

# Industry Map:

## Bio-Fuels/ Biomass



PROGRESS PARTNERS

### Agro Feedstock

Break down the cellulose in edible plants or crop waste and convert it to sugars, which are then fermented and distilled into ethanol

#### Ethanol

##### Conventional Ethanol

11 Good Energy Inc.  
Abengoa Bioenergy  
Blackhawk Biofuels  
Cobalt Biofuels  
Cosan-Shell  
Coskata  
Delta Biofuels, Inc.  
Futurefuel Chemical Company  
Gevo  
Green Star  
IneosBio  
LanzaTech  
LS9  
Neste Oil  
Newgen Biofuels  
Syngenta  
UOP Honeywell  
Virent- Shell

##### Developing Enzymes

Amyris Biotechnologies  
Codexis-Shell  
Novozymes

### Agro-Waste Feedstock

Break down the cellulose in non-edible plants or crop waste and convert it to sugars, which are then fermented and distilled into ethanol

##### Cellulosic Ethanol

Bluefire Ethanol  
Chemrec (pulp)  
Cobalt Biofuels  
Coskata  
DuPont Danisco  
Dynamotive  
Enerkem (Municipal Waste)  
Fulcrum Bioenergy  
Gevo  
Green Star  
Inbicon  
IneosBio  
Inventure Chemical  
Iogen  
Iogen-Shell  
KL Energy  
Mascoma  
POET  
Qteros  
Range Fuels  
Terrabon  
UOP Honeywell  
Verenium  
Virent  
ZeaChem

Deriving biodiesel from algae include rapid growth rates, a high per-acre yield; and algae biofuel contains no sulfur, is non-toxic, and is highly biodegradable.

##### Algae Fuel

Algenol  
Aquaflow Binomic Corporation  
Aquatic Energy  
Aurora Biofuels  
Blue Marble energy  
Bodega Algae  
Cellana-Shell  
Circle Biodiesel & Ethanol Corp.  
Green Star  
Inventure Chemical  
Kai BioEnergy  
LiveFuels  
OriginOil  
PetroAlgae  
PetroSun  
Sapphire Energy  
Seabiotic  
Solazyme  
Solena Group  
Solix  
Synthetic Genomics  
Texas Clean Fuels  
UOP Honeywell  
Valcent Products

### Waste

Processes in which microorganisms break down biodegradable material in the absence of oxygen, used for industrial or domestic purposes to manage waste and/or to release energy.

#### BioGas/ SynGas Generation

##### Anaerobic Digestion Wet

ArrowBio (WMSM)  
BiogenGreenfinch  
BTA/CCI Bio Energy  
Cambi (WMST)  
EcoDeco (Wet)  
Entec BioGas  
Linde  
Monsal (WSSM) (WSST)  
Passavant  
Portagester  
Ros Roca/ Real Energy  
RosRoca  
Schmack BioGas  
Schmack/Hese  
Schwartzing Biosystem  
UTS BioGas (WSST)  
Waasa  
Yield Energy

### Others

##### Combustion

Biomass One  
Colmac Energy

##### Sun/ Microbes

Joule Biotechnologies

##### Dry

(OWS) Dranco  
Bedminster  
Harvest Power  
Kompogas  
Komptech  
Linde  
Passavant  
POET  
Valorga

RAW MATERIALS

CONSUMERS