none"> • Page S-ix & 2-12, Tables S-2 and 2.5-1. “Summary of Potential Environmental Impacts by Alternative.” In the Biological Resource category for each of these tables (which are duplicative), the DPEIS indicates that there will be no effects to threatened or endangered species or critical habitat. This conclusion is presumptive, as no project sites have been identified. Potential sites may be adjacent to streams with protected aquatic species, American wood stork rookeries, red-cockaded woodpecker habitat, or other mobile species. The project area may be adjacent to sensitive habitats, which may be affected by EHEC burning. We recommend that both of these tables be revised to state that effects to federally protected species or habitat must be determined during specific project development. • Page 2-7. We agree that fencing and gating of study sights should be sufficient to reasonably preclude exploitation of crop sites by wildlife. However, we recommend Best Management Practices (BMPs), to reduce sedimentation and/or water source contamination by herbicide, pesticides, and nutrients, also be included. • Page 2-12. "No impacts are anticipated to threatened and endangered species, critical habitat, or migratory birds through avoidance" is contradicted by potential indirect effects described afterwards in each section. Environmental review is not a BMP. Coordination with appropriate federal agencies tasked with administering wildlife laws and regulations should be explicitly stated. • Page 3-8. Authority or policy guidance for designating lands as ineligible for EHEC program should be cited in figure caption. • Page 4-19. Biological Resources Impact Summary table doesn't seem to take into consideration potential effects described throughout the previous pages of the chapter and could be contradicted by the description of potential effects on Page 4-20. • Page 4-21. The effects determination is appropriate at this scope of analysis, so long as tiered NEPA and ESA reviews will still be performed on a site-specific basis. This should be stated and reiterated throughout this section. • Page 4-21. States "If protected species were to enter the site, their presence would be fleeting as the habitat is either not suitable or does not contain constituent elements required by the species." This is untrue in the case of night jays and other birds, as well as bats which may be attracted to croplands during foraging or transit. Species use habitats for reasons other than sheltering. • Page 4-22. "Croplands may be used more frequently by reptiles and amphibians because the habitat structure provides more micro sites (i.e., sunning and shading spots)." If reptiles and amphibians are threatened or endangered the statement on page 4-21 may be contradicted by the statement here. • Page 4-23. "The use of pesticides on the proposed EHECs has not been studied and would need to be in order to determine potential benefits or impacts on wildlife... there is the potential for major adverse impacts if increased amounts or applications were applied depending on the EHEC species and location." This could be the most problematic point in the EIS, given it states there will be a no effect on threatened or endangered species at the programmatic level but major adverse effects are possible if it is implemented. Therefore, the Department recommends DOE include a discussion about how it will implement a tiered approach to include additional consultations under the ESA on a site-specific basis here and throughout the document.

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					<p>If you have questions or concerns, I can be reached at (404) 331-4524 or via email at joyce_stanley@ios.doi.gov.</p> <p>Sincerely,</p> <p style="padding-left: 40px;">Joyce Stanley, MPA Regional Environmental Assistant</p> <p>cc: Christine Willis – FWS Gary Lecain - USGS Anita Barnett – NPS Robin Ferguson – OSMRE Chester McGhee – BIA OEPC – WASH</p>
3/16/2015	Email	Marolyn Robbins-Guarr		General	<p>To Whom It May Concern:</p> <p>For the many reasons set out in protest literature, I ask that you do not continue the project to test the growth of GMO trees in the USA, particularly in the Southeastern USA. We already have more than enough free-floating and free-flowing poisons and fertilizers in our eco-systems. Instead, concentrate upon harnessing the energy of the sun for our fuel needs.</p> <p>Sincerely, Marolyn Robbins-Guarr 72472 <marolynrg@gmail.com></p>
3/17/2015	Email	Greg Mixon	South Carolina Department of Natural Resources	General	<p>Comments from the South Carolina Department of Natural Resources are attached. Please contact me if you have questions or need more information.</p> <p>Greg Mixon Office of Environmental Programs South Carolina Department of Natural Resources 1000 Assembly Street, PO Box 167 Columbia, SC 29202 Office 803-734-3282 Fax 803-734-9809 Cell 803-600-7543 www.dnr.sc.gov</p> <hr/> <p>South Carolina Department of Natural Resources 1000 Assembly Street Suite 336 PO Box 167 Columbia, SC 29202 803.734.3282 Office 803.734.9809 Fax mixong@dnr.sc.gov</p> <p>March 17, 2015</p> <p>Dr. Jonathan Burbaum, Program Director Advanced Research Projects Agency-Energy (ARPA-E) U.S. Department of Energy ATIN: EHEC PEIS 1000 Independence Avenue, SW, Mailstop-950-8043 Washington, DC 20585</p> <p>REFERENCE: Engineered High Energy Crop Programs Draft Programmatic Environmental Impact Statement</p>

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					<p>Alvin A. Taylor, Director Robert D. Perry, Director, Office of Environmental Programs</p> <p>Dear Dr. Burbaum:</p> <p>Personnel with the South Carolina Department of Natural Resources (SCDNR) have reviewed the Draft Programmatic Environmental Impact Statement (PEIS) and offer the following comments.</p> <p>The U.S. Department of Energy (DOE) Advanced Research Projects Agency-Energy (ARPA-E) prepared this Draft Programmatic Environmental Impact Statement (PEIS) to evaluate the potential environmental impacts of the Proposed Action to develop and implement one or more programs to catalyze the research, development, and demonstration of engineered high energy crops (EHECs) in the Southeastern United States. EHECs are agriculturally-viable photosynthetic species containing genetic material that have been intentionally introduced through biotechnology, interspecific hybridization, or other engineering processes (excluding processes that occur in nature without human intervention), and specifically engineered to increase energy production independent of increasing the amount of biomass by producing fuel molecules that can be introduced easily into existing energy infrastructure. EHECs are stated to present a promising renewable energy source that, by virtue of biological carbon capture, has a reduced carbon life-cycle, decreasing the production of greenhouse gases and allowing for domestic production of renewable fuels. A main component of the proposed EHEC Programs would be DOE or other Federal or state agencies providing financial assistance for confined field trials to evaluate the performance of EHECs that will facilitate the commercial development and deployment of biofuels. Confined field trials may range in size and could include a development scale of up to 5 acres (Alternative 1), a pilot scale of up to 250 acres (Alternative 2), or a demonstration scale of up to 15,000 acres (Alternative 3). A No-Action Alternative will also be considered. Under each alternative, up to 10% of the existing cropland (including pastureland and forested areas) could be converted to EHEC confined trials each year in each county. The total amount of cropland that could be converted into EHECs (perennial herbaceous, annual herbaceous and woody crops) in any given county is limited to 25%.</p> <p>SCDNR is concerned that the proposed project will negatively impact wildlife and wildlife habitat. The Draft PEIS states that negligible to minor adverse impacts to wildlife and non-native species are anticipated (p. S-ix). However, the DEA also admits that there is little scientific literature concerning the effects of EHEC plantings on wildlife and wildlife habitat (p. 4-20). SCDNR submits that the proposed project could have more than minor adverse impacts due to the stated potential conversion of up to 25% of the existing cropland, pastureland and forested areas in a county, some of which is also high quality wildlife habitat, to a non-native monoculture. This loss of habitat will be particularly acute for early successional species if this conversion targets existing cropland, expiring CRP acreage, or fallow cropland as proposed. The conversion of fallow croplands and timberlands will also represent a net loss of wildlife habitat. SCDNR has concerns regarding the potential for many of the proposed EHEC species to be invasive. The Draft PEIS states that negligible to no impacts are anticipated from the introduction or establishment of invasive species with the proper best management practices (BMPs) in place (p. S-ix).</p> <p>SCDNR submits that the proposed project could have more than negligible impacts due to the stated potential conversion of up to 25% of the existing cropland, pastureland and forested areas in a county to nonnative, potentially invasive species. In addition, some of the proposed BMPs present a concern, particularly the potential for wildlife toxicity issues associated with the proposed use of multiple pesticides with different modes of action. SCDNR also has concerns regarding the increased potential for wildfires associated with the proposed actions. The Draft PEIS states that major or long-term mitigable to minor adverse impacts could occur under this alternative due to the increased size of the field trials, which would increase the potential for wildfires. Given the increased size of the field trials BMPs would be recommended as mitigation. SCDNR submits that the proposed project could significantly increase the potential for wildfires in some areas whether or not BMPs are implemented.</p> <p>Based on the information provided, SCDNR recommends the selection of the No Action Alternative in South Carolina at this time. If a Proposed Action Alternative is selected, SCONR recommends that project impacts are minimized through the implementation of Alternative 1 in South Carolina.</p> <p>We appreciate the opportunity to review this Draft Programmatic Environmental Impact Statement (PEIS) and provide these comments. Please contact me at (803)734-3282 or mixong@dnr.sc.gov if you have any questions or if more information is needed.</p> <p>Sincerely, Greg Mixon Inland Environmental Coordinator</p>
3/17/2015	Email	Carol Bearss		General	<p>Save our trees.</p> <p>Sent from my iPhone <clbearss@hotmail.com></p>

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3/17/2015	Email	Aviva Glaser	National Wildlife Federation	General	<p>Please accept the attached comments from 6 groups representing millions of members in the southeastern United States. Please let me know if you have any questions or concerns.</p> <p>Regards, Aviva Glaser</p> <p>-----</p> <p>Aviva Glaser Senior Policy Specialist National Wildlife Federation 202-797-6616 GlaserA@nwf.org</p> <p>We've moved! Note our new address: 1990 K St NW, Suite 430 Washington, DC 20006 March 17, 2015 Dr. Jonathan Burbaum, Program Director Advanced Research Projects Agency-Energy (ARPA-E) U.S. Department of Energy ATTN: EHEC PEIS 1000 Independence Avenue, SW, Mailstop-950-8043 Washington, DC 20585 Re: DOE/EIS-0481 Draft Programmatic Environmental Impact Statement on Engineered High Energy Crops</p> <p>Dear Mr. Burbaum:</p> <p>The undersigned groups, representing well over half a million sportsmen and conservationists in the southeastern United States, appreciate this opportunity to provide comments to the Department of Energy (DOE) on the Draft Programmatic Environmental Impact Statement (Draft PEIS) on Engineered High Energy Crops (EHECs).</p> <p>We understand the importance of transitioning to homegrown sources of renewable energy, and we support the DOE's efforts to identify and promote new sources of renewable energy. However, we believe that it is critical that we move forward with these renewable energy sources in a way that does not unintentionally threaten or harm our natural resources and native wildlife. This includes ensuring that energy crops, including DOE's proposed EHECs, do not become invasive. We appreciate DOE's recognition in the Draft PEIS that EHECs may indeed present an invasive species risk. However, it is our belief that the Draft PEIS does not recognize the full magnitude of the potential harm associated with the cultivation of potentially invasive plants as energy crops nor does it provide adequate measures to manage these risks. We therefore urge DOE to amend the Draft PEIS to address the following issues:</p> <p>1. Magnitude of invasion risk The Draft PEIS concludes that the potential invasive species impacts associated with the proposed EHEC program are minor. However, the proposed EHEC program as described in the draft PEIS appears to have a significant potential to promote the introduction and spread of invasive species, which could lead to substantial costs to the environment and economy. Studies have shown that energy crops consistently present a higher risk of invasion than other plants, and if planted without adequate screening procedures and best management practices (BMPs), may escape from cultivation and become established in the environment.¹</p> <p>Importantly, as we have seen time and time again, the environmental and economic impacts of escapes that occur can be serious and costly. Non-native plants are spreading across roughly 700,000 hectares of U.S. wildlife habitat annually, and several billion dollars are spent each year in the United States to control these plants.² Competition with or predation from non-native species is a primary risk factor for nearly half of threatened or endangered species under the Endangered Species Act.³ One study has estimated that the harm from and costs of control for invasive species totals \$120 billion annually.⁴ Florida alone spends more than \$50 million a year just to</p>

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					<p>eradicate exotic weeds from fields, pastures, canals, ponds, lakes, rivers and greens.⁵ Just one species, kudzu, which was intentionally introduced, infests an estimated seven million acres in the Southeastern US and costs approximately \$500 million dollars in lost farm and timber production annually.⁶ DOE's Draft PEIS does not accurately reflect the substantial unintended consequences that invasive plants could have on the ecosystem and the economy of Southeastern states; we therefore urge DOE to reconsider the potential environmental impacts from invasive species introduction associated with the EHEC program.</p> <p>2. Weed Risk Assessments Weed Risk Assessments (WRAs), including the one created by USDA, can help to identify plants with a high risk of causing environmental or economic harm. WRAs are a well-established and accurate tool for evaluating the invasiveness risk of plants and predicting which plants pose a high risk of harm. Unfortunately, the PEIS does not clearly require the use of WRAs when considering the invasive potential of EHECs. The undersigned groups urge DOE to incorporate WRAs as a primary screening tool prior to approval of EHECs. Prior to the distribution of funding, not only should WRAs be used to evaluate EHECs, but high risk feedstocks should be excluded from receiving funding from the agency. We believe that this could significantly reduce the risk of major invasive species impacts associated with the EHEC program.</p> <p>Additionally, it is worth noting that existing regulatory lists of invasive species and noxious weeds are not a substitute for WRAs. The fact that a plant is not on a noxious weed list does not mean that it is not invasive or does not have the potential to be invasive. USDA has listed only a few known invasive species as noxious weeds, in part because the noxious weed program is not intended to be a comprehensive listing but rather to identify weeds affecting agriculture. As a result, weeds are often listed only after they are widespread, and plants affecting natural areas (but not agriculture) are rarely listed, even if they cause substantial environmental or economic harm. As a result, while DOE should certainly consult noxious weed lists when reviewing EHECs, it should not conclude that a plant is not invasive if it is not listed. However, any feedstock that is listed as state or federal noxious weed clearly should be excluded from eligibility for EHEC funding. We urge DOE to require WRAs across the board and to condition project approval on an acceptable WRA outcome, provided that the feedstock is not listed as a noxious weed on state or federal lists and that it does not receive a high risk WRA score.</p> <p>3. Best Management Practices We appreciate DOE's discussion of the use of Best Management Practices (BMPs) to combat invasive species risk. Unfortunately, however, the Draft PEIS is not clear about whether BMPs are required or voluntary, or about how BMPs will be selected or required for specific projects.</p> <p>To minimize the risk that EHECs spread beyond confined field trials, DOE should clearly establish a set of BMPs whose consideration and use, where appropriate, will be required as a condition of federal support. In addition to prevention and monitoring, BMPs must also extend to containment, eradication, and financial assurance in the case of escape, and we encourage DOE to incorporate these elements into a baseline, or default, list of BMPs. By establishing a default list of BMPs that project applicants and regulators must consult and determine whether to apply in a given project, DOE can ensure adequate consideration and mitigation of risks. We urge DOE to require each project to use appropriate BMPs as a condition of each funded project.</p> <p>Conclusion: Under Executive Order 13,112 (1999), DOE may "not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species" unless the benefits clearly outweigh the potential harm and all feasible risk minimization measures are taken. We have seen many examples in the Southeastern US of invasive species, introduced with the best of purposes, escaping and causing major economic and ecological impacts. It is critical that we avoid making these mistakes again. We therefore thank DOE for acknowledging that EHECs may pose an invasion risk. However, we strongly urge the agency to revisit the conclusion in the Draft PEIS that any impacts from escape of EHECs into the environment would be minor, and we seek additional explanation for this finding; escaped EHECs that prove invasive could cause significant harm and costs to the economy and environment of our states. We also believe that the DOE should require a Weed Risk Assessment for every proposed species, exclude those crops identified as high-risk, and require BMPs for all approved crops.</p> <p>We look forward to continued engagement with DOE on these issues. If you have any questions regarding these comments, please do not hesitate to contact us.</p> <p>Sincerely,</p> <p>Manley Fuller Florida Wildlife Federation</p>

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					<p>Todd Holbrook Georgia Wildlife Federation Brad Young Mississippi Wildlife Federation Tim Gestwicki North Carolina Wildlife Federation Ben Gregg South Carolina Wildlife Federation Aviva Glaser National Wildlife Federation</p> <p>¹ Buddenhagen, C.E. et al. 2009. Assessing Biofuel Crop Invasiveness: A Case Study. PLoS ONE 4: e5261. ² Pimentel, D. et al. 2005. Update on the environmental and economic costs associated with alien-invasive species in the United States. Ecological Economics 52: 273-288. ³ Ibid. ⁴ Ibid. ⁵ National Park Service and Florida Fish and Wildlife Commission. 2013. Florida Invaders. http://www.nps.gov/ever/learn/nature/upload/2013-Invaders-Reprint-for-Web.pdf ⁶ Florida Forest Service http://www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/OurForests/Forest-Health/Invasive-Non-native-Plants</p>
3/17/2015	Email	Sara Sullivan	Global Justice Ecology Project	General	<p>To: US Department of Energy Re: Engineered High Energy Crop Programs Programmatic Environmental Impact Statement (EHEC PEIS) Prepared by Dr. Rachel Smolker (Biofuelwatch) and Anne Petermann (Global Justice Ecology Project) with signatures from 1022 supporters</p> <p>[See attached PDF for signatures]</p> <p>The program that DOE seeks to establish, which would provide support for field trials of engineered high energy crops/trees, is a wasteful diversion of taxpayer dollars, money that should be spent instead on protection of soil water and other resources in the region which are already depleted and spiraling downward with expanding development and the current and anticipated impacts of climate change, including droughts, potential severe wildfires, floods and runoff etc.</p> <p>DOE and cooperating agencies have conveniently ignored the already substantial literature indicating that very unrealistically large areas of land, water and nutrients are required to produce sufficient supplies of biomass to contribute even a very small fraction to the overall energy mix [1].</p> <p>This has been openly acknowledged by, for example, the IPCC [2] as well as many peer reviewed articles on direct and indirect land use impacts of large scale bioenergy (a sample provided below in footnote).</p> <p>Engineered crops may at best slightly increase yields, but not by enough to alter the fundamental fact that biofuels entail very large environmental and other costs for a very small return. This is clear even at current scales of biofuel production which have resulted in serious environmental consequences as well as impacting on food production (which occurs no matter what crop is grown as all crops require soil, nutrients and water). Competing land uses ultimately, either directly or indirectly, impact food production, unwise at a time when expanding population is dependent upon dwindling soil and water resources. There is little potential to expand agricultural frontiers except at cost to biodiverse ecosystems that are already alarmingly diminished.</p> <p>Given all of the above, why invest in risky field testing of GMOs when it is already clear that the future potential for biofuels contribution is very small and the environmental consequences are very large?</p> <p>Furthermore, why undertake the risks of field testing genetically engineered EHECs when:</p>

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					<p>a) contamination simply cannot be prevented even with proposed “best management” practices.</p> <p>b) there is no clear indication how contamination is “to be avoided”, nor how monitoring and reporting will be undertaken, nor what will be done if contamination is discovered.</p> <p>c) Public opinion is very strongly opposed to commercial release of GMO trees, hence field trials hold no future promise and shouldn’t be undertaken in the first place.</p> <p>d) Public opinion towards non tree GMO crops is also largely negative (witness GMO labeling law processes across the country).</p> <p>e) The characteristics being “engineered” for EHECs very closely overlap the characteristics that lead to invasiveness: hardiness, fast growth, resistance to stressors etc.</p> <p>Why establish a program whose ultimate goal is to develop viable engineered biofuel crops that would need to be grown in massive scale in the southeastern USA, a region that is already experiencing serious impacts from climate change, anticipated to worsen. Those include droughts, water shortages, biodiversity losses and wildfires, all of which will only be exacerbated by EHEC crops/trees.</p> <p>Fertilizers used to grow EHECs will further contribute to degradation of waterways in the region, and also result in potentially very large quantities of nitrous oxide (potent greenhouse gas) emissions. (Those alone can render biofuels more damaging to climate than their fossil fuel counterparts.)</p> <p>Increased use of pesticides, herbicides and other chemicals will result in worsening toxic exposure and health impacts to humans and animals in the region should the testing results from this program lead ultimately, as is anticipated, to widescale planting of EHECs.</p> <p>DOE “public consultation” on this proposed program is woefully inadequate and not representative. Public opinion with regards to biofuels has dramatically soured with growing awareness of the consequences and costs.</p> <p>[1] Literature examples: Giampietro, Mario, Sergio Ulgiati and David Pimentel (1997), Feasibility of Large-Scale Biofuel Production, BioScience, Vol. 47, No. 9 (October), pp. 587-600</p> <p>Unintended Environmental Consequences of a Global Biofuels Program, Jerry M. Melillo et al, MIT Joint Program on the Science and Policy of Global Change, Report No. 168, January 2009, www.calepa.ca.gov/cepc/2010/AsltonBird/AppAEx13.pdf</p> <p>PJ Crutzen et al, 2007. N2O release from agro-biofuel production negates global warming reduction by replacing fossil fuels. Atmos. Chem. Phys. Discuss, 7, 11191</p> <p>[2] IPCC Fifth Assessment Working Group III (Mitigation) report, 2014: “The production of bioenergy crops to mitigate climate change leads to land conversion (e.g., from food crops and unmanaged ecosystems to energy crops; [high confidence]) and in some scenarios, reduced food security as well as additional greenhouse gas emissions over the course of decades or centuries” (Ch 19).</p> <p>Patzek 2010. A Probabilistic Analysis of the Switchgrass Ethanol Cycle, Sustainability 2010, 2, 2734-2769; doi:10.3390/su2092734</p> <p>Implications of Limiting CO2 Concentrations for Land Use and Energy, Marshall Wise et al, Science 324, 1183, May 2009.</p> <p>World Resources Institute 2015: Avoiding bioenergy competition for food crops and land.</p> <p>Sara Sullivan Assistant Director Global Justice Ecology Project 266 Elmwood Ave, Suite 307 Buffalo, NY 14222 USA +1.716.931.5833 www.globaljusticeecology.org</p>

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3/17/2015	Email	Martha Crouch	Center for Food Safety	General	<p>To: Jonathan Burbaum, Program Director ARPA-E (Mailstop-950-8043) ATTN: EHEC PEIS U.S. Department of Energy 1000 Independence Avenue SW Washington, DC 20585 comments@engineeredhighenergycropsPEIS.com (202) 287-5453</p> <p>Dear Jonathan Burbaum,</p> <p>Please accept these Comments to Department of Energy on “Engineered High Energy Crop Programs Draft Programmatic Environmental Impact Statement (DOE/EIS-0481)” from the Center for Food Safety.</p> <p>We appreciate the opportunity to participate in the process.</p> <p>I will be sending pdf files of the documents cited in the comments in sequential emails for your docket.</p> <p>Sincerely,</p> <p>Martha L. Crouch, for Center for Food Safety</p> <hr/> <p>Jonathan Burbaum, Program Director ARPA-E (Mailstop-950-8043) ATTN: EHEC PEIS U.S. Department of Energy 1000 Independence Avenue SW Washington, DC 20585 comments@engineeredhighenergycropsPEIS.com (202) 287-5453</p> <p>17 March 2015</p> <p>Comments to Department of Energy on “Engineered High Energy Crop Programs Draft Programmatic Environmental Impact Statement (DOE/EIS-0481)”</p> <p>From: Center for Food Safety</p> <p>By: Martha L. Crouch, Ph.D.</p> <p>The Center for Food Safety (CFS) appreciates the opportunity to comment on the Department of Energy (DOE) Advanced Research Projects Agency-Energy (ARPA-E) draft Programmatic Environmental Impact Statement (DPEIS) for implementing programs to support the field testing in southeastern US states of genetically engineered (GE) plants grown for the purpose of biofuel production, called Engineered High Energy Crops (EHECs) by DOE.</p> <p>The Center for Food Safety (CFS) is a nonprofit public interest organization that works to protect public health and the environment by curbing the proliferation of harmful agricultural production technologies and by promoting sustainable agriculture. In furtherance of this mission, CFS uses legal actions, groundbreaking scientific and policy reports, books and other educational materials, and grassroots campaigns on behalf of its more than 650,000 farmer and consumer members across the country. CFS is a recognized national leader on the issue of genetically engineered (GE) organisms, and has worked on improving their regulation and addressing their impacts continuously since the organization’s inception in 1997. Of particular relevance for these comments, we have considerable scientific and legal expertise in environmental, social and economic impacts of GE crop field trials, including trees, grasses and oilseeds of the types proposed and assessed in this DPEIS.</p>

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					<p>Overview</p> <p>Biofuels have been heavily promoted and subsidized by various federal agencies in the US as a sustainable alternative to fossil fuels that will have lower impacts on global climate change, and that will reduce US reliance on foreign energy sources. So far, biofuels have been produced in the US mainly as ethanol from corn and biodiesel from soybeans. Biomass from wood chips is also increasingly being burned here and in importing countries for energy. Biofuels produced from cellulose are still in development with very limited commercial production. In spite of the various mandates and subsidies to push along biofuels, they have not lived up to their promise of sustainability, and one after another, citizen organizations have stepped away from biofuels as a solution to energy problems. Many are calling for an end to government support for biofuels based on new scientific, social and economic analyses that show harm at a number of levels (Searchinger and Heimlich 2015).</p> <p>CFS has investigated the impacts of biofuels from various plant sources (CFS GE Tree Report 2013, CFS RFS Comments 2014) and agrees with the latest studies showing that they are generally not a good solution to energy problems (e.g. Searchinger and Heimlich 2015 and references therein). Biofuel crops compete with food crops for land decreasing food security, encourage conversion of natural areas to crops at the expense of the environment, and generally do not reduce greenhouse gas emissions. These negative impacts result from non-crop biofuel sources such as trees and grasses, as well as from food crop sources such as corn and soybeans.</p> <p>Increasing the yield per acre of biofuel feedstocks is unlikely to reduce these negative impacts (Lindenmayer et al. 2012, Vandermeer and Perfecto 2007). In particular, the use crops for biomass energy production and for biofuels used domestically, and increasingly exported, is likely to create a market where demand for these crops will drive up prices such that more land of all types is converted to growing these crops (e.g. German et al. 2011).</p> <p>For example, increasing productivity of corn combined with biofuels mandates is partly responsible for conversion of Conservation Reserve Program lands and fencerows to corn, with negative impacts on birds and other species (Brooke et al. 2009). Demand is leading to corn following corn more often, with pest and disease increases. At the global level, oil palms grown for biofuels are displacing native forests, with devastating effects on biodiversity, hydrology, and other social and environmental factors (Obidzinski et al. 2012). The global market has created a situation where the high productivity of oil palms makes it more likely that natural areas will be destroyed, rather than less likely. In the US, when fast-growing pine varieties were adopted in the Southeast, natural vegetation types were converted to these plantations on a massive scale, greatly impacting the environment (Conner et al. 2012).</p> <p>DOE is one of the federal agencies that promotes biofuel development, partly through research funded by the ARPA-E PETRO program that aims to increase energy yield per acre of biofuels via genetic engineering:</p> <p>The 10 projects that comprise ARPA-E's PETRO program, short for "Plants Engineered to Replace Oil," aim to develop non-food crops that directly produce transportation fuel. These crops can help supply the transportation sector with plant-derived fuels that are cost-competitive with petroleum and do not affect U.S. food supply. PETRO aims to redirect the processes for energy and carbon dioxide (CO2) capture in plants toward fuel production. This would create dedicated energy crops that serve as a domestic alternative to petroleum-based fuels and deliver more energy per acre with less processing prior to the pump. (http://arpa-e.energy.gov/?q=arpa-e-programs/petro) The funded projects are mainly based on genetically engineering various plants to have novel characteristics designed to make them better biofuel candidates:</p> <p>The PETRO program seeks to genetically engineer a whole new class of crops that produce fuels which can be extracted directly from the plants themselves. Current biofuels production is limited by both the inefficient capture of solar energy by plants and the inefficient processes they use to convert CO2 from the atmosphere into fuels we can use. PETRO projects are experimenting with various plants including pine trees, tobacco, sugarcane, and sorghum to create molecules already found in petroleum-based fuels that can be dropped directly into the tanks of existing vehicles. PETRO biofuels would provide a stable, economically viable alternative to petroleum that limits the environmental impact of the transportation sector. (http://arpa-e.energy.gov/?q=arpa-e-programs/petro)</p> <p>It is in this context that DOE proposes programs to facilitate field trials of plants engineered for biofuel production, the subject of this draft Programmatic Environmental Impact Statement, calling these plants Engineered High Energy Crops, or EHECs. Without this kind of federal support, DOE is concerned that the entire project of so-called advanced biofuels will fail:</p>

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					<p>In the absence of DOE or other Federal agency funding and support for EHEC Programs, scientific understanding and innovation in the responsible growth of EHECs and, ultimately, commercial deployment of EHECs would develop more slowly or not at all. Accordingly, DOE needs to take action to catalyze the development and deployment of EHECs. (p. 10)</p> <p>Page numbers for the DPEIS correspond to the pagination of the pdf file.</p> <p>Based on our extensive knowledge of impacts of GE crops and failed promises of biofuels, CFS does not support DOE's overall project to promote EHECs by facilitating field trials. As elaborated in these comments, the environmental, social and economic risks from such field trials have not been adequately assessed in DOE's DPEIS. The scope of the project is poorly defined and too large, the ability of DOE to ensure that EHECs are confined in the field trials is not demonstrated, harms from lack of containment are not well considered, alternatives are narrow in scope, and risks to endangered species and migratory birds are minimized.</p> <p>CFS therefore supports the "no action" alternative, and encourages DOE to phase out its support of EHECs in favor of truly sustainable energy solutions.</p> <p>Detailed comments Scope of the project is poorly defined and unmanageably large, negative impacts are likely</p> <p>DOE proposes to develop and implement programs that "catalyze the deployment of EHECs" and thus promote commercial biofuel success in the US, mainly through funding of allegedly confined field trials throughout the southeastern US in order to evaluate their performance (p. 11). DOE defines EHECs broadly to include plants that are "engineered" through traditional breeding or via genetic engineering in order to "design" or "redesign" crops with increased per-acre fuel production:</p> <p>EHECs [engineered high energy crops] are agriculturally-viable photosynthetic species containing genetic material that have [sic] been intentionally introduced through biotechnology, interspecific hybridization, or other engineering processes (excluding processes that occur in nature without human intervention), and specifically engineered to increase energy production independent of increasing the amount of biomass by producing fuel molecules that can be introduced easily into existing energy infrastructure. (p. 5)</p> <p>Biofuel engineering seeks to breed or genetically modify plants to produce fuels or fuel-like precursors that can be blended into existing fuels or extracted directly from the plants as a ready-to-use resource. Biofuel engineering utilizes novel processes or alternative pathways to optimize the plants for energy capture and conversion, thus allowing more energy (fuels or fuel precursors) to be stored, absorbed, converted, and extracted. (p. 32)</p> <p>CFS finds DOE's definition of EHECs that includes both traditional plant breeding (including inter-specific hybridization) and GE to be unusual and unacceptable. We have not seen traditional plant breeding defined as engineering in other contexts, including federal agencies or international regulatory bodies, nor do we consider plant breeding to be engineering of any type. Breeding does not involve engineers designing and producing anything to particular specifications. The breeder is basically just an educated matchmaker, choosing the varieties or species of plants to cross based on their preexisting characteristics. Then the breeder observes the offspring from the arranged crosses for desired characteristics arising from recombination of parental genes --- no engineering blueprints or designs are involved with traditional breeding.</p> <p>Also, specific federal regulations govern research, testing and commercialization of GE crops, requiring that DOE clearly differentiate GE vs. non-GE HECs in the DPEIS to analyze procedures and impacts. However, after lumping GE and non-GE HECs together in its definitions at the beginning, it is unclear in the rest of the DPEIS whether or how DOE will include non-GE HECs from in its field-trial testing programs.</p> <p>In listing potential crops to be planted in the EHEC testing program, DOE categorizes EHEPs as being perennial herbaceous, annual herbaceous, or woody crops (Table S-1, p. 8) with no hint as to whether the particular "engineered" plants are GE or traditionally bred. DOE gives examples of crops being developed "under ARPA-E's PETRO Program, such as engineered varieties of camelina, loblolly pine, tobacco, giant cane, energy beet, sugarcane, miscanthus, sorghum, and switchgrass" (p. 47), as well as other candidates:</p>

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					<p>There are three broad classes of energy crops—perennial herbaceous, annual herbaceous, and woody crops. Perennial herbaceous plants are plants that re-grow from their root-stock; these plants grow and bloom over the spring and summer, die in the autumn/winter, and return in the spring (from their root-stock). Annual herbaceous plants die at the end of their growing season and must be replanted each year. Woody crops are plants, such as trees or shrubs, that produces wood as its structural tissue; short-rotation woody crops are fast-growing species, such as Populus and Eucalyptus, that can be harvested year-round and continue growing year after year. Table S-1 identifies some examples of energy crops that have the potential to be EHECs (recognizing there are other possible species); this list does not represent the entire range of possible EHECs.</p> <p style="text-align: center;">Table S-1: Examples of Plants with the Potential to Be EHECs</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th data-bbox="1153 506 1411 553">Perennial Herbaceous</th> <th data-bbox="1411 506 1650 553">Annual Herbaceous</th> <th data-bbox="1650 506 1849 553">Woody Crops</th> </tr> </thead> <tbody> <tr> <td data-bbox="1153 553 1411 584">Agave</td> <td data-bbox="1411 553 1650 584">Camelina</td> <td data-bbox="1650 553 1849 584">Eucalyptus</td> </tr> <tr> <td data-bbox="1153 584 1411 615">Giant Cane</td> <td data-bbox="1411 584 1650 615">Energy Beet</td> <td data-bbox="1650 584 1849 615">Pine</td> </tr> <tr> <td data-bbox="1153 615 1411 646">Basin Wildrye</td> <td data-bbox="1411 615 1650 646">Maize</td> <td data-bbox="1650 615 1849 646">Poplar</td> </tr> <tr> <td data-bbox="1153 646 1411 677">Bull Rush</td> <td data-bbox="1411 646 1650 677">Sorghum</td> <td data-bbox="1650 646 1849 677">Spruce</td> </tr> <tr> <td data-bbox="1153 677 1411 708">Energy Cane</td> <td data-bbox="1411 677 1650 708">Tobacco</td> <td data-bbox="1650 677 1849 708">Willow</td> </tr> <tr> <td data-bbox="1153 708 1411 738">Guayule</td> <td></td> <td></td> </tr> <tr> <td data-bbox="1153 738 1411 769">Jatropha</td> <td></td> <td></td> </tr> <tr> <td data-bbox="1153 769 1411 800">Miscane</td> <td></td> <td></td> </tr> <tr> <td data-bbox="1153 800 1411 831">Miscanthus</td> <td></td> <td></td> </tr> <tr> <td data-bbox="1153 831 1411 862">Napiergrass</td> <td></td> <td></td> </tr> <tr> <td data-bbox="1153 862 1411 893">Reed Canarygrass</td> <td></td> <td></td> </tr> <tr> <td data-bbox="1153 893 1411 924">Sainfoin</td> <td></td> <td></td> </tr> <tr> <td data-bbox="1153 924 1411 954">Salicornia</td> <td></td> <td></td> </tr> <tr> <td data-bbox="1153 954 1411 985">Sugarcane</td> <td></td> <td></td> </tr> <tr> <td data-bbox="1153 985 1411 1016">Switchgrass</td> <td></td> <td></td> </tr> </tbody> </table> <p>From DOE's definitions of EHECs and Table S-1, then, it seems that DOE considers biofuel crops that are developed both with and without genetic engineering to be within the scope of this program, and thus presumably eligible for financial support to conduct confined field tests and evaluate their performance.</p> <p>However, it is not clear whether or how DOE programs plan to carry out confined field tests for EHECs that are bred but not genetically engineered, because details of testing non-GE EHECs are not discussed further. The rest of the DPEIS focuses on details of testing GE EHECs. DOE needs to clarify whether it does indeed plan to include traditionally bred plants in this program: does this DPEIS assess impacts of genetically engineered high energy crops (GE HECs) alone, or high energy crops (HECs) more generally, including those that have been bred using traditional methods? If it includes HECs more generally, how will non-GE HECs be tested? Will they be grown under similar confinement protocols as GE HECs, and if so, what agencies will be responsible for oversight? For example, will field trials of non-GE HECs be regulated by APHIS as noxious weeds in some way, and if so, what are the parameters?</p>	Perennial Herbaceous	Annual Herbaceous	Woody Crops	Agave	Camelina	Eucalyptus	Giant Cane	Energy Beet	Pine	Basin Wildrye	Maize	Poplar	Bull Rush	Sorghum	Spruce	Energy Cane	Tobacco	Willow	Guayule			Jatropha			Miscane			Miscanthus			Napiergrass			Reed Canarygrass			Sainfoin			Salicornia			Sugarcane			Switchgrass		
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					<p>For GE HECs, DOE is going to rely on the USDA to oversee and regulate confined field---tests via permits and notifications in order to keep the experimental plants from spreading into the environment via pollen, seeds, or vegetative propagules, to mitigate potentially significant negative impacts. For example, to mitigate invasiveness:</p> <p>Given the size of the pilot---scale (up to 250 acres) and the deployment---scale (up to 15,000 acres), the potential for invasiveness is a concern to be mitigated. Field trials would need to, at a minimum, follow USDA APHIS permit requirements. (p. 18)</p> <p>However, DOE does not evaluate how effectively USDA's procedures will prevent "escape" of GE HECs from the kinds of field tests DOE programs will support, and therefore DOE is unable to realistically determine impacts of such field trials. DOE must assess strengths and weaknesses of USDA's field test program as it applies to DOE's plans for GE HECs. And what specifically does DOE mean by "at a minimum" trials will follow USDA permit requirements? Does DOE plan to impose more stringent requirements, and if so, what might be inadequate about USDA's permit requirements?</p> <p>Environmental risks of inadequate containment of GE EHECs are serious. Genetically engineered plants that escape from cultivation can fundamentally alter ecosystems by competing with wild species, and the novel genes and proteins in these GE plants can have potentially harmful impacts on other organisms. Also, some GE plants can hybridize with their wild relatives, altering the genetic and biochemical composition of plant populations in ways that affect how they function in the environment, or can disrupt trade (CFS Contaminating Wild Report 2006, CFS GE Trees 2013).</p> <p>Escape of transgenes from GE crops to wild plants and ecosystems has occurred before. Some are mentioned very briefly on p. 50, but not analyzed for what they mean for EHECs. Several of these escapes occurred from USDA---regulated field trials. For example, Monsanto's experimental Roundup Ready bentgrass field tested in 2002 continues to spread and cross with wild grasses miles from original test sites in central and eastern Oregon (Reichman et al. 2006, Snow 2012, Zapiola and Mallory---Smith 2012). In the mid--- 2000s, the transgene in Roundup Ready alfalfa moved from regulated test plots into feral alfalfa populations in several western states (Bagavathiannan and VanAcker 2009, Jenkins 2007).</p> <p>Additionally, GE crops have repeatedly contaminated conventional field crops. Star---Link corn, which was not approved for human consumption due to its potential to cause allergies, was found in taco shells in 2001 (EPA Starlink 2008). Bayer's unapproved Liberty Link rice was found growing in five southern US states and was detected in rice exports, with contamination likely coming from field trials (PNAP 2009). Most recently, Monsanto's GE wheat was found growing in Oregon even though field trials of the wheat had been suspended for several years, and the wheat was never approved for commercial use (Gillam and Ingwersen 2013). Each case resulted in severe economic harm to farmers and producers. These examples highlight the need to seriously address the potential escape of transgenes from EHECs from field tests.</p> <p>In general, USDA field trial standards for confinement are inadequate to consistently prevent escape and gene flow (CFS Contaminating Wild 2006). The isolation distances recommended by USDA are based on seed purity standards for conventional breeding which were intended to reduce, not entirely prevent, gene flow. Experiments testing these requirements have often shown them to be inadequate. And, even when gene flow frequencies or seed escapes are low, if the engineered gene provides a fitness advantage, the frequency of the trait in unintended environments can greatly increase over time (CFS Contaminating Wild 2006). It is also important to understand that because there has been no active monitoring program of possible gene flow or escapes from field trails, the examples of escapes listed above could underestimate the actual frequency.</p> <p>Loblolly pine is a likely EHEC that will be planted in DOE's EHEC program, and is a good example of the difficulty of keeping gene flow from occurring, and potential harm to ecosystems of escapes. GE loblolly pine trees have pollen (Williams 2010) and seeds (Williams et al. 2006) that travel for miles and it is virtually certain that GE trees will escape as seeds from field tests or plantations into natural forests, or will pollinate wild trees, and thus spread the novel engineered genes into forests or non---GE plantations where they could have negative impacts (Farnum et al. 2007). Many birds and other animals make their homes in forests dominated by loblolly pine, including endangered species (Wood et al. 2014), and changes in characteristics of pines could have negative impacts that need to be assessed. According to the US Forest Service, for example, "[l]oblolly pine seeds are an important food source for birds and small mammals. More than 20 songbirds feed on loblolly pine seeds, and the seeds make up more than half the diet of the red crossbill. Deer and rabbit browse seedlings. Loblolly pine stands provide cover and habitat for white--- tailed deer, northern bobwhite, wild turkey, and grey and fox squirrels. Old---growth loblolly pine provides nesting habitat for the endangered red---cockaded woodpecker." (http://www.fs.fed.us/database/feis/plants/tree/pintae/all.html)</p>

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					<p>Now, USDA has decided not to regulate some GE crops at all, and many of the unregulated GE crops are specifically designed for biofuel production (Gurian---Sherman 2015). DOE needs to determine whether and how it will handle testing of these crops that USDA will not regulate, but are nonetheless GE with the same risks as those GE HECs USDA will regulate. Examples include ArborGen's GE loblolly pine with increased wood density (CFS Pine PR 2015), Ceres' GE sorghum with greater biomass and more fermentable sugars, and several Ceres' GE switchgrass lines designed for energy production (http://www.aphis.usda.gov/wps/portal/?1dmy&uril=wcm%3Apath%3A/aphis_content_library/sa_our_focus/sa_biotechnology/sa_regulations/ct_reg_loi).</p> <p>Although these GE biofuels crops are on the "not regulated as a plant pest risk" list, some (sorghum, for example) may be regulated by USDA using its noxious weed authority, but details have not been forthcoming (BRS Sorghum Letter 2014). In fact, USDA has decided to open a process of reworking how it regulates all GE crops, including field---trials (USDA Rule Withdrawal 2015), and CFS urges DOE to hold off on writing a final PDEIS until the USDA process is finished, because DOE relies so heavily on USDA regulation for confining the field trials that are key to this program and needs to know the direction of USDA in order to make good risk assessments.</p> <p>In any case, the capacity of USDA to regulate the field trials proposed by DOE is likely to be overwhelmed by the spatial scope of the program, as described below. DOE uses another maverick definition in the DPEIS: eligible "cropland" that can be planted in EHECs. This category includes existing cropland that is managed for food and fiber crops, but also "pastureland" and "forested areas." Although these land uses are not in the Glossary (p. 279), from context it seems that pasture includes any land used to at least occasionally graze livestock, from highly managed monoculture grasses or legumes to unmanaged mixed vegetation; and forested areas range from intensively managed single--- species plantations to lightly managed, naturally regenerating, biodiverse woodlands.</p> <p>Obviously the environmental consequences of converting permanent, vegetatively diverse pasture or natural forests to purpose---grown energy crops are likely to be greater than converting more managed areas, yet in the DPEIS DOE often claims that impacts will be mild, seeming to forget that not all of the eligible land is highly or even moderately managed to begin with (see, for example, discussion of endangered species, below).</p> <p>For example, when DOE looks at impacts to wildlife from field tests of EHECs (alternative 1, each field 5 acres or less, up to 25% of county area), it concludes the following: Although the exact impacts cannot be predicted without further research, minor adverse impacts are anticipated since only existing croplands, pasturelands, and forested lands would be used under Alternative 1 [or the other alternative]. Any local impacts to wildlife populations at EHEC field trial sites would be dependent on the wildlife species, crop species and its genetic modification, and the location of the field trial. Native wildlife habitat loss should not occur under Alternative 1 because lands currently in agricultural production would be used for the proposed EHEC field trials. (p. 190)</p> <p>This conclusion ignores the fact that native wildlife habitat can be found within land in current agricultural production (cranes feeding in corn fields, bats eating insects over alfalfa fields, monarch butterflies breeding on milkweeds in soybean fields, and so on), but more importantly, lightly managed pastureland and especially forested lands that include natural forests are likely to be the main habitats for much of the native wildlife throughout the southeast. The act of converting these lands to EHEC field trials is likely to severely disrupt habitat for native wildlife. Emphatically, risks must be assessed taking into account the full range of eligible land use types.</p> <p>The geographic scope is large, encompassing a sizable part of nine states: The geographic scope for this PEIS is limited to existing croplands, pasturelands, and forested areas in the states of Alabama, Florida (excluding the Everglades/Southern Florida coastal plain ecoregion), Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia. (p. 7)</p> <p>Impacts of the amount of land that could be converted to EHECs in these nine states are underestimated in the DPEIS. DOE drastically underestimates the amount of land area that could be converted to EHEC field tests under its program, and thus all other impacts, by calculating potential acres in EHECs based on 10% of eligible land (Table 4.2---2, p. 173) rather than the allowed 25%, and then claiming that this is a "relatively small amount of vegetation being converted":</p> <p>This Draft PEIS analysis reviews the potential land use impact for the proposed EHEC Programs regardless of the crop type (perennial herbaceous, annual herbaceous or woody crop). As described in Chapter 2, only existing cropland, pastureland, or forested land could be used for the confined field trials. New non--- agricultural lands would not be allowed to enroll in an EHEC Program. As detailed in Section 2.3.1, the number of acres enrolled in the EHEC project areas for crop production shall be limited to no more than 25% of the cropland in a given county. Specific acreage in a given county could be reviewed in future species--- and site--- specific environmental compliance review.</p>

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					<p>...</p> <p>As described in Chapter 2, only 10% of the existing cropland (including pastureland and forested areas) could be converted to EHEC confined field trials each year in each county. The total amount of cropland that can be converted into EHECs (perennial herbaceous, annual herbaceous, and woody crop) in any given county is limited to 25%. This equates to a relatively small amount of vegetation being converted from traditional crops, pastureland, or forested lands to EHECs. (p. 172)</p> <p>Examples of the total amount of land that could be converted to EHECs per year in each state are given in Table 4.2---2 using Alternative 1 as an example, although all action alternatives have the same limits. Note that for Alternative 1, well over a million individual field test plots would be allowed in the southeast if 10% of the eligible land were converted to EHECs (total Alternative 1 acres divided by 5 acre plots).</p>

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Table 4.2–2 indicates the land use by state in the project area for the No Action Alternative. Table 4.2–3 summarizes the changes caused by implementing Alternative 1 (assuming that 10% of the existing cropland was converted to EHEC confined field trial cropland in any county) from the No Action Alternative. Land use changes range between 459,555 acres (91,911 five-acre plots - South Carolina) to

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1,329,766 (265,953 five-acre plots - Kentucky) of cropland, pastureland, or forested land converted to EHECs from that of the No Action Alternative.

Table 4.2-2: Farmland Use (in acres) in the Project Area for Potential EHECs under the No Action Alternative

State	2007							
	Total Farmland (acres)	Cropland (acres)	Woody Crops (acres)	Pastureland (acres)	House lots (acres)	Farmland in Conservation (acres)	No Action	Alternative 1 (acres)
Alabama	9,033,537	3,142,958	3,375,438	2,017,079	498,062	494,441	0	853,547
Florida	9,231,570	2,953,340	2,330,336	3,221,202	726,692	224,867	0	850,488
Georgia	10,150,539	4,478,168	3,712,672	1,341,985	617,714	331,166	0	953,282
Kentucky	13,993,121	7,278,098	3,107,137	2,912,424	695,462	375,049	0	1,329,766
Mississippi	11,456,241	5,530,825	3,610,991	1,639,243	675,182	1,107,406	0	1,078,106
North Carolina	8,474,671	4,895,204	2,201,609	941,609	436,249	163,676	0	803,842
South Carolina	4,889,339	2,151,219	1,827,191	617,136	293,793	264,950	0	459,555
Tennessee	10,969,789	6,047,348	2,042,868	2,545,047	334,535	289,200	0	1,063,527
Virginia	8,103,925	3,274,137	2,319,491	2,150,933	359,364	70,112	0	774,456

Source: (U.S. Department of Agriculture – Economic Research Service, 2014)

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					<p>Actually, the amount of land that could be converted to EHECs is large and significant relative to current vegetation types. Using Alabama as an example (NASS Alabama 2014), if 10% of eligible land were to be planted in EHECs, the number of acres would surpass the combined acres in soybeans and cotton (853,547 acres in EHECs vs. ~823,000 acres in soybeans and cotton). If the allowed 25% of cropland acres were in EHECs (2,133,868 acres), that would almost equal Alabama's acreage in the 6 crops with most acres planted in the state: hay, soybeans, cotton, corn, peanuts and wheat combined (~2,303,000 acres).</p> <p>Another way to think about the impacts of using 25% of the eligible land in each county to grow confined trials of EHECs is to look at a specific example of a particular county.</p> <p>Randomly choosing a rural county in Tennessee – Madison County – there are 557 square miles or 356,480 acres of total land (http://www.city---data.com/county/Madison_County---TN.html). From statistics of harvested crops, about 25% of the total land is devoted to row crops and orchards. Pastures and forestland are not included in these statistics, but conservatively, if another 25% of the total land in the county is in those uses, then half of the acres in the county is in the category that is eligible for conversion to EHEC field trials, or about 178,000 acres. If the 25% allowed in DOE's program were converted, that would be 44,560 acres, approximately equal to the acreage in cotton and wheat in that county. It is realistic to assume that many rural counties will have similar proportions of land use.</p> <p>In other words, DOE is proposing to allow confined field trials of EHECs to be planted on the amount of land currently used for some of the major crops combined in these southeastern states. This is possible because DOE is including pastureland and forests in their definition of "cropland", and for many of these states, pastures and forests combined comprise the same or double the acres counted in traditional cropland (Table 4.2---2, p 173).</p> <p>Needless to say, this amount of land in confined field trials would be unwieldy for USDA to regulate under their notification and permit system. DOE does not assess the capacity of USDA to oversee these trials that are equivalent to the current acreage in major commercial crops in these areas.</p> <p>This amount of land in EHECs would also dwarf the amount of land currently in regulated field trials in any of these states. For example, APHIS---regulated field trials active in 2014 in Alabama totaled roughly 20,000 acres², compared to the 2 million---plus acres of regulated tests DOE will allow in this program for Alabama alone.</p> <p>Yet another way of grasping the enormity of the proposed confined testing program is to estimate the amount of land that DOE expects will be planted in EHECs in the southeast, assuming they are commercialized someday. What percent of existing cropland as defined by DOE will need to be planted in EHECs then? As much as in the major food and fiber crops such as cotton, soybeans, and corn today, and thus similar to the testing program? If so, DOE is actually proposing a testing program at the commercial scale, which is clearly beyond what is needed to determine feasibility and introduces unacceptable risks. The</p> <p>² Estimates of total area of USDA regulated field trials can be calculated by searching the Virginia Institute of Technology's Information Systems for Biotechnology database for "Permits and Notifications" limited by location: http://www.isb.vt.edu/search-release-data.aspx. Not all entries include acreage, but most do. For this estimate, trials with no acreage information were assigned 1,000 acres, likely an overestimate.</p> <p>National Research Council (2004) noted that it is practically unfeasible to prevent contamination or gene flow from commercial---scale production of GE plants.</p> <p>The fact that DOE proposes such unrealistic total acreage limits for its EHEC field trials that are way outside of precedent for regulated trials does not inspire confidence in the ability of DOE to manage the program with appropriate risk assessment and mitigation.</p> <p>Note that all of the alternatives except for the "No Action" alternative have identical allowable land use totals.</p> <p>DOE's proposed Alternatives are narrow in scope. The action alternatives proposed by DOE differ only in the maximum size of individual fields that are allowed to be planted in EHECs:</p>

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					<p>O Alternative 1 (deployment scale) allows field tests to be up to 5 acres in size. This is a typical field trial size for other GE plants, in our experience of studying field trial data. Although a large number of such trials are allowed up to 25% of eligible acres in a county, the particular configuration other than “non-contiguous” of multiple trials is not described – how close to each other, what kind of barriers if any between trials, and so on.</p> <p>O Alternative 2 (pilot scale) allows field tests to be up to 250 acres in size, a relatively large field size for individual tests of GE crops, but not uncommon as crops are close to being commercialized. Why 250 acres was chosen, and not a smaller or larger size, is not elaborated, nor are various configurations of non-contiguous multiple trials discussed.</p> <p>O Alternative 3 (development scale) allows field tests of up to 15,000 acres in size, presumably in one parcel if desired. A field size of 15,000 acres as proposed in Alternative 3 is larger than all but the very largest individual commercial fields of any crop, as far as we know. If such a field were square, it would be 23.5 miles on a side. The idea that a field of this size could be managed as a confined field trial – scouted for volunteers, pollen or seeds contained and monitored, incursions of animals or people noted, and other APHIS requirements met – is ludicrous. And for a particular county, one or two field trials of this size would take up the entire land area allowed. This size field is “estimated to be the acreage of EHECs needed to produce biomass for a hypothetical, small-scale, commercial ethanol plant,” although presumably the same biomass could be produced in a number of much smaller fields in any of the action alternatives presented (p. 12)</p> <p>A broader range of alternatives that differ by other parameters need to be presented and assessed in the DPEIS, such as alternatives that exclude forestland, or forestland and pastureland from the eligible cropland definition, or alternatives that differ in the total amount of land allowed in EHECs per county. Other alternatives could limit field--testing to native species, or to varieties engineered to be sterile.</p> <p>Endangered Species Act (ESA) concerns are not adequately addressed DOE provides an inadequate assessment of risks to species protected under the ESA in the DPEIS, making unwarranted assumptions about whether or not such species will be present in field trial sites, or would be disrupted by land use changes that accompany converting eligible land to these trials:</p> <p>Threatened and Endangered Species and Critical Habitat. Potential impacts on threatened and endangered species and critical habitat—assuming they are present in the project area—could range from low to high depending on the extent of the disturbance or impact. For this Draft PEIS, at the programmatic level, no effect to threatened and endangered species or critical habitat are anticipated since only existing croplands, pasturelands, or forested lands could be used for EHEC field trials; these existing agricultural and forested lands are not likely to contain protected species. If protected species were to enter the site, their presence would be fleeting as the habitat is either not suitable or does not contain constituent elements required by the species. (p. 191)</p> <p>As discussed above, “existing croplands, pasturelands, or forested lands” encompass a wide range of management practices and a significant amount of the total land in the southeastern states. Impacts to all types of wildlife are possible, including protected species. Also, traditionally defined cropland itself does provide habitat for some listed species at various stages in their lifecycles, including listed birds, mammals and insects. Examples include, but are not limited to, Louisiana black bears, Indiana bats, and American burying beetles.</p> <p>In fact, CFS in collaboration with the Center for Biological Diversity, and joined by the Xerces Society for Invertebrate Conservation and a prominent monarch biologist Lincoln Brower, recently petitioned FWS to protect monarch butterflies as a threatened species under the ESA (CFS Monarch ESA Petition 2014). FWS is undertaking a status review now. For monarchs, the most important summer breeding habitat has been corn and soybean fields in the Midwestern state where, until recently, their larval host plant – common milkweed – coexisted at low but biologically significant levels along side or within crop fields, typically at levels that did not cause economic harm. A change in farming practices related to adoption of genetically engineered crops starting in the late 1990s caused almost complete eradication of milkweed from over a hundred million acres of corn and soybean fields, contributing to a 90% decline of monarchs in less than 20 years.</p> <p>The changed farming practice that caused such a large loss of habitat is use of the herbicide glyphosate on genetically engineered glyphosate---resistant corn and soybeans. Glyphosate applied as milkweed plants are growing is particularly lethal to them, as CFS documents in a recent report (CFS Monarch Report 2015, CFS Monarch Report Summary 2015). This example illustrates the importance of assessing impacts of GE crops to wildlife in all kinds of land use areas, including cropland.</p>

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					<p>DOE did attempt to identify the listed species that occur in the southeastern states, but did not include listed aquatic organisms such as fish:</p> <p>Table D---1 lists protected species identified for the states in the project area and attempts to identify possible species distribution based on the state and corresponding Level II ecoregions. Note that listed aquatic species, such as clams, corals, fishes, and sea turtles, are not included because these species would not be found in---land at agricultural areas within the project area. (p. 312)</p> <p>DOE does discuss connections between aquatic ecosystems and land---based ecosystems, and how agricultural practices impact aquatic species due to siltation, fertilizer and pesticide runoff, and other perturbations (e.g. Section 3.3, p. 73). However, that tight link between cropland and aquatic systems seems to be forgotten here, and only serves to emphasize that DOE is not an expert agency regarding endangered species. Research in the Midwest demonstrated that corn crop debris could in fact become an important source of plant material in headwater streams (Rosi---Marshall et al. 2007), and this presumably applies to other crops as well, with impacts that must be assessed.</p> <p>Therefore, DOE must consult the appropriate expert agencies regarding impacts on listed species of this action. That would be the US Fish and Wildlife Service (FWS) or the National Marine Fisheries Service (NMFS), depending on the species (p. 286).</p> <p>Migratory Bird Act concerns are not adequately addressed DOE is also not an expert agency regarding migratory birds, nor is APHIS on whom they rely to determine there would be no impact of this action:</p> <p>APHIS has determined that it is reasonable to assume that the activities at field test sites, such as planting, collecting samples, and eventual harvesting, would not impact migratory bird populations since they are not expected to nest or permanently inhabit the confined field test sites. (U.S. Department of Agriculture--- Animal and Plant Health Inspection Service, 2010). (p. 191)</p> <p>Again, DOE must consider the impacts from land use changes from testing EHECs involving the full range of eligible acres, including natural forests and pasturelands, not just already intensively managed, traditionally defined cropland. The large land area allowed in DOE's plan also must be taken into account. And traditionally defined cropland is in fact known to provide significant habitat to migratory birds at various stages in their life cycles.</p> <p>Summary CFS has shown that the environmental, social and economic risks from DOE's program to facilitate EHEC field trials have not been adequately assessed in DOE's DPEIS. The scope of the project is poorly defined and too large, the ability of DOE to ensure that EHECs are confined in the field trials is not demonstrated, harms from lack of containment are not well considered, alternatives are narrow in scope, and risks to endangered species and migratory birds are minimized.</p> <p>CFS therefore supports the "no action" alternative, and encourages DOE to phase out its support of EHECs in favor of truly sustainable energy solutions.</p> <p>References</p> <p>Bagavathiannan MV, Van Acker RC (2009) The Biology and Ecology of Feral Alfalfa (<i>Medicago sativa</i> L.) and Its Implications for Novel Trait Confinement in North America. <i>Critical Reviews in Plant Sciences</i> 28 (1): 69--- 87.</p> <p>BRS Sorghum Letter (2014) Ceres' GE sorghum is not a regulated article. http://www.aphis.usda.gov/biotechnology/downloads/reg_loi/brs_resp_ceres_reg_loi_ge_sorghum.pdf</p> <p>Brooke R, Fogel G, Glaser A, Griffin E, Johnson K (2009) Corn ethanol and wildlife: how increases in corn plantings are affecting habitat and wildlife in the Prairie Pothole Region. A University of Michigan study published by the National Wildlife Federation, http://www.nwf.org/News---and---Magazines/Media---Center/Reports/Archive/2010/Corn---Ethanol---And---Wildlife.aspx, full report at http://www.nwf.org/News---and---Magazines/Media---Center/Reports/Archive/2010/~media/PDFs/Wildlife/01---13---10---Corn---Ethanol Wildlife.ashx.</p>

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3/17/2015	Email	Bridget Collins	Association of Fish & Wildlife Agencies	General	<p>Good evening Dr. Burbaum,</p> <p>Please find the attached comments from the Association of Fish and Wildlife Agencies. Thank you for the opportunity to comment.</p> <p>Best regards, Bridget ***** Bridget Collins Agriculture Policy Coordinator Association of Fish and Wildlife Agencies 444 North Capitol Street NW, Suite 725 Washington, DC 20001</p>

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					<p>Phone: 202-624-5968 Work cell: 202-297-6759 bcollins@fishwildlife.org</p> <hr/> <p>March 17, 2015</p> <p>Dr. Jonathan Burbaum, Program Director Advanced Research Projects Agency-Energy (ARPA-E) U.S. Department of Energy ATTN: EHEC PEIS 1000 Independence Avenue, SW, Mailstop-950-8043 Washington, DC 20585</p> <p>RE: Engineered High Energy Crops Programs, Draft Programmatic Environmental Impact Statement (PEIS) (DOE/EIS-0481)</p> <p>Dear Dr. Burbaum:</p> <p>The Association of Fish and Wildlife Agencies (the Association) is pleased to provide the following comments on the Draft Programmatic Environmental Impact Statement (PEIS) regarding Engineered High Energy Crop (EHEC) Programs. America’s fish and wildlife are a public trust resource, and for more than 100 years state fish and wildlife agencies have upheld the primary responsibility for conserving those resources on public and private lands and waters within their borders. The Association represents the 50 state fish and wildlife agencies to advance sound, science-based management and conservation of fish, wildlife, and their habitats in the public interest.</p> <p>Engineered High Energy Crops (EHECs) have the potential to contribute to a more sustainable energy future where renewable energy is produced by plant-based feedstocks, offsetting the use of fossil fuels. Currently, public and private entities are competing in an emerging industry to find profitable homegrown energy. The sustainability of potential feedstocks goes far beyond maintaining a viable business model though. Our native fish and wildlife resources depend on habitats that are increasingly being viewed as the best place to produce bioenergy feedstocks because their conversion would not displace food crops. True sustainability must also include considerations for native wildlife and habitats.</p> <p>ENGINEERED HIGH ENERGY CROPS</p> <p>This PEIS focuses on EHECs as feedstocks for bioenergy production. EHECs are developed for the characteristics that make them a great bioenergy crop – quick growing, hardy, tolerant, and low input requirements. Unfortunately, and as the PEIS acknowledges, these are the same characteristics that describe an invasive species. Moreover, they are the same characteristics that are likely to be enhanced through engineering, which could significantly increase the risk of invasion. While this is addressed in the PEIS, we believe that the risk is understated, including the potential contamination threat EHECs pose to native varieties which could pick up certain undesirable traits through cross pollination.</p> <p>The list of potential bioenergy crops includes many non-native plants. We strongly encourage the Department of Energy (DOE) to put more emphasis on developing native feedstocks for energy use as native feedstocks are better adapted to the local environments, are more likely to provide habitat for native wildlife and pollinators, and are less likely to become invasive to other natural communities.</p> <p>PROJECT ALTERNATIVES: IMPACT ANALYSIS</p> <p>NO ACTION</p> <p>The no action alternative assumes “that the development of EHECs would occur slowly or in an uncoordinated fashion,” and without funding from DOE or other federal agency. We believe, however, that this is not the environmental baseline from which we are starting. Private companies – with or without federal funding – are actively</p>

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					<p>developing and using EHECs, and these crops could have impacts on natural resources. To characterize the baseline as “slow or uncoordinated” is not accurate. In fact, it is more likely that impacts are already arising from current projects. We believe that lack of coordination contributes to unforeseen negative consequences for biological resources. We disagree that this alternative will have no impact to biological resources.</p> <p>ALTERNATIVES 1, 2, AND 3</p> <p>Land Use</p> <p>Though the land use changes for many of the EHEC projects will likely be relatively small in scale, some critical habitats for wildlife are just a few thousand acres total. Even the conversion of “small” areas could have irreversible impacts to certain species, including migratory species dependent on available habitat occurring along the entirety of a migratory route. Additionally, the PEIS addresses much larger projects – up to 15,000 acres in size – which could be established by converting forest or Conservation Reserve Program enrollments. It is inaccurate to assume that EHEC projects will have minimal land use impacts.</p> <p>Water Resources</p> <p>The PEIS fails to acknowledge the potential water resource impacts from EHECs that may escape into waterways through seeds or rhizomes that could be distributed miles downstream. Additionally, irrigation requirements of EHECs or water use by escaped, invasive EHECs could have serious water quantity impacts, depleting local water resources.</p> <p>Biological Resources</p> <p>The PEIS is broad and generally written, and therefore it is extremely difficult to determine the effects EHECs could have on Biological Resources. Despite this, the PEIS characterizes many of the potential impacts as no impact or negligible, which is misleading and incorrect. For instance, the costs of new invasive species to regional ecosystems and economies could be extensive, yet the PEIS considers impacts from planting invasive species to be minor. That conclusion assumes sufficient funding and technology to control or eradicate invasive species, and that the methods of invasive species eradication will not be damaging to the native communities being invaded. Already, the cost of managing and controlling invasive species is estimated at \$120 Billion, borne by state and federal agencies in particular. This doesn't include the cost of losses of native habitat, other agricultural production, or the cost of recovery of species whose populations become impacted by invasive species. Add to this the costs for managing and controlling new invasive species, and the impacts of such could not be negligible. We think that this conclusion should be revisited, and at the very least, we'd appreciate additional explanation for this finding.</p> <p>We agree with the statements made throughout the PEIS that site-specific reviews should be conducted to determine the potential effects on resources. We suggest that this statement appear in the summary table for each alternative. We also urge DOE to clarify the process for site-specific analyses – it is not clear whether this analysis refers to the APHIS (and possibly EPA) permitting or approval process, to additional project-specific NEPA analysis conducted by DOE, or to both. The Draft PEIS states that such site-specific analyses could check proposed EHECs against noxious plant lists, include a weed risk assessment, evaluate potential for cross-pollination, and evaluate potential impacts of an energy crop becoming invasive. DOE should identify the agency or agencies that will conduct required additional analysis, and should require that the site-specific findings be binding decisions for project approval and required BMPs. Since an energy crop does not need to be genetically engineered to become invasive or to have other environmental impacts, DOE should not limit site-specific analyses to only the permitting process for genetically engineered crops.</p> <p>We strongly oppose the establishment of any known invasive species with federal funds, regardless of scale. The statement that “Negligible to no impacts are anticipated from the introduction or establishment of invasive species with the proper BMPs in place” is false. Properly implementing BMPs can reduce risk, but does not make risk negligible. Additionally, a lack of proper evaluation, placement and implementation of BMPs is more likely to lead to negative impacts to wildlife, including threatened or endangered species. BMPs should be viewed as precautions only and not assurances that invasive species will not escape or that they can be controlled after escape.</p> <p>We appreciate the discussion of the BMPs to reduce risk of invasion, but the draft PEIS isn't clear about whether the BMPs would be voluntary or mandatory, or how BMPs are created for projects. BMPs should be mandatory and, at minimum, address the following:</p> <ul style="list-style-type: none"> • EHEC project site evaluations to avoid growing EHECs in sensitive habitats, priority watersheds, certain floodplains, or other geographic areas with sensitive natural resources, • Prohibition of native habitat conversion to establish EHECs, • Management practices to minimize EHEC escape risk, and to reduce erosion, water quality and quantity impacts, and wildlife population and habitat impacts,

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					<ul style="list-style-type: none"> • Procedures to minimize escapes during crop planting, management, harvest, transport, and storage, • Monitoring protocols to quickly identify EHEC escapes, and • Methods to control and eradicate escaped EHECs. <p>We recommend that the DOE create specific, regularly updated BMPs that address all issues listed above and that are tailored to each EHEC project and site through consultation with the state fish and wildlife agency and the U.S. Fish and Wildlife Service. We recommend that funding for all EHEC projects be contingent upon the use of site-specific and appropriate BMPs. All EHEC project sponsors should obtain a surety bond (or similar instrument) as a condition of funding. The bond must ensure sufficient funding for decommissioning of the EHEC planting field, containment, and eradication in the event of bankruptcy or field abandonment.</p> <p>We feel it is appropriate to follow United States Department of Agriculture, Animal and Plant Health Inspection Service (APHIS) standards during the development of field trials. However, we would also strongly recommend that state fish and wildlife agencies be involved in the process. State agencies may have applicable standards that provide more specific protection to local species and habitats.</p> <p>We are troubled by a statement on page 5-8, “Cumulatively, no long-term impacts on protected species, critical habitat, or migratory birds are anticipated since only existing cropland, pastureland, or forested lands could be used for EHEC field trials; these existing areas are not likely to contain protected species. Field activities would result in no changes to the habitat used by any listed species or species proposed for listing.” Species, whether or not currently protected under the Endangered Species Act, use a variety of habitats, including within pastureland and forested lands where field trials would take place; therefore it is incorrect and unsubstantiated to say that changes to these habitats would have no long term impacts. Evidence to support this finding would be appreciated.</p> <p>CONCLUDING COMMENTS</p> <p>The development of renewable energy resources such as EHECs may be the future of energy production. This PEIS is an important step to ensure that such production is done safely and with proactive plans in place to prevent unintended consequences to native fish and wildlife, and the habitats required for their survival, as well as unintended costs to public and private landowners and managers. We believe many of the impact designations need reconsideration to adequately reflect and develop precautionary measures.</p> <p>Thank you for the opportunity to comment and for considering the views of the Association of Fish and Wildlife Agencies and the state fish and wildlife agencies we represent. Please do not hesitate to contact the Association’s Agriculture Policy Coordinator, Bridget Collins, at 202-624-3688 or at bcollins@fishwildlife.org if you have any questions or wish to discuss these recommendations.</p> <p>Sincerely,</p> <p>Ronald J. Regan Executive Director</p>
3/17/2015	Email	Bettina Sullivan	Virginia Department of Environmental Quality	General	<p>U.S. Department of Energy Attn: Mr. Jonathan Burbaum, Program Director ARPA-E (Mail Stop 950-8043) 1000 Independence Avenue, S.W. Washington, D.C. 20585</p> <p>RE: Engineered High-Energy Crop Programs, Southeastern States: Draft Programmatic Environmental Impact Statement DEQ 15-00?F</p> <p>Dear Mr. Burbaum:</p>

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					<p>The Commonwealth of Virginia has completed its review of the above-referenced Draft Programmatic Environmental Impact Statement (Draft PEIS). The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act and responding to appropriate federal officials on behalf of the Commonwealth. Similarly, DEQ coordinates Virginia's review of federal consistency determinations and certifications prepared pursuant to the Coastal Zone Management Act and responds to appropriate officials. The following state agencies joined in our review of this document:</p> <p>Department of Environmental Quality Department of Game and Inland Fisheries Department of Conservation and Recreation Department of Forestry</p> <p>In addition, the Department of Agriculture and Consumer Services and the Department of Health were invited to comment.</p> <p>DESCRIPTION OF PROPOSED ACTION</p> <p>According to the Draft PEIS (and the Federal Register notice announcing its availability), the Department of Energy (DOE) proposes to develop and implement programs to catalyze research, development, and demonstration of engineered, high- energy crops. These are defined as agriculturally viable, photosynthetic species with introduced genetic material meant to increase energy produced per acre without increasing the amount of biomass. Introduction of the genetic material is accomplished through biotechnology, inter-specific hybridization, or other engineering processes (excluding those that occur in nature without human intervention). The main component of this program would be DOE or other federal or state agencies providing financial assistance for confined field trials to evaluate the performance of engineered high- energy crops (EHECs) that could facilitate commercial development and deployment of bio-fuels. The field trials could include three alternatives, described as follows:</p> <ul style="list-style-type: none"> • Alternative 1 - development-scale, up to 5 acres; • Alternative 2 - pilot scale, up to 250 acres; or • Alternative 3 - demonstration scale, up to 15,000 acres. <p>(Draft PEIS, pages S-v and S-vi, sections S-2 through S-2.2 (file pages 11-12); see also Federal Register, Volume 80, Number 11, dated January 16, 2015, page 2404, right column). The Draft PEIS states that DOE expects that the program will be at a scale covered by one or more of these alternatives, but DOE is not limited to selecting a single alternative identified in the document (Draft PEIS, pages 2-7 and 2-8 (file pages 53-54), section 2.3).</p> <p>The analysis in the Draft PEIS discusses the three broad classes of energy crops: perennial herbaceous, annual herbaceous, and woody crops (Draft PEIS, page 4-1, section 4.1, file page 171).</p> <p>ENVIRONMENTAL IMPACTS AND MITIGATION</p> <p>1. Air Pollution Control. The Draft PEIS describes the affected Virginia environment, for purposes of air quality, as the Northern Virginia counties (Arlington, Fairfax, Loudoun, and Prince William) and cities (Alexandria, Falls Church, Manassas, and Manassas Park) and indicates that the area is a non-attainment area for the 1997 PM2.5 standard as well as the 1997 and 2008 ozone standard, while Alexandria and Arlington County are non-attainment for carbon monoxide (Draft PEIS, page 3-81 (file page 143), section 3.8.2). The document goes on to analyze air quality impacts in Chapter 4 (pages 4-46 through 4-51 (file pages 216-221), sections 4.8 through 4.8.5).</p> <p>1(a) Agency Jurisdiction. DEQ's Division of Air Program Coordination (DEQ-DAPC), on behalf of the State Air Pollution Control Board, is responsible for developing regulations pursuant to Virginia's State Air Pollution Control Law (Virginia Code sections 10.1-1300 et seq.). DEQ carries out mandates of the state law and the Regulations for the Control and Abatement of Air Pollution as well as Virginia's obligations under the federal Clean Air Act as amended in 1990. The objective is to protect and enhance public health and quality of life through control and mitigation of air pollution. The Division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state, and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate regional office is directly responsible for the issue of necessary permits to construct and operate all stationary sources in the region as well as to monitor emissions from these sources for compliance. As a part of this mandate, the environmental documents for new projects to be undertaken in the State are also reviewed.</p>

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					<p>1(b) Comments. In the event projects are undertaken in ozone non-attainment or ozone maintenance areas, all precautions are necessary to restrict emissions of volatile organic compounds and oxides of nitrogen.</p> <p>1(c) Requirements which may Apply. The following regulatory requirements may apply to activities undertaken under the proposed program. Questions on these requirements may be directed to the appropriate DEQ Regional Office, depending on the location of the activities in question. See "Regulatory and Coordination Needs," item 1, below.</p> <p>1(c)(i) Open Burning. If project activities include the open burning or use of special incineration devices for the disposal of demolition material, this activity must meet the requirements of 9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100 of the Regulations for open burning, and it may require a permit. The Regulations provide for, but do not require, the local adoption of a model ordinance concerning open burning. Appropriate local officials should be contacted to determine what local requirements, if any, exist.</p> <p>1(c)(ii) Fugitive Dust Emissions. During any construction activities, fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 et seq. of the Regulations for the Control and Abatement of Air Pollution. These precautions include, but are not limited to, the following:</p> <ul style="list-style-type: none"> • Use, where possible, of water or chemicals for dust control; • Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials; • Covering of open equipment for conveying materials; and • Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion. <p>1(c)(iii) Fuel-burning Equipment. Should activities under the program require the installation of fuel-burning equipment (e.g., boilers, generators, compressors, or other equipment), a permit may be required prior to beginning construction of the facility (9 VAC 5-80, Article 6, Permits for New and Modified Sources).</p> <p>2. Wetlands and Water Quality. The Draft PEIS discussed the affected water environment in southeastern states in Chapter 3 (pages 3-10 through 3-28 (file pages 73-90), sections 3.3 through 3.3.2.3), and environmental consequences in Chapter 4 (pages 4-5 through 4-13 (file pages 175-183), sections 4.3 through 4.3.5).</p> <p>2(a) Agency Jurisdiction. The State Water Control Board (SWCB) promulgates Virginia's water regulations, covering a variety of permits to include Virginia Pollutant Discharge Elimination System Permit, Virginia Pollution Abatement Permit, Surface and Groundwater Withdrawal Permit, and the Virginia Water Protection Permit (VWPP). The VWPP is a state permit which governs wetlands, surface water, and surface water withdrawals/impoundments. It also serves as § 401 certification of federal Clean Water Act § 404 permits for dredge and fill activities in waters of the U.S. The VWPP Program is under the Office of Wetlands and Stream Protection (OWSP), within the DEQ Division of Water Quality Programs.</p> <p>2(b) State Wetlands Policy. The Commonwealth does not support the filling of wetlands, particularly when alternative sites have been identified. It is the policy of the Commonwealth of Virginia to first avoid impacts to wetlands before considering other mitigation measures such as minimization and compensation. The Virginia Water Protection Permit regulations state that "mitigation means sequentially avoiding and minimizing impacts to the extent practicable, and then compensating for remaining unavoidable impacts of a proposed action" (9 VAC 25-210-10). According to the State Water Control Law (Virginia Code § 62.1-44.15:5D):</p> <p>...except in compliance with an individual or general Virginia Water Protection Permit issued in accordance with this subsection, it shall also be unlawful to conduct the following activities in a wetland: (i) new activities to cause draining that significantly alters or degrades existing wetland acreage or functions, (ii) filling or dumping, (iii) permanent flooding or impounding, or (iv) new activities that cause significant alteration or degradation of existing wetland acreage or functions. Permits shall address avoidance and minimization of wetland impacts to the maximum extent practicable. A permit shall be issued only if the Board finds that the effect of the impact, together with other existing or proposed impacts to wetlands, will not cause or contribute to a significant impairment of state waters or fish and wildlife resources.</p> <p>2(c) Federal Wetlands Policy. Federal wetlands mitigation policy is guided by a Memorandum of Agreement between the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency that clarify a three-step approach to avoiding, minimizing, and compensating for unavoidable impacts (see Clean Water Act Section 404 (b)(1) Guidelines Mitigation Memorandum of Agreement, February 1990). The Corps first makes a determination that potential impacts have been avoided to</p>

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					<p>the maximum extent practicable; remaining unavoidable impacts will then be mitigated to the extent appropriate and practicable by requiring steps to minimize impacts and, finally, compensate for aquatic resource values. This sequence is considered satisfied where the proposed mitigation is in accordance with specific provisions of a Corps- and EPA-approved comprehensive plan that ensures compliance with the compensation requirements of the Section 404(b)(1) Guidelines of the Clean Water Act. (Examples of such comprehensive plans may include Special Area Management Plans, Advance Identification areas (Section 230.80), and State Coastal Zone Management Plans).</p> <p>2(d) Comments. DEQ's Office of Wetlands and Stream Protection (DEQ-OWSP) notes that some of the prose in the Draft PEIS seems to suggest that jurisdictional wetlands might be affected by program activities. Specifically, wetlands are mentioned in a section of the "Affected Environment" chapter devoted to resources not analyzed in detail: "... to determine if jurisdictional wetlands would be impacted and to establish appropriate mitigation to minimize adverse impacts" (Draft PEIS, page 3-105 (file page 167), section 3.11.3, Wetlands sub-heading (third paragraph of section). DEQ-OWSP reminds the Department of Energy that applicable federal and state laws require that potential wetlands be first avoided in any planning process. Unavoidable impacts should then be minimized, or else mitigated through compensatory offsets. (See state and federal wetland policy statements, items 2(b) and 2(c), above).</p> <p>2(e) Requirement. In the event that activities under the program give rise to wetland or stream impacts, including temporary impacts, that fall outside existing agricultural exemptions, permits from DEQ and the Army Corps of Engineers would likely be required. Those permits would mandate appropriate compensatory mitigation for unavoidable stream and wetland impacts. See "Regulatory and Coordination Needs," item 2, below.</p> <p>3. Solid and Hazardous Waste Management. The Draft PEIS does not analyze waste management as such, but addresses human health and safety impacts from exposures to pesticides and other agricultural chemicals from crop production and harvest activities (pages 4-51 through 4-53 (file pages 221-223), sections 4.9 through 4.9.5.2.).</p> <p>3(a) Agency Jurisdiction. Solid and hazardous wastes in Virginia are regulated by the Virginia Department of Environmental Quality, the Virginia Waste Management Board (VWMB) and the U.S. Environmental Protection Agency. These agencies administer programs mandated by the federal Resource Conservation and Recovery Act, the Comprehensive Environmental Response Compensation and Liability Act (commonly called Superfund), and the Virginia Waste Management Act. DEQ administers regulations established by the VWMB and reviews permit applications for completeness and conformance with facility standards and financial assurance requirements. All Virginia localities are required, under the Solid Waste Management Planning Regulations, to identify the strategies they will follow on the management of their solid wastes to include items such as facility siting, long-term (20-year) use, and alternative programs such as materials recycling and composting.</p> <p>3(b) Findings. DEQ's Division of Land Protection and Revitalization (DEQ-DLPR) indicates that the Draft PEIS did not address solid or hazardous waste issues, and did not indicate that a search of either federal or state databases was conducted. Since no specific sites were identified, DEQ-DLPR offers general guidance which may apply to a proposed program or project (item 3(c), next).</p> <p>3(c) General Guidance on Environmental Investigations. When an environmental impact report is written for specific sites, it should include an environmental investigation on and near the properties selected in order to identify any solid or hazardous waste sites or issues related to the project area. The databases include the Permitted Solid Waste Management Facilities, Virginia Environmental Geographic Information Systems (Solid Waste, Voluntary Remediation Program, and Petroleum Release sites), CERCLA Facilities, and Hazardous Waste Facilities databases.</p> <p>3(c)(i) Permitted Solid Waste Management Facilities Database. This is a list of active solid waste facilities in Virginia.</p> <p>3(c)(ii) CERCLA Facilities Database. This is a list of active and archived CERCLA (EPA Superfund Program) sites.</p> <p>3(c)(iii) Hazardous Waste Facilities Database. This is a list of hazardous waste generators, hazardous waste transporters, and hazardous waste storage and disposal facilities. Data for the CERCLA Facilities and Hazardous Waste Facilities databases are periodically downloaded by DEQ-DLPR from the U.S. EPA's website.</p> <p>3(c)(iv) Virginia Environmental Geographic Information Systems (VEGIS). The "What's in My Backyard" application displays cross-media geographical features in proximity to a selected site/address for different facility search parameters.</p>

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					<p>3(c)(v) Accessing the DEQ Databases. Please see the enclosed comments from DEQ's Division of Land Protection and Revitalization (letterhead memo, Coe to Ellis, dated February 23, 2015, pages 2-3).</p> <p>3(d) General Comments. Any soil suspected of contamination, or wastes that are generated, must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations.</p> <p>3(d)(i) Asbestos and/or Lead-based Paint. All structures being demolished, renovated, or removed should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to demolition. If ACM or LBP are found, state regulations as well as federal waste regulations must be followed. See "Regulatory and Coordination Needs," item 3, below.</p> <p>3(e) Pollution Prevention, Re-use, and Recycling. Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles. These include the reduction of wastes at the source, re-use of materials, and recycling of all solid wastes generated. Generation of hazardous wastes should be minimized, and hazardous wastes must be handled appropriately. Again, see "Regulatory and Coordination Needs," item 3, below.</p> <p>4. Natural Heritage Resources. The Draft PEIS addresses natural heritage resources, in its discussions of environmental consequences for biological resources (pages 4-18 to 4-27 (file pages 188-197), sections 4.5 to 4.5.5.) and wildfires (pages 4- 42 to 4-46 (file pages 212-216), sections 4.7 through 4.7.5.). These discussions also pertain to wildlife and forestry resources (see items 5 and 6, below).</p> <p>4(a) Agency Jurisdictions. The mission of the Virginia Department of Conservation and Recreation (OCR) is to conserve Virginia's natural and recreational resources. The OCR-Natural Heritage Program's (DCR-DNH) mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. The Virginia Natural Area Preserves Act (Virginia Code sections 10.1-209 through 10.1-217) codifies DCR's powers and duties related to statewide biological inventory: maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources (see item 4(b), below).</p> <p>4(b) Definition. "Natural heritage resources" are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.</p> <p>4(c) Potential Plant Species for EHEC Use. OCR notes that the Miscanthus genus is being considered as a perennial herbaceous energy crop for the Engineered High- Energy Crop program (see Draft PEIS, page 1-3, Table 1.1-1, "Examples of Plants with the Potential to be EHECs"). The species is in the horticultural trade. The grass is a logical choice for energy production as it is highly combustible. However, OCR notes that large stands of Miscanthus increase fire risk.</p> <p>4(d) Invasive Species Concern. Miscanthus sinensis currently has an invasive ranking of Medium on the OCR invasive plant list, (http://www.dcr.virginia.gov/natural_heritage/documents/nh-invasive-plant-list-2014.pdf). It is recognized as invasive by natural resource agencies in Maryland, West Virginia, North Carolina, Kentucky, Tennessee, and Virginia. The U.S. Fish and Wildlife Service, National Park Service, and the U.S. Department of Agriculture also consider this species invasive. Seeds of the plant are wind-dispersed. If Miscanthus were to be planted in large acreages as a crop, there is a potential of greatly increasing naturalized occurrences within Virginia, which may give rise to invasive populations. Naturalized occurrences have been seen creating large nonotypic stands in other line rights-of-way.</p> <p>4(e) Recommendation. For the above reasons, and because invasive species constitute the second largest threat to natural heritage resources, OCR recommends that DOE and its contractors avoid utilizing species that are listed on the OCR invasive plant list as engineered high-energy crops.</p> <p>5. Wildlife Resources. See item 4, above.</p> <p>5(a) Agency Jurisdiction. The Department of Game and Inland Fisheries, as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state- or federally-listed endangered or threatened species, but excluding listed insects</p>

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					<p>(Virginia Code Title 29.1). The DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 et seq.) and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts.</p> <p>5(b) Listed Species. The Department of Game and Inland Fisheries includes its current list of Virginia listed species (attached comments) and recommends that DOE fully consider possible impacts upon any of these species, particularly if the research requires conversion of habitat from naturally vegetated to agricultural/row crop in nature.</p> <p>5(c) Opportunity for Review. DGIF would like the opportunity to review any sites designated within Virginia for the EHEC program, to ensure protection of listed species and designated resources under the Department's jurisdiction. See "Regulatory and Coordination Needs," item 4, below.</p> <p>6. Forest Resources. See item 4, above.</p> <p>6(a) Agency Jurisdiction. The Department of Forestry (DOF) reviews applications to ensure that the forest resources of the Commonwealth are managed in a sustainable manner to meet the economic, ecological, and social needs of Virginia in perpetuity. DOF is charged, pursuant to Virginia Code sections 10.1-1101, 10.1-1105, and 10.1- 1106 with protecting and developing healthy, sustainable forest resources that maintain functioning forest ecosystem and improve forest health, sustaining the supply of raw materials necessary for the economic growth of Virginia's timber industry, and supporting the protection of water quality and sources of water supply within Virginia's watersheds.</p> <p>6(b) Scope of Coverage. The Department of Forestry observes that the Draft PEIS addresses concerns on an eco-region level and provides a caveat to its findings by noting that actual future field test project sponsors will be required to secure permits, as necessary. As such, it is not possible to evaluate the Draft PEIS with regard to actual forest loss or impact at this time. However, DOF offers general comments pertaining to the focus on loblolly pines that should be seriously considered as the program moves forward (item 6(c), next).</p> <p>6(c) General Comments.</p> <p>6(c)(i) Fire Management/Risk. The target areas in Virginia for the EHEC program appear, based on the maps provided, to be centered on the mountain region of the state. This region contains large areas of continuous forestland and also serves as the headwaters for Virginia's major rivers. Greatly increasing the turpene level within loblolly pines (turpene is a chemical used in turpentine, commonly found in pine sap (Ellis, Evans, 3/9/15)) will also make them more combustible, thereby increasing wildfire risk and potential adverse ecological and economic impacts. It will be very important that forestry best management practices are followed.</p> <p>6(c)(ii) Invasive Species. If the seeds from the altered plant carry the alteration, and those seeds are dispersed naturally, DOE should consider the question: what are the potential wildfire consequences of high turpene-level trees existing outside of controlled areas?</p> <p>6(c)(iii) Re-forestation of Riparian Buffers. The Draft PEIS refers to the Conservation Reserve Enhancement Program (CREP) and infers that the program may provide greater economic incentives to landowners to plant and maintain forested riparian buffers. The specifics of this reference are vague but bear some study as a possible new tool Virginia could use to help meet its Chesapeake Bay forested riparian buffer (FRB) goals.</p> <p>REGULATORY AND COORDINATION NEEDS</p> <p>1. Air Pollution Control.</p> <p>1(a) Coordination. Questions regarding air pollution control, including applicability and processing of permits, should be directed to the appropriate DEQ Regional Office, depending on the location of the activity contemplated in the implementation of the proposed program. To find the appropriate office and regional air quality personnel, please visit DEQ's web site, http://www.deq.virginia.gov and choose "locations" along the top of the page. Then select among the six locations on the left side. Each of these will provide the name and telephone number of the regional air permit manager.</p>

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					<p>1(b) Authorities. Authorities for DEQ's air pollution control governance include, but are not limited to, the State Air Pollution Control Law (Virginia Code sections 10.1-1300 et seq.) and the following provisions of the Regulations for the Control and Abatement of Air Pollution:</p> <ul style="list-style-type: none"> • Open burning: 9 VAC 5-130 et seq. • Fugitive dust control: 9 VAC 5-50-60 et seq. • Permits for fuel-burning equipment: 9 VAC 5-80-1100 et seq. <p>2. Wetlands and Water Quality.</p> <p>2(a) Coordination. In the event wetland and/or stream impacts might result from program activities, DOE or its grantees or contractors must contact DEQ's Office of Wetland and Stream Protection (begin with Dave Davis, telephone 804-698-4105 or e-mail (Dave.Davis@deq.virginia.gov). Similarly, DOE or its grantees or contractors should contact the Norfolk District, Army Corps of Engineers (begin with Tom Walker, telephone (757) 201-7657), to inquire about the applicability of a Section 404 permit under the Clean Water Act.</p> <p>2(b) Authorities. As indicated above ("Environmental Impacts and Mitigation," items 2(a) through 2(c)), legal and regulatory authorities for state and federal water permitting requirements include, but are not limited to, the following:</p> <ul style="list-style-type: none"> • Clean Water Act, sections 401, 404; • Section 404(b)(i) Guidelines Mitigation Memorandum of Agreement, dated February 1990; • State Water Control Law, Virginia Code section 62.1-44.15:50; and • State Water Control Regulations, 9 VAC 25-210-10. <p>3. Solid and Hazardous Waste Management.</p> <p>3(a) Coordination.</p> <p>3(a)(i) General Questions. General questions about waste management in Virginia should be directed to DEQ's Division of Land Protection and Revitalization (Steve Coe, telephone (804) 698-4029 or e-mail steve.coe@deq.virginia.gov).</p> <p>3(a)(ii) Questions on Waste Management Facilities. Questions about locations of waste management facilities may be directed to the appropriate DEQ Regional Office, depending on the location of the activity contemplated in the implementation of the proposed program. To find the appropriate office and regional air quality personnel, please visit DEQ's web site, http://www.deq.virginia.gov and choose "locations" along the top of the page. Then select among the six locations on the left side. Each of these will provide the name and telephone number of the regional waste manager.</p> <p>3(a)(iii) Questions on Asbestos and/or Lead-based Paints. Begin with the waste management contacts in the DEQ Regional Offices (see item 3(a)(ii), preceding item). The additional state requirements for asbestos and/or lead-based paints are indicated in the listing of state authorities for waste management, item 3(b), next.</p> <p>3(b) Authorities. Legal and regulatory authorities for DEQ's waste management activities include, but are not limited to, the following:</p> <p>Virginia:</p> <ul style="list-style-type: none"> • Virginia Waste Management Act, Virginia Code sections 10.1-1400 et seq. • Virginia Solid Waste Management Regulations, 9 VAC 20-81 (9 VAC 20-81-620 applies to asbestos-containing materials) • Virginia Hazardous Waste Management Regulations, 9 VAC 20-60 (9 VAC 20-60-261 applies to lead-based paints) • Virginia Regulations for the Transportation of Hazardous Materials, 9 VAC 20-110.

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					<p>Federal:</p> <ul style="list-style-type: none"> • Resource Conservation and Recovery Act (RCRA), 42 U.S. Code sections 6901 et seq. • U.S. Department of Transportation Rules for Transportation of Hazardous Materials, 49 Code of Federal Regulations, Part 107 • Applicable rules contained in Title 40, Code of Federal Regulations. <p>4. Wildlife Resources.</p> <p>4(a) Coordination. As indicated above ("Environmental Impacts and Mitigation," item 5(c)), the Department of Game and Inland Fisheries would like the opportunity to review any sites designated within Virginia for the EHEC program, so as to ensure protection for listed species (see enclosed list). In this regard, DOE or its agents may contact DGIF (begin with Amy Ewing, telephone (804) 367-2211 or e-mail amy.ewing@dgif.virginia.gov).</p> <p>4(b) Authorities. Authorities for DGIF management of threatened and endangered wildlife species include, but are not limited to, Virginia Code Title 29.1, sections 29.1-563 through 29.1-570. See also the federal Fish and Wildlife Coordination Act, 16 U.S. Code sections 661 et seq.</p> <p>Thank you for the opportunity to review the Draft PEIS for this program. If you have questions, please feel free to contact me (telephone (804) 698-4204 or e-mail bettina.sullivan@deq.virginia.gov) or Charles Ellis of this Office (telephone (804) 698- 4195 or e-mail charles.ellis@deq.virginia.gov).</p> <p>Bettina Sullivan, Program Manager Environmental Impact Review and Long-Range Priorities</p> <p>cc: Kotur S. Narasimhan, DEQ-DAPC G. Stephen Coe, DEQ-DLPR Amy M. Ewing, DGIF Roberta D. Rhur, OCR Christopher Egghart, DEQ-OWSP Gregory Evans, DOF Keith R. Tignor, VDACS</p>
3/20/2015	Email	Ravi Grover		General	<p>Please do not support any programs that use genetically engineered crops/trees for energy. This is a wasteful use of taxpayer dollars, money that should be spent instead on protection of soil water and other resources.</p> <p>Thank you, Ravi Grover</p> <p><avatar11@rediffmail.com></p>