



BEACH BOYS INDEX

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Our early ancestors worshiped the sun. After all the centuries of scientific accomplishment, we are still at the same alter - looking to the sun to solve our energy problems. Our Beach Boys Index includes companies, privately held and publicly traded alike, that are sun worshippers. Their products and processes rely directly or indirectly on the photosynthetic processes of plants.

We have divided this highly populated index into sub-groups - eight altogether. There are oil drillers and coal miners on this list - after all fossil fuel is just very old, highly concentrated organic matter. It makes sense during the transition to renewable fuel sources to invest in technology that will reduce the most negative environmental impact of fossil fuel combustion. There are also biomass developers attempting to capture the sun's energy trapped in more recently grown plants. Like every other alternative fuel list, we include conventional and cellulosic ethanol producers, but we divide them into separate groups. Even if they are not plants, algae are also sun worshippers and they show promise in their simple cellular structures to harness the energy of the sun. Capturing the energy left over in waste is also included in this group.

ETHANOL GROUP

COMPANY	PUBLIC/ PRIVATE	COUNTRY	OPERATIONS	WEBSITE
Ace Ethanol LLC	Private	US	Ethanol, distillers grain	http://www.aceethanol.com/
Aemetis, Inc.	AMTX	US	Ethanol production	http://www.aemetis.com/
Alto Ingredients (Pacific Ethanol)	ALTO	US	Ethanol, distillers grain	http://www.pacificethanol.net/
Altra Biofuels, Inc.	Private	US	Ethanol production	http://www.altrabiofuels.com/
Calgren Renewable Fuels, LLC	Private	US	Ethanol production	http://www.calgren.com/
California Ethanol & Power, LLC	Private	US	Ethanol production, sugar cane	http://www.californiaethanolpower.com/
Cardinal Ethanol, LLC	CRDE	US	Corn-based ethanol production	http://www.cardinaletanol.com/
CHS, Inc.	Members	US	Ethanol	https://www.chsinc.com/
Dakota Ethanol	Private	US	Ethanol, distillers grain	http://www.dakotaethanol.com/
East-Kansas Agri-Energy, Inc.	Private	US	Ethanol, distillers grain	http://www.ekaellc.com/
Flint Hills Resources, Inc.	Private	US	Ethanol, biodiesel production	http://www.fhr.com/
Glacial Lakes Energy, LLC	Private	US	Ethanol, distillers grain	http://www.glaciallakesenergy.com/
Golden Grain Energy, Inc.	Members	US	Ethanol, distillers grain	http://www.goldengrainenergy.com/
Golden Triangle Energy, Ltd.	Private	US	Ethanol, distillers grain	http://www.goldentriangleenergy.com/
Green Plains Renewable Energy, Inc.	GPRE	US	Ethanol, distillers grain	http://www.gpreinc.com/
Little Sioux Corn Processors	Private	US	Ethanol, distillers grain	http://www.littlesiouxcornprocessors.com/
MGPI Ingredients, Inc.	MGPI	US	Food commodities, ethanol	http://www.mgpingredients.com/
Parallel Products, Inc.	Private	US	Ethanol	http://www.parallelproducts.com/
POET, LLC	Private	US	Ethanol, distillers grain	http://www.poet.com/
Quad County Corn Processors	Private	US	Ethanol, distillers grain	http://www.quad-county.com/
Raizen SA	Private	Brazil	Sugar feedstock, ethanol production	http://www.raizen.com
The Andersons	ANDE	US	Ethanol production	http://www.andersonsinc.com/
US Envirofuels	Private	US	Ethanol production	http://www.usenvirofuels.com/
Williams Energy Ventures	Private	US	Ethanol	http://co.williams.com/

Stock symbols when provided are assumed to be U.S. exchanges unless otherwise indicated.

CELLULOSIC ETHANOL GROUP

COMPANY	PUBLIC/ PRIVATE	COUNTRY	OPERATIONS	WEB SITE
BlueFire Renewables	BFRE	US	Cellulosic ethanol production, technologies	http://bfreinc.com/
Chromatin, Inc.	Private	US	Sorghum for feedstock	http://www.chromatininc.com/
Edeniq, Inc.	Private	US	Sugar conversion processes	http://www.edeniq.com
Fulcrum BioEnergy	Private	US	Waste-to-fuel, ethanol production	http://fulcrum-bioenergy.com/
GranBio Investments, S.A.	Private	Brazil	Ethanol production from sugarcane	http://www.granbio.com.br
GreenShift Corporation	GERS	US	Conventional, cellulosic technologies	http://www.greenshift.com/
Inbicon A/S	Private	Denmark	Cellulosic ethanol production	http://www.inbicon.com
Iogen Corp.	Private	Canada	Cellulosic ethanol technologies, production	http://www.iogen.ca/
Qteros Corp.	Private	US	Cellulosic ethanol technologies, solutions	http://www.qteros.com/
Renmatix, Inc.	Private	US	Cellulosic sugar for biofuel feedstock	http://www.renmatix.com
SG Biofuels	Private	US	Novel feedstock for biofuels	http://www.sgbiofuels.com
Stora Enso Oyj	STERV.HE	US	Cellulosic sugar production	http://www.storaenso.com/
Viaspace, Inc.	VSPC	US	Cellulosic feed stock production	http://www.viaspace.com/
ZeaChem, Inc.	Private	US	Cellulosic ethanol technologies	http://www.zeachem.com/

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ALGAE GROUP

COMPANY	COUNTRY	PUBLIC/ PRIVATE	OPERATIONS	WEB SITE
AlgaeLink, N.V.	Nether-	Private	Photobioreactor development	http://www.algaelink.nl/joomla/
AlgaFuel, SA	Portugal	Private	Bioengineering for industrial	http://www.a4f.pt/
Algenol Biofuel	US	Private	Ethanol from algae	http://algenol.com/
Algix, LLC	US	Private	Algae-based products/solutions	http://algix.com/
Bio Fuel Systems Group	UK	Private	Algae-based biofuel production	https://www.biofuelsystems.com/
Bionavitas, Inc.	US	Private	Micro-algae production	http://www.bionavitas.com/
Cellana LLC	US	Private	Algae-based biofuel production	http://cellana.com/
Green Star Products	US	GSPI	Algae bioreactor systems	http://www.greenstarusa.com/
Heliae, Inc.	US	Private	Water remediation, carbon	http://heliae.com/
Lgem, B.V.	Nether-	Private	Algae-based fuel production	http://lgem.nl/
Oil Fox, Inc.	Argentina	Private	Algae-based fuel production	http://oilfox.com.ar/?lang=en
PetroSun, Inc.	US	PSUD	Algae-based food, fuel produc-	http://petrosun.us
Pond Technologies, Inc.	Canada	Private	Algal biomas production sys-	http://pondtech.com/
Sapphire Energy, Inc.	US	Private	Algae-based biofuel production	http://www.sapphireenergy.com/
Scipio Biofuels, Inc.	US	Private	Algae-based biofuel production	http://www.scipiobiofuels.com/
Solix Algredients, Inc.	US	Private	Micro-algae technology solu-	http://www.solixalgredients.com/
Synthetic Genomics, Inc.	US	Private	Micro-algae technology solu-	http://www.syntheticgenomics.com/

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BIODIESEL GROUP

COMPANY	PUBLIC/ PRIVATE	COUNTRY	OPERATIONS	WEB SITE
Darling International, Inc.	DAR	US	Waste oil-based biodiesel production	http://www.darlingii.com/
FutureFuel Corp.	FF	US	Biodiesel, performance chemicals	http://www.futurefuelcorporation.com/
Renewable Energy Group, Inc.	REGI	US	Oil-based biofuel production	http://www.regfuel.com/
Virent, Inc.	Private	US	Industrial chemicals, fuels	http://www.virent.com/company/
World Energy, LLC	Private	US	Oil-based biodiesel production	http://www.worldenergy.net/
Yokayo Biofuels, LLC	Private	US	Biodiesel production from waste oils	http://www.ybiofuels.org/

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BIOFUEL GROUP

COMPANY	PUBLIC/ PRIVATE	COUNTRY	OPERATIONS	WEB SITE
Advanced Biofuels Community Fuels	Private	US	Algae-based biofuel production	http://www.communityfuels.com/
Arisdyne Systems, Inc.	Private	US	Biofuel systems solutions	http://www.arisdyn.com/
BioEconomy Solutions	Private	US	Renewable diesel	https://www.70centsagallon.com/
Bion Environmental Technologies	BNET	US	Agriculture waste processing; biofuel	http://www.biontech.com/
Blue Marble Biomaterials	Private	US	Anaerobic fermentation technologies	https://bluemarblebio.com/
Byogy Renewables	Private	US	Renewable jet fuel developer	http://www.byogy.com/
Cool Planet Energy Systems	Private	US	Biomass to gasoline system	http://www.coolplanet.com/
Cosan S.A.	CSAN	Brazil	Raw sugar production; ethanol	http://cosan.com.br/
Cremer North America	Private	US	Oleochemical production	http://www.petercremerna.com/
CropEnergies, AG	CE2.DE	Germany	Bioethanol production	http://www.cropenergies.com/en/Home/
Ensyn Corporation	Private	US	Rapid thermal processing	http://www.ensyn.com
Evergreen Renewable LLC	Private	US	Oil-based biofuel production	http://www.evergreenrenewable.com/
Greenleaf Power LLC	Private	US	Biofuel production	http://www.greenleaf-power.com/
Grupo Sao Martinho	SMT03.SA	Brazil	Raw sugar, ethanol production	http://www.saomartinho.ind.br/
Imperial Western Products	Private	US	Oil-based biofuel production	http://www.imperialwesternproducts.com/
Incobrasa Industries, Ltd.	Private	US	Oil-based biofuel production	http://www.incobrasa.com/
Inventure Chemical	Private	US	Reactor, catalyst technologies	http://www.inventurechem.com/
Lake Charles Methanol	Private	US	Methanol from petroleum coke	https://www.lakecharlesmethanol.com/
Lakeview Energy, LLC	Private	US	Biofuel production and trading	https://www.lakeviewenergyllc.com/
Methanex, Inc.	MEOH	Canada	Methanex production for biofuel processes	http://www.methanex.com/
Mid America Biofuels	Private	US	Oil-based biofuel production	http://www.mid-america-biofuels.com/
Neste Oil Corp.	NEF.BE	Finland	Biofuel production from palm oil	http://www.nesteoil.com
Seaboard Energy (Seaboard Foods)	Private	US	Oil-based biofuel production	http://www.highplainsbioenergy.com/
SkyNRG	Private	Netherlands	Renewable jet fuel development	http://skynrg.com/
Solena Group	Private	US	Algae-based biofuel production; Carbon capture	http://www.solenagroup.com/
Stepan Company	SCL	US	Specialty chemical, biofuel production	http://www.stepan.com/
Sundrop Fuels, Inc.	Private	US	Renewable gasoline	http://www.sundropfuels.com/
Sweetwater Energy, Inc.	Private	US	Sugar production from plants	http://sweetwater.us/
Verbio Verenginate BioEnergie	VBK.DE	Germany	Biodiesel, methane and ethanol production	https://www.verbio.de/en/
Western Dubuque Biodiesel, LLC	Private	US	Oil-based biofuel production	http://www.wdbiodiesel.net/

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BIOFUEL GROUP, continued

COMPANY	PUBLIC/ PRIVATE	COUNTRY	OPERATIONS	WEB SITE
Western Iowa Energy, LLC	Private	US	Oil-based biofuel production	http://www.westerniowaenergy.com/
ZeroPoint Clean Tech, Inc.	Private	US	Biomass gasification	http://www.zeropointcleantech.com/

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WASTE-TO-ENERGY GROUP

COMPANY	PUBLIC/ PRIVATE	COUNTRY	OPERATIONS	WEBSITE
Agilyx Corporation	Private	US	Waste to fuel technologies	http://www.agilyx.com/
Alphabet Energy, Inc.	Private	US	Waste heat recovery, conversion	http://www.alphabetenergy.com/
Anaergia, Inc.	Private	Canada	Anerobic digestion technology	http://anaergia.com/
Beta Renewables S.p.A.	Private	Italy	Biofuel, biochemical producer	http://www.betarenewables.com/
Blue Sphere Energy, Inc.	BLSP	Israel	Food waste-to-energy operator	http://www.bluespherecorporate.com/
Cambrian Innovation	Private	US	Waste water to energy solution	http://cambrianinnovation.com/
CleanTech Biofuels, Inc.	CLTH	US	Energy solutions from municipal waste	http://www.cleantechbiofuels.net/#
Covanta Holding Company	CVA	US	Waste collection, energy production	http://www.covanta.com/
Electra Therm, Inc.	Private	US	Waste-to-energy systems	http://electratherm.com/
Enerkem	Private	Canada	Biofuel and biochemicals from waste	http://www.enerkem.com
Fiberight, LLC.	Private	US	Renewable biofuel production	https://fiberight.com/
Harvest Power, Inc.	Private	US	Food waste to energy	http://www.harvestpower.com/home/
InEnTec	Private	US	Organics processing	http://www.inentec.com/
LanzaTech NZ Ltd.	Private	New Zealand	Gas fermentation technology	http://www.lanzatech.com
Licella Pty Ltd	Private	Australia	Biofuel from wood waste	http://www.licella.com.au/
MTPV Power Corporation	Private	US	Waste heat conversion	https://www.mtpv.com/
Re Energy Holdings	Private	US	Waste to energy production	https://www.reenergyholdings.com/
Recology (NOCAL Waste)	Private	US	Waste collection, recycling	https://www.recology.com/
Rubicon Global	Private	US	Waste collection, recycling	https://www.rubiconglobal.com/
Waste Connections, Inc.	WCN	US	Waste management, recycling	http://www.wasteconnections.com/
Waste Management, Inc.	WM	US	Waste collection, energy production	http://www.wm.com/
WCA Waste Corporation	Private	US	Landfill gas stations	https://wcawaste.com/
WISErg Corporation	Private	US	Food waste to energy	https://wiserg.com/

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ALTERNATIVE OIL AND GAS, HYDROGEN* GROUP

COMPANY	PUBLIC/ PRIVATE	COUNTRY	OPERATIONS	WEBSITE
Accelergy Corporation	Private	US	Low carbon synthetic transport fuels	http://www.accelergy.com/
AuraSource, Inc.	ARAO	China	Clean coal slurry fuel, oil shale	http://www.aurasourceinc.com/
Chemergy, Inc.	Private	US	Renewable hydrogen from liquid waste	http://www.chemergy.org/
Competitive Power Ventures	Private	US	Natural gas power generation	http://www.cpv.com/
Gas Technologies, LLC	Private	US	Non-catalytic, gas-to-liquids technology	http://www.gastechno.com/
Imperial Oil Ltd.	IMO	Canada	Synthetic oil	http://www.imperialoil.ca/
L' Air Liquide	AIQUF	France	Atmospheric gases, hydrogen	http://www.airliquide.com/
Linde A.G.	LNAGF	Germany	Atmospheric gases, hydrogen	http://www.linde.com/
McPhy Energy S.A.	MCPHY.PA	Germany	Electrolysis, hydrogen production	http://www.mcphy.com/en/index.php
Nanoptek Corporation	Private	US	Solar hydrogen production	http://nanoptek.com/
Primus Green Energy	Private	US	Gasoline from natural gas	http://www.primusge.com/
Southwestern Energy Co.	SWN	US	Unconventional fuel operations	http://www.swn.com/
Taronis Technologies, Inc.	TRNF	US	Hydrogen from natural gas	http://www.taronis.com
Velocys Plc	VLS.L	UK	Clean synthetic fuel production	http://www.velocys.com/

*Hydrogen producers in this list are using various steam reforming technologies to produce hydrogen from natural gas.

ALTERNATIVE CHEMICALS GROUP

COMPANY	PUBLIC/ PRIVATE	COUNTRY	OPERATIONS	WEBSITE
Agrivida	Private	US	Sugar from biomass production	http://agrivida.com
American Biosystems, Inc.	Private	US	Industrial, ag enzymes	http://www.americanbiosystems.com/
Amyris, Inc.	AMRS	US	Renewable chemicals	http://www.amyris.com/
Anellotech, Inc.	Private	US	Bio-based chemicals, BTX	http://www.anellotech.com
Avantium	Private	Netherlands	Industrial chemicals, fuels	http://www.avantium.com/
Calera Corporation	Private	US	Carbon dioxide reuse	http://www.calera.com/
Codexis, Inc.	CDXS	US	Biocatalysts for pharma, biofuel	http://www.codexis.com/
Dyadic International, Inc.	DYAI	US	Industrial enzymes	http://www.dyadic.com/
Elevance Renewable Sciences, Inc.	Private	US	Renewable chemicals with plant oils	http://www.elevance.com/
Emerging Fuels Technology	Private	US	Catalyst development, gas-to-liquids	http://emergingfuels.com/
Genencor (Div. of Danisco)	DCO.CPH	Denmark	Industrial enzymes	http://biosciences.dupont.com/science/
Genomatica, Inc.	Private	US	Renewable chemical solutions	http://www.genomatica.com
Gevo, Inc.	GEVO	US	Fermentation technologies	http://www.gevo.com/
Global Bioenergies SA	ALGBE.PA	France	Isobutene through fermentation	http://www.global-bioenergies.com/
GlyEco, Inc.	GLYE	US	Specialty chemicals recycling	http://www.glyeco.com/
Green Biologics Ltd.	Private	UK	Renewable n-butanol	http://www.greenbiologics.com
Green Earth Technologies	GETG	US	Bio-based lubricants and cleaning products	http://www.getg.com/
Honeywell-UOP	HON	US	Renewable specialty chemicals	http://www.uop.com
INEOS Group Holdings	Private	Switzerland	Bioethanol technology	http://www.ineos.com
LCY Chemical Co.	Private	China	Bio-succinic acid development	https://www.lcygroup.com/lcy/en/
Novozymes, Inc.	NVZMY	Denmark	Industrial enzymes	http://www.novozymes.com/en
Rennovia LLC	Private	US	Biobased chemical production	http://www.rennovia.com/
Solutia, Inc. (Eastman Chemical)	EMN	US	Chemical, engineered materials	https://www.eastman.com/Pages/solutia.aspx
Visolis, Inc.	Private	US	Carbon negative materials	http://www.visolisbio.com/

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