

BIODIESEL ADVANCED BIOFUEL HERE TODAY!

REDUCES CARBON, RECYCLES BYPRODUCTS
FROM PROTEIN DEMAND AND SAVES LIVES

Biodiesel, a renewable, clean-burning diesel replacement reduces U.S. dependence on imported petroleum, creates green jobs and improves our environment. Made from an increasingly diverse mix of resources including vegetable oils, recycled cooking oil and animal fats, US biodiesel puts excess oils and fats to good use.



GREENING U.S. TRANSPORTATION NOW

Transportation is now our nation’s largest source of Greenhouse Gases (GHGs) and the need to dramatically reduce GHGs is now!¹

Not all fuels are alike. Not all vehicles are alike. And not all duty cycles are alike. For each duty cycle, there is a vehicle that can be more efficient and consume more renewable fuel in cleaner technologies. Yet, this is especially difficult for the heavy-duty sector. As other sectors find pathways to reduction, heavy-duty transportation will remain largely reliant on petroleum for years to come, even as an array of alternatives expands.

The U.S. consumes:²

- More than 40 billion gallons of diesel on U.S. roadways every year.
- More than 140 billion gallons of gasoline.

This equates to over 1,700 Million metric tons of CO₂ per year.³ Even with scheduled efficiencies on the horizon, our population and demands increase. Only biomass based diesels, such as domestic biodiesel, offer the energy density combined with near-zero technologies to dramatically reduce emissions of fuels in 90 percent of our large heavy-duty trucking industry. Often forgotten, energy density of different fuels will make them better suited than other fuels for certain vehicle types. Oil seeds and fats are 35x more energy dense per cubic foot than the modern electric battery.⁴

As our transportation evolves on many fronts, we can simultaneously reduce carbon by embracing biodiesel in all diesel applications. Biodiesel and other advanced biofuels are scientifically proven, commercially available at competitive costs and help dramatically reduce GHGs in the hardest to reach sectors, as other alternative fuels and vehicle technologies continue to emerge.

400+ U.S. mayors and 22 U.S. states that represent more than 50% of the U.S. population have climate goals that will not be accomplished by zero emission technologies alone.^{5,6} We need to pursue an “All of the Above” strategy that includes reducing dangerous emissions with advanced biofuels that are here NOW.

The Transportation sector is **92%** petroleum based⁷



“Modern bioenergy is the overlooked giant of the renewable energy field. Its share in the world’s total renewables consumption is about 50 percent today, in other words as much as hydro, wind, solar and all other renewables combined.”⁸

FATIH BIROL, Ph.D.
EXECUTIVE DIRECTOR,
INTERNATIONAL ENERGY AGENCY

35x

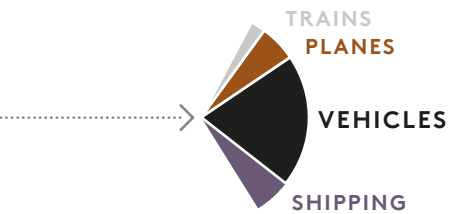
Biodiesel is liquid solar storage 35x higher in energy density than a battery and produced as byproduct of protein demand. This effective and efficient process generates a clean, renewable, advanced fuel with 80 percent lower carbon emissions, on average.

ENERGY DENSITY MATTERS

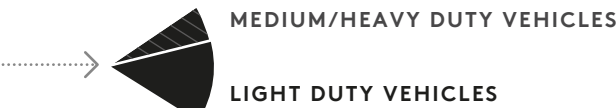
SHARE OF TOTAL U.S. CARBON DIOXIDE EMISSIONS 2016



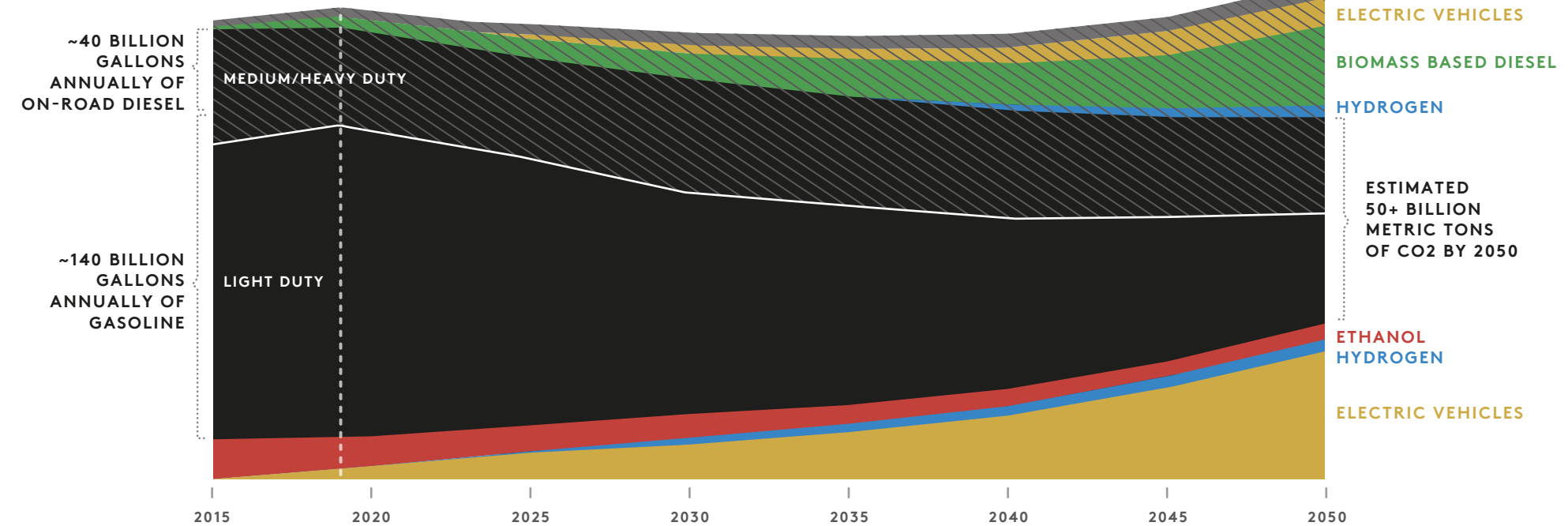
TRANSPORT EMISSIONS



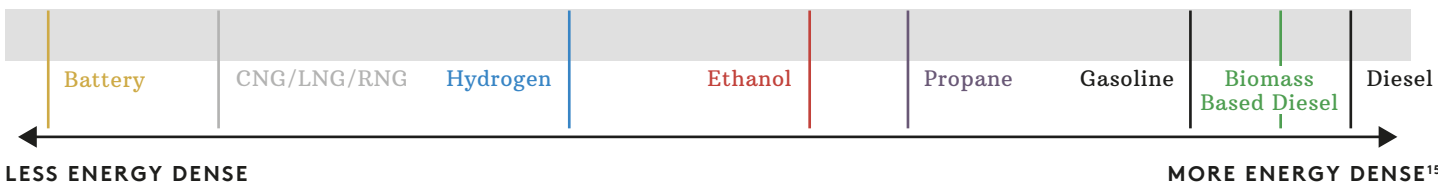
ON-ROAD TRANSPORT EMISSIONS



TRANSPORTATION TRANSITION IN QUADRILLION BTU^{9,10,11,12,13,14}



ENERGY DENSITY IN 1000 BTU PER GALLON EQUIVALENT FT³



SCIENTIFICALLY PROVEN CARBON REDUCTIONS

The science is clear: Biodiesel Greenhouse Gas (GHG) reductions are on average 80 percent below petroleum diesel inclusive of land use impacts.

Government agencies and national laboratories have determined that biodiesel has significant lifecycle greenhouse gas reductions. Over time, these studies have more accurately quantified additional impacts such as Indirect Land Use Change (ILUC).

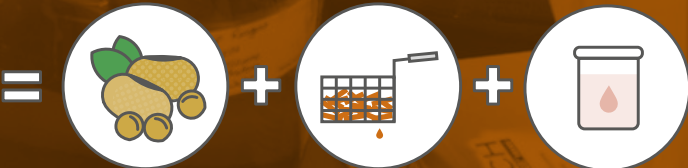
- The body of evidence includes studies performed by:
- The U.S. Environmental Protection Agency (EPA)
 - The California Air Resources Board (CARB)
 - The U.S. Department of Agriculture (USDA)
 - Universities such as Purdue University, UC Davis, University of Chicago, etc.

These studies found significant reductions in greenhouse gas emissions, and each included international “indirect land use change.” This means that, in addition to the actual emissions of farming and biodiesel production, econometric modeling was used to quantify the increased agricultural production worldwide resulting from economic stimulus of the Renewable Fuel Standard (RFS). This modeling also included substitution in vegetable oil markets between U.S. soybean oil and tropical palm oil, for instance.

The Department of Energy’s Argonne National Laboratory recently published the most up-to-date and comprehensive lifecycle analysis of biodiesel. According to the study, biodiesel made from soybean oil reduces greenhouse gas emissions by 72 percent, compared to fossil fuel. The analysis includes the economic impacts that ripple through the global agricultural supply chain, including indirect impacts that might encourage farmers elsewhere in the world to change planting practices, including impacts on deforestation.

80% ↓

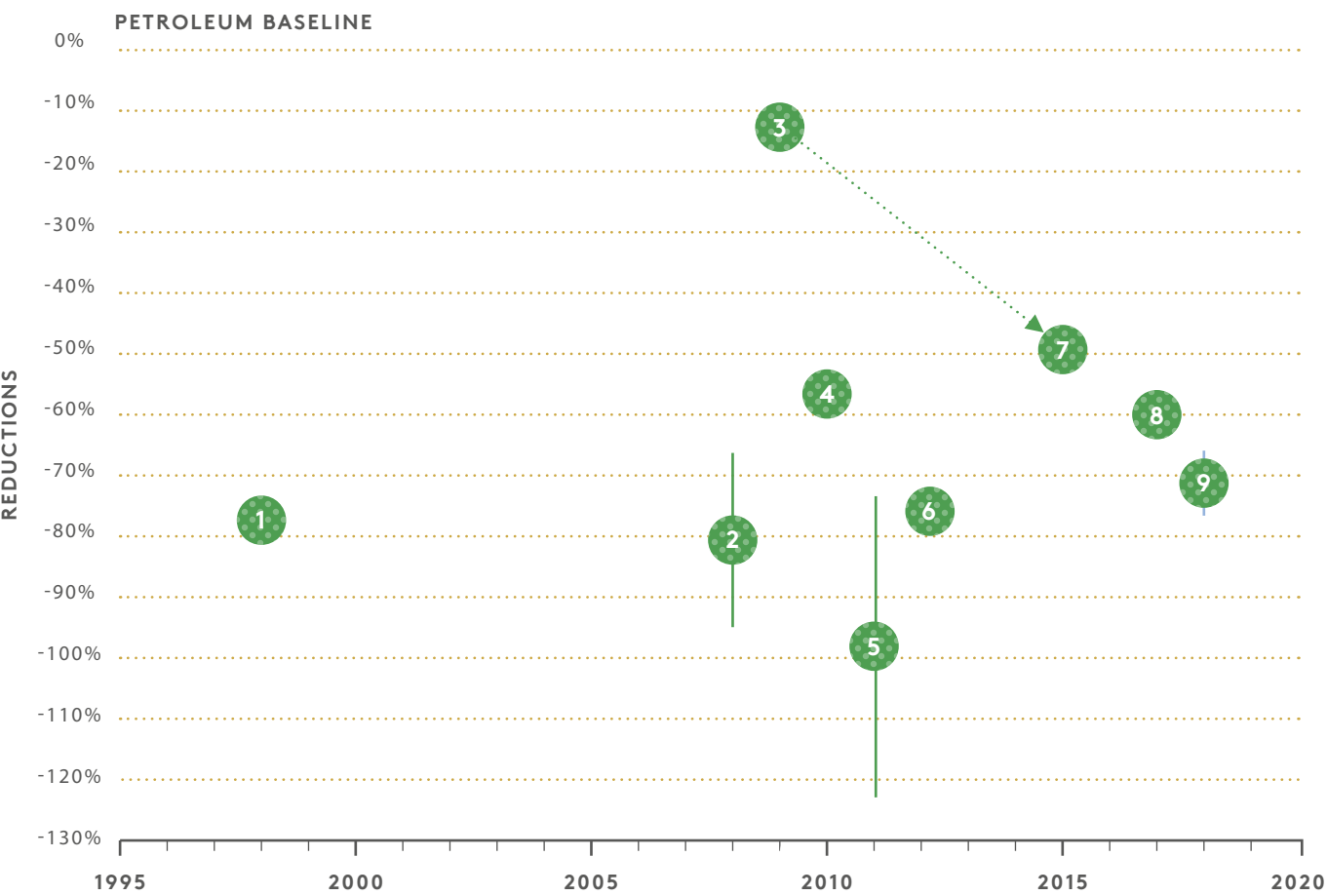
Lower reductions even after factoring in indirect drivers of potential land use change and emissions, biodiesel consistently reduces greenhouse gas (GHG) emissions by an average of 80 percent compared to petroleum.



“We’re not pretending that biofuels are the answer to everything but we think they can provide an impetus to improve sustainable policies. If you do the right things with policies, biofuels can have a positive impact on the broader environment.”

PAOLO FRANKL, Ph.D.
HEAD, RENEWABLE ENERGY UNIT
INTERNATIONAL ENERGY AGENCY

BIODIESEL LIFECYCLE ANALYSIS (INCLUSIVE OF INDIRECT LAND USE CHANGE)^{16,17,18,19,20,21,22,23,24}



“Data available today shows that farmers all around the world are increasing productivity on existing farmland. Calibrating the model to these real-world trends improves the accuracy and reduces the predicted emissions of biofuel expansion.”²⁵

FARZAD TAHERIPOUR, Ph.D.
DEPARTMENT OF AGRICULTURAL ECONOMICS,
PURDUE UNIVERSITY, JANUARY 2018

- 1 - 1998 NREL | -78%
- 2 - 2008 ARGONNE | -66 - -94%
- 3 - 2009 CARB | ~12%
- 4 - 2010 USEPA | -57%
- 5 - 2011 ARGONNE | -73 - -122%
- 6 - 2012 USDA | -76%
- 7 - 2015 CARB | -50%
- 8 - 2017 PURDUE | -60%
- 9 - 2018 ARGONNE, PURDUE, USDA | -66 - -76%



SIMPLE SOLUTION

Biodiesel and Renewable Diesel are simple solutions. They simply fit seamlessly with today’s diesel infrastructure in existing vehicles and technologies.

Typically blended with petroleum diesel, biodiesel blends provide performance characteristics similar to diesel, such as:

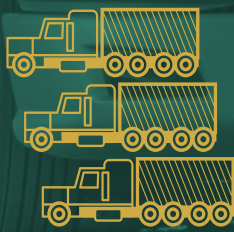
- Fuel economy
- Horsepower
- Torque

Additional performance benefits include enhanced lubricity, which can extend engine life.

Proven over billions of miles at various blend levels, biodiesel works within the current fuels framework with high quality fuel specifications and warranty support. About 90 percent of medium and heavy-duty truck Original Equipment Manufacturers (OEMs) approve up to B20 and all OEMs approve up to B5.

While the lion’s share of diesel fuel is used in heavy-duty on-road applications, biodiesel can replace diesel fuel in other applications, including heating oil. Bioheat®, for example, is a blend of biodiesel and heating oil. Biodiesel can be blended all the way up to 99 percent, with some even using 100 percent, although most Bioheat® blends are 5 to 20 percent biodiesel.

Fuel quality is critical to a seamless experience. Biodiesel meets the strict specifications as defined by ASTM International, a global standard-setting entity. BQ-9000 is the industry’s voluntary fuel quality program that includes storage, sampling, testing, blending, shipping, distribution, and fuel management practices. Over 90 percent of biodiesel in the U.S is produced at a BQ-9000 facility.



Transitioning one fleet of only:

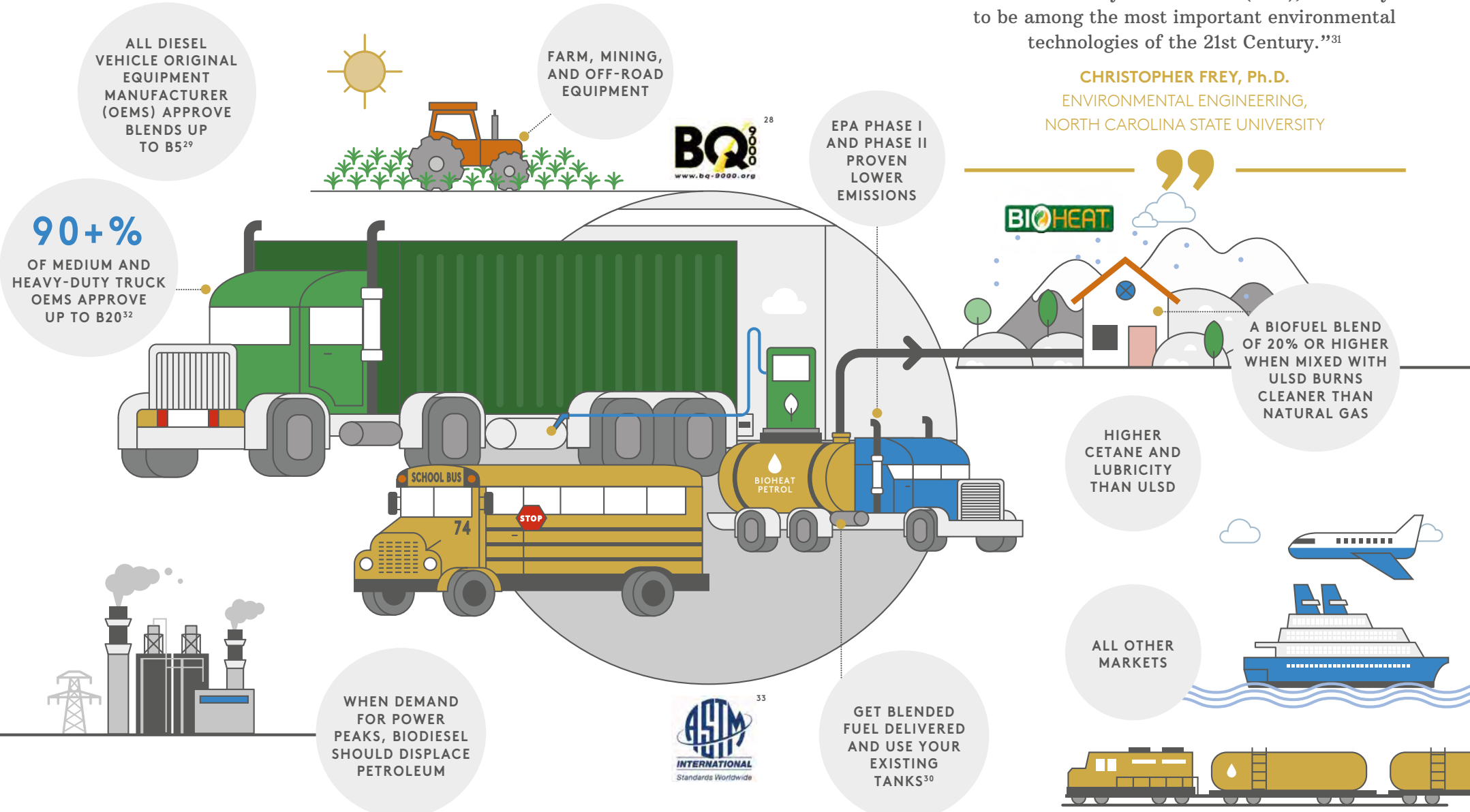
3 CLASS 8 HEAVY-DUTY TRUCKS TO B20

provides about the same GHG benefits - for significantly less cost - than removing approximately 16.5 passenger cars from the road or not burning approximately 80 Metric Tons of CO2. For most medium and heavy-duty fleets, biodiesel is the most environmentally friendly and cost effective choice.^{26,27}

“Biodiesel blends increase lubricity and cetane of diesel fuel—two necessary properties that diesel fuel lacks. Biodiesel blends provide performance characteristics such as fuel economy, horsepower, and torque similar to petroleum diesel while improving other characteristics, extending the life of diesel engines.”

STEVE HOWELL
CHAIR OF THE ASTM
BIODIESEL TASK FORCE

PROVEN PERFORMANCE



PROTEIN DRIVEN

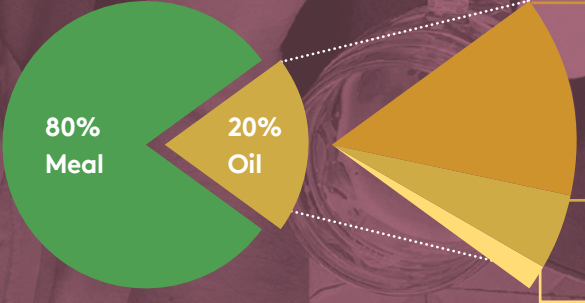
Myths about biofuels such as ‘food versus fuel’ are fabricated controversies. Food and fuel can be made together in harmony. Biodiesel was developed in the U.S. as a beneficial use for the excess fats and oils created as co-products or byproducts of protein production.³⁴ Using less land while growing more protein equates to lowering protein costs for feed and food. Eating more poultry than red meat has helped increase land for forests.

The U.S. biodiesel industry is truly diverse—nearly half of U.S. feedstocks come from second-use oils like used cooking oil or animal fats. The world’s growing population and the consistent physiological need for protein creates this surplus of oil.

When using plants to satisfy growing protein demand, the most efficient protein crops, like soybeans, produce more oils and fats than can be eaten. What better use could there be for excess fats than producing fuel that powers the economy and displaces fossil carbon?

As the global population increases from 7.5 billion people today to an estimated 10 billion by 2050, there will be more demand for protein, creating greater volumes of excess oils along supply chains for livestock feed, restaurants, and processed foods. When recycled into a sustainable alternative fuel, oils lower the cost of food proteins.

ONE SOYBEAN IS MADE UP OF:



- Food:** By far the largest percentages of soybean oil is used for frying and baking food, as a vegetable oil and as an ingredient in foods like salad dressings and margarine.
- Biodiesel and Bioheat®:** What does not get absorbed by the frying and baking markets largely gets absorbed into the biomass based diesel market. Soybean oil is used for biodiesel and Bioheat®.
- Industrial Uses:** Often called “biobased products,” a small but growing demand exists for renewable industrial uses such as paints, plastics and cleaners.

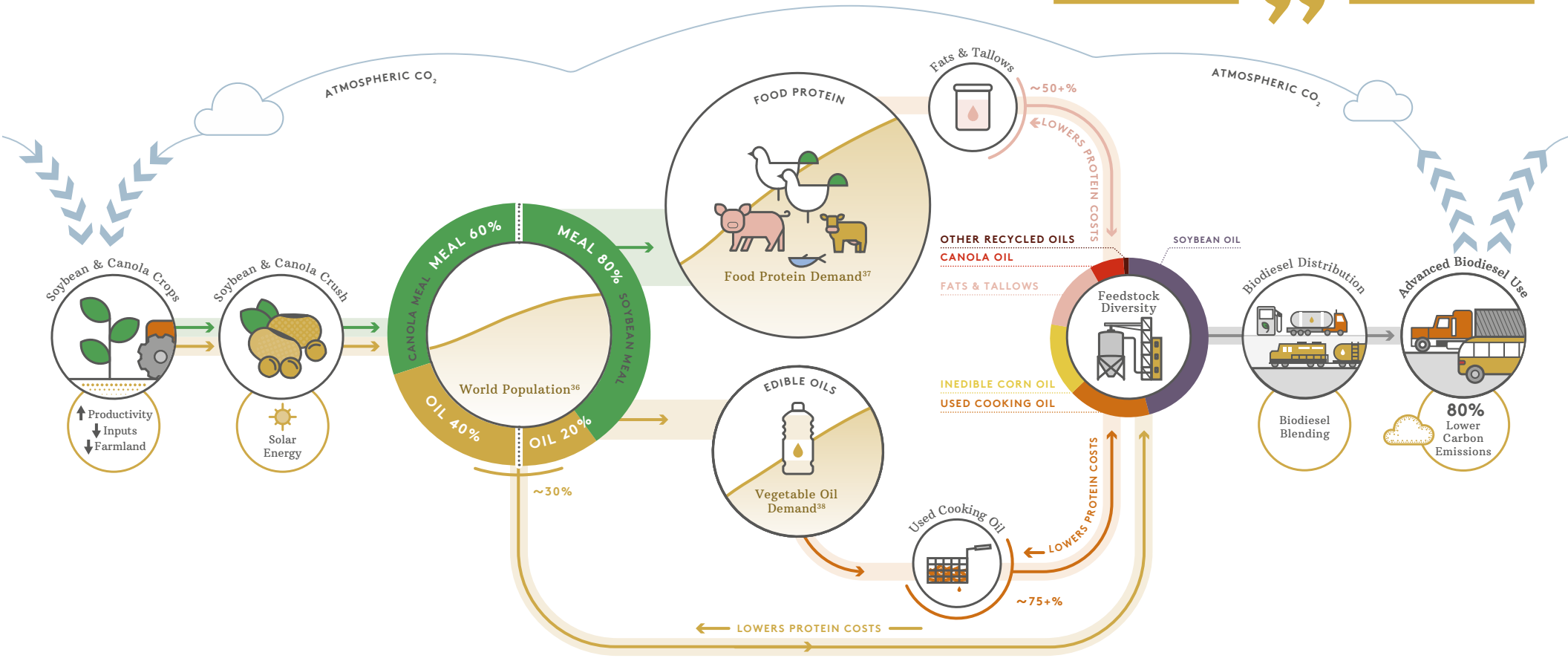
“Soybean seeds yield about 18-percent oil and the remaining meal, the primary product of soybean production, is sold as a highly nutritious animal feedstuff. Because of the high yield of the meal, this coproduct provides better monetary returns per ton of seed than the oil used in biofuel production.”

NATIONAL ACADEMY OF SCIENCES
RENEWABLE FUEL STANDARD: POTENTIAL
ECONOMIC AND ENVIRONMENTAL
EFFECTS OF U.S. BIOFUEL POLICY (2011)

FOOD AND U.S. BIODIESEL, IN HARMONY FEEDING THE WORLD

“Wealth growth will drive 78% higher meat and seafood consumption in Asia by 2050.”³⁵

CHARTING ASIA’S PROTEIN JOURNEY
ASIA RESEARCH AND ENGAGEMENT PTE. LTD. (ARE)



WE HAVE COME FAR. . . AND WE CAN GO FURTHER

Biodiesel, made from byproducts of protein demand, starts in our country’s heartland. Yet total farmland in the United States is shrinking. We are more productive on less land and with fewer inputs than ever before. Protein production and products such as biodiesel are some of the few opportunities communities have to buy American-made and support sustainable agriculture. In the U.S., food and fuel are made together in harmony.

How much biodiesel can we make? It took nearly 25 years for the United States (US) and Canadian biodiesel industries to reach more than two billion gallons of annual production. With biodiesel volumes still climbing and renewable hydrocarbon diesel (RHD) capacities growing, North America could see three billion gallons of biomass-based diesel production (biodiesel and RHD) by 2022 and four billion gallons by 2025. EPA acknowledges that we have enough existing registered capacity in the United States alone to produce 4.2 billion gallons of biomass-based diesel.³⁹

Congress enacted the bi-partisan federal Renewable Fuel Standard (RFS) to help the U.S. transition from total reliance on fossil fuels to diversifying the fuel supply with increasing volumes of clean, domestic renewable fuels. The RFS protects our environment and us by explicitly prohibiting the expansion of farmland and deforestation. Feedstock for biodiesel for the RFS must come from land that was already in agricultural production prior to 2008. In this way, the RFS is the most protective biofuel policy in the world.

In addition, the U.S. government has imposed duties on Argentinian and Indonesian biodiesel in 2017⁴⁰, and we have seen a precipitous reduction in biodiesel imports into the United States since those duties were imposed. Argentina and Indonesian’s growing agricultural footprint is not a result of U.S. biofuels policy.^{41,42,43}

**2.5
BILLION
GALLONS**

The U.S. Energy Information Administration reports U.S. biomass based diesel production at 2.5 billion gallons. Meanwhile, the 100+ biodiesel facilities could produce 2x as much today—without increasing feedstock prices significantly.⁴⁴

CROPLAND, FOREST LAND AND URBAN LAND
USE IN THE U.S. (MILLIONS OF ACRES)⁴⁵



“In 2007, USDA certified that there were 402 million acres of managed farmland in the U.S. eligible to produce renewable biomass. In 2015, USDA concluded that only 379 million acres remained under agricultural management. 23 million acres of farmland were converted to other uses.”⁴⁶

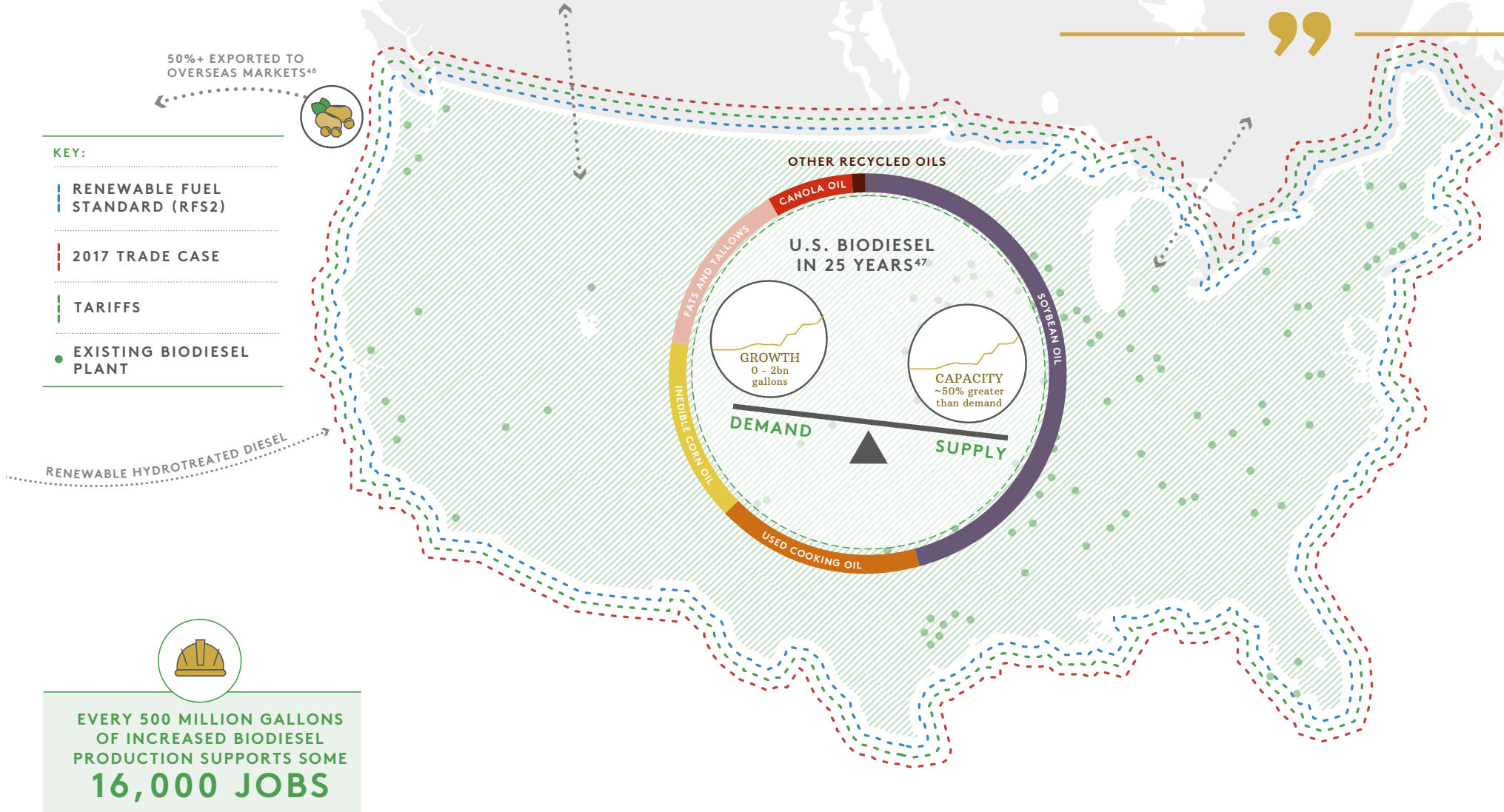
**FARZAD TAHERIPOUR, Ph.D. AND
WALLACE E. TYNER, Ph.D.**
PROFESSORS OF AGRICULTURAL
ECONOMICS PURDUE UNIVERSITY

● FOREST LAND
● CROPLAND
● URBAN

WORLD PROTEIN DEMAND DRIVES U.S. BIODIESEL GROWTH

“Edible oil prices today are comparable to those in 1985, despite the advent of biodiesel.”

MIKE HASS, Ph.D.
AGRICULTURAL RESEARCH SERVICE



THE MOST DIVERSE FUEL ON THE PLANET

When it comes to using a diverse mix of sustainable resources, no other fuel compares to biodiesel.

The “feedstock” supply, or available raw materials for making biodiesel, exceeds production in the U.S. Biodiesel’s diversity and certain environmental protections built into some policies, including the RFS, help ensure our domestic supplies are made with domestic, low-carbon inputs. U.S. policies have not yet fully captured the benefits that biodiesel has to offer, however.

Protein demand drives our global food supply. Globally, the world is creating about 65-70 Billion gallons of vegetable oils and animal fats. Most of this quantity is developed for the food and cosmetic industries. Most nations seek economic viability on a national scale. This equates to providing homes, food, health, education, and security for individual families that only a job can provide. Economies around the world are realizing the power of renewable energy and the power of utilizing natural systems to store solar energy and providing cleaner energy for transportation. But economic development needs to go hand-in-hand with conservation and proper enforcement.

EPA's inclusion of international "indirect land use change"—in addition to requiring that eligible renewable biomass comes only from existing farm land—makes the RFS a protective policy.

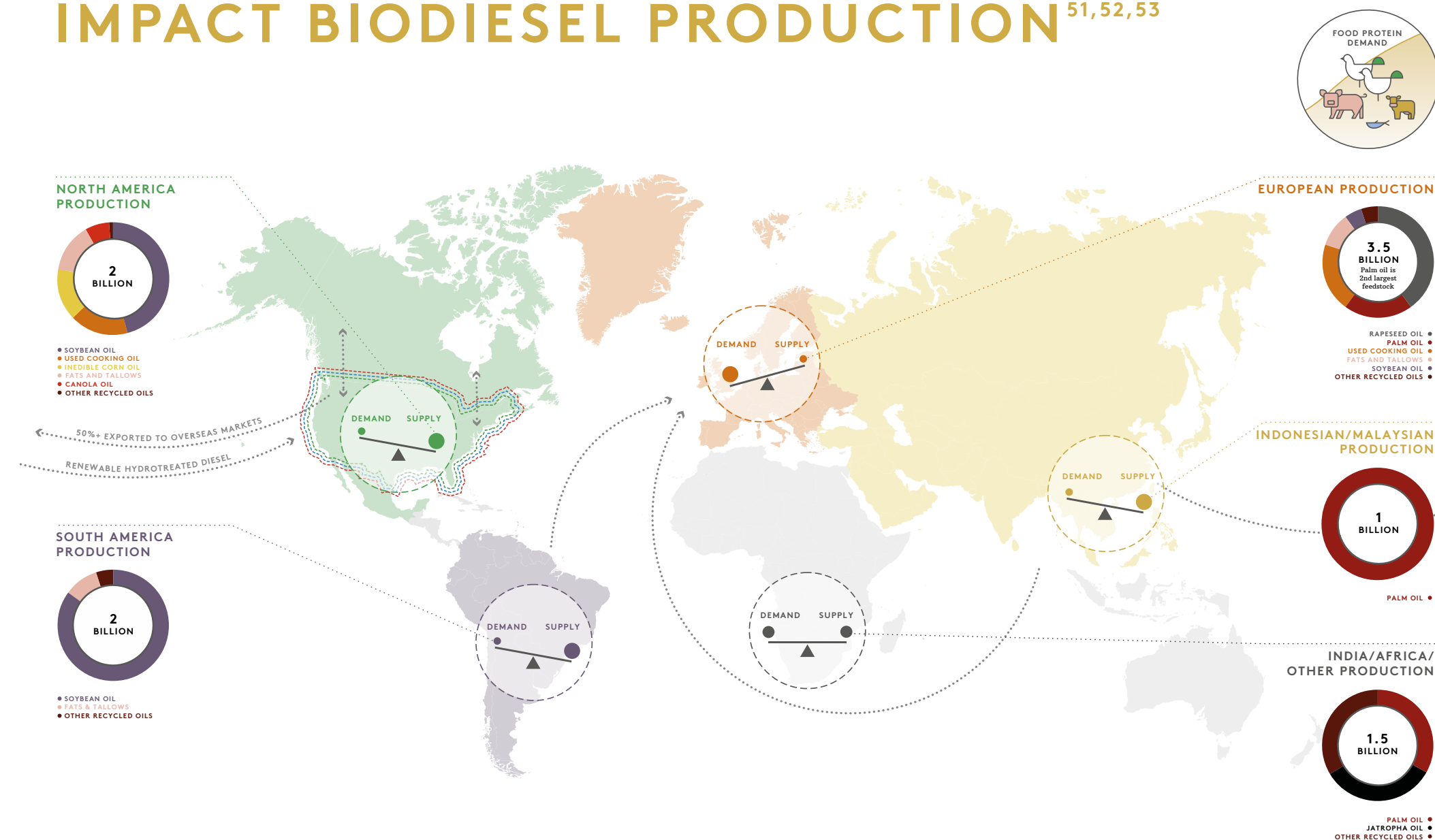
19 MILLION ACRES

The agricultural sector is doing more with less. Between 2004 and 2011, the amount of forested areas grew globally by 19 million acres—partially because global agricultural land decreased by 60 million acres.⁴⁹

“Global biodiesel production is projected to increase from 9.5 Billion gallons in 2017 to 10.3 Billion gallons by 2027” (not including ~ 1 Billion of Renewable Diesel in 2017).”⁵⁰

OECD-FAO AGRICULTURAL
OUTLOOK 2018-2027

GLOBAL FOOD DEMAND AND SUPPLY IMPACT BIODIESEL PRODUCTION^{51,52,53}



THE U.S. FEEDS THE WORLD

The U.S. exported over 3 billion gallons of soybean oil in 2017, inclusive of whole soybeans.^{54, 55} Meanwhile, the U.S. consumes about 2% of global palm oil production and virtually all of this palm oil is utilized in food and cosmetic products.⁵⁶

Palm oil does not qualify as a feedstock for biomass-based diesel or advanced biofuel under the Renewable Fuel Standard, nor does it have a pathway under state low carbon fuel standards. So why do we import palm oil when we have so much excess soy oil production? The use of soybean oil for food recently declined as food manufacturers moved away from the trans fats in partially hydrogenated soybean oil.

Oil palm trees are also one of the most profitable crops for farmers and are thus one of the success stories for fighting rural poverty in tropical countries. In humid Africa, oil palms are one of the last safety nets for the poorest. Indonesia and Malaysia produce more than 80% of the world’s palm oil: in both countries palm oil development was and is still responsible for the livelihoods of millions of smallholders.

The physical consistency of palm oil easily replaces partially hydrogenated soybean oil without the health impact of trans fats. Food and cosmetic formulations may be secondarily driven by cost, but primarily driven by health concerns and physical properties making them fit for purpose.

“No single innovation caused palm oil consumption to soar. Instead, it was the perfect commodity at the right moment for industry after industry, each of which adopted it to replace ingredients and never turned back. At the same time, producing nations view palm oil as a poverty-reduction scheme...”⁵⁷

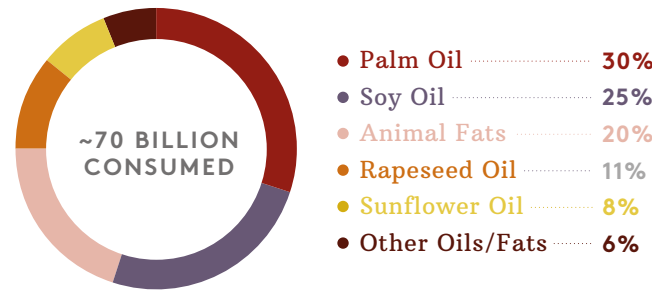
PAUL TULLIS
THE GUARDIAN, FEBRUARY, 2019

↑ 69% Increase of soybean oil exports (inclusive of whole bean) since 2007 and the enactment of the Renewable Fuel Standard.

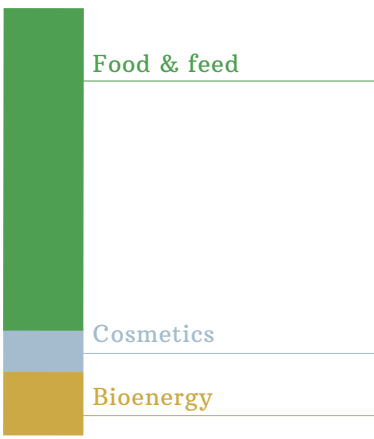
PALM OIL: A PATH TO WEALTH^{58,59,60,61}

WORLD

GLOBAL VEGETABLE OIL/ANIMAL FAT MARKET

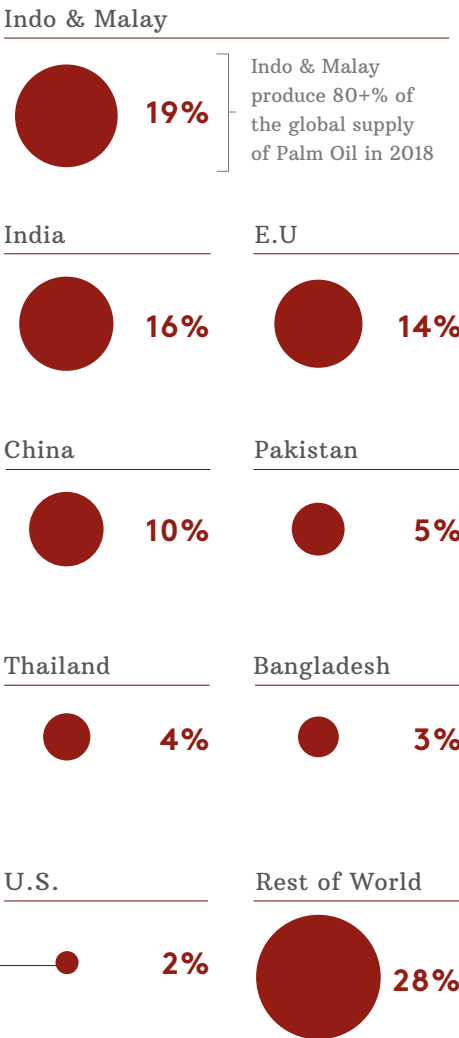


GLOBAL UTILIZATION OF OILS/FATS



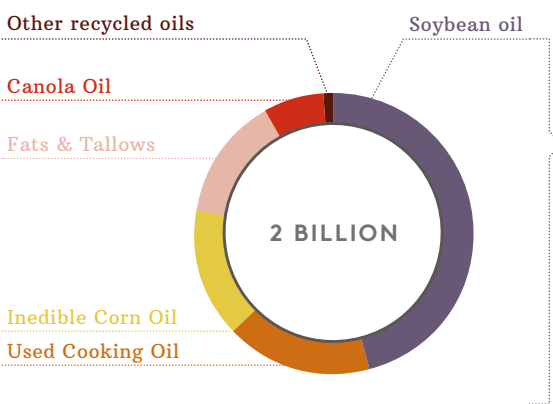
PALM OIL

ESTIMATED PRODUCTION AND CONSUMPTION OF PALM OIL

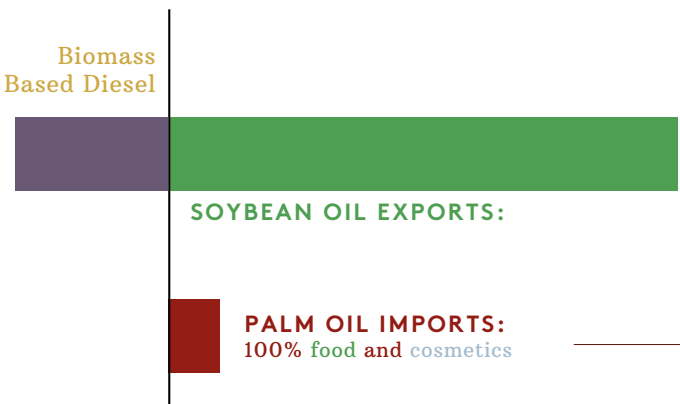


NORTH AMERICA

U.S. FEEDSTOCK DIVERSITY (NO PALM OIL)



U.S SOYBEAN OIL EXPORTS VS. PALM OIL IMPORTS



GROWING MORE WITH LESS LAND & INPUTS

Farmers take energy from the sun and carbon dioxide from the air to produce food and fuel that we need. They are doing so with higher productivity on less farmland and with fewer inputs than ever before.

Today, farmers can measure and apply variable rates of seed and fertilizer down to the centimeter. They can track pH, moisture and soil conditions in real time better than Waze tracks incidents on the road.

With new abilities to share best field practices, sustainable agriculture means efficient and smart use of resources. This starts with an emerging groundswell of support for soil health, because soil is a precious resource for farmers and the earth alike.

Soybean production is among agriculture’s most sustainable success stories, protecting water quality with production practices that require less irrigation, tilling of the soil and less application of synthetic fertilizer. This means less nitrogen and phosphate runoff, resulting in fewer nutrients in the water.⁶²

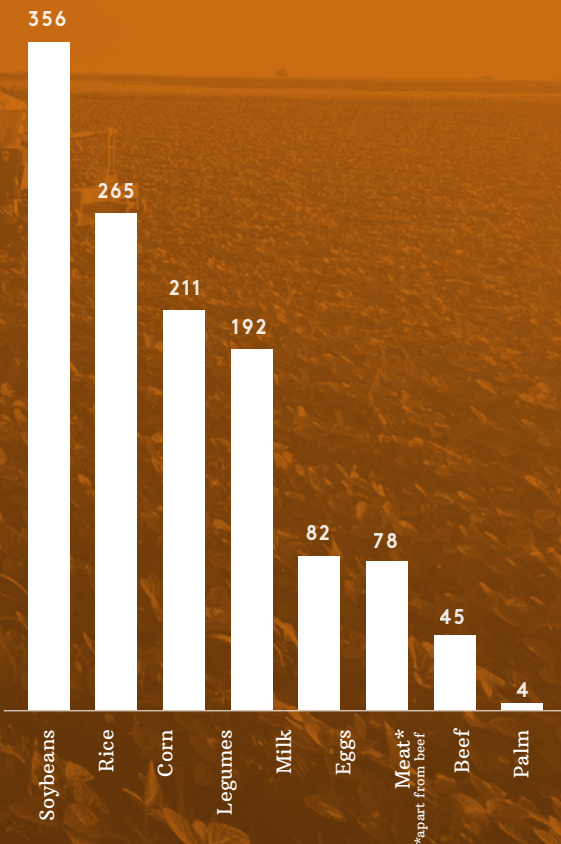
Today, most U.S. soy is planted with no-tillage or other minimum-tillage conservation practices. In no-till planting, seeds are inserted into the soil without disturbing the earth around them, which reduces soil erosion. Reducing erosion itself is good for improving water quality and reducing phosphorous, or other nutrients that bind with the soil and can cause algal blooms.⁶³

In addition, sustainable agriculture may be our world’s best sink for carbon. In fact, plants and soils have been the earth’s natural sink for millions of years and may offer our best chance of survival, if we focus on their health.

NO NITROGEN REQUIRED

Although most plants require nitrogen to produce protein for the food supply, soybean production does not. Soy is a legume; legumes can fix their own nitrogen.

USABLE PROTEIN (LB PER ACRE)⁶⁴



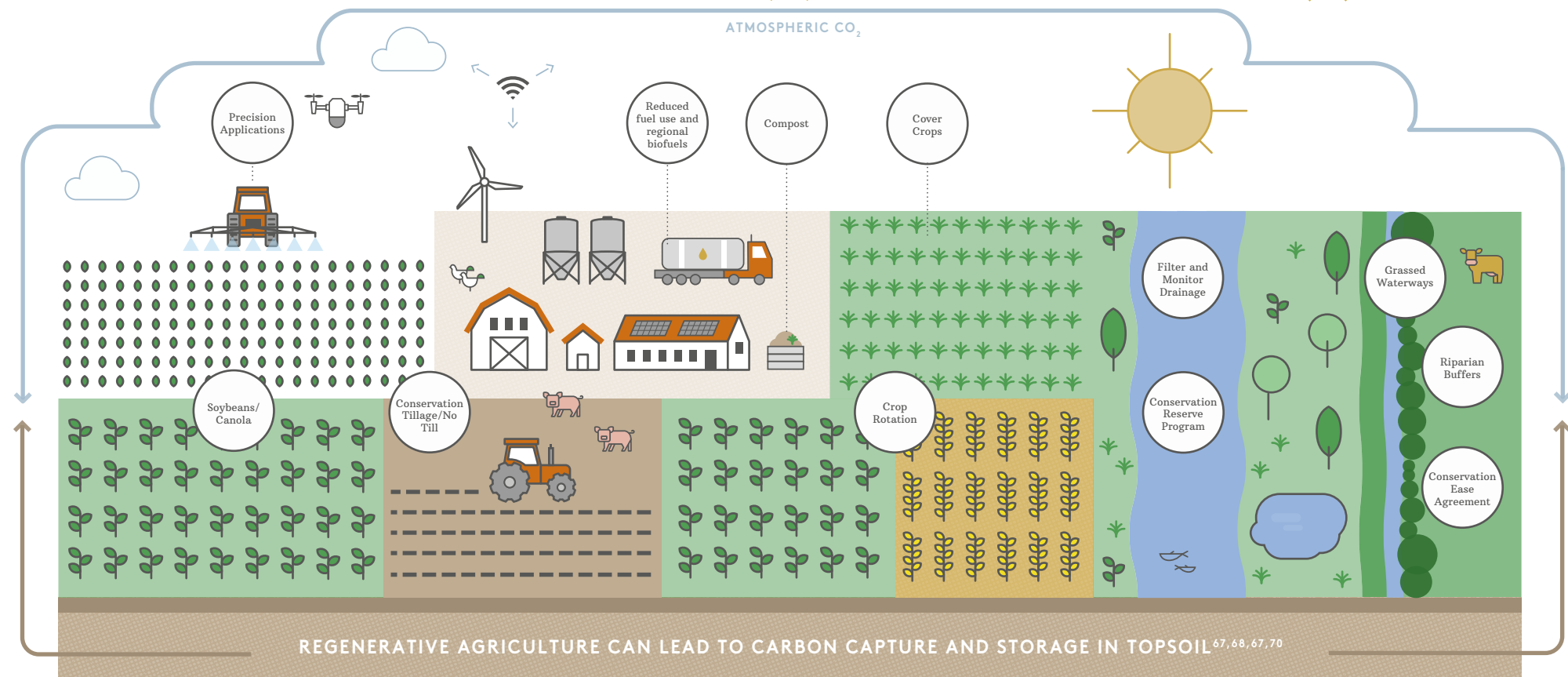
GROWING PROTEIN WHILE STORING CARBON

“97 percent of the 2.1 million farms in the United States are family owned operations.”⁶⁵

U.S. DEPARTMENT OF AGRICULTURE, 2015

“Since 1980, U.S farmers increased soy production by 96% while decreasing soil erosion by 66% and using 8% less energy.”⁶⁶

U.S. SOYBEAN SUSTAINABILITY ASSURANCE PROTOCOL, 2016



BIODIESEL SAVES LIVES

In legacy diesel vehicles, biodiesel reduces particulate matter by 47 percent, hydrocarbon emissions by 67 percent.⁷¹

New Technology Diesel Engines (NTDE) are cleaner than previous models regardless of the fuel used. In today's diesel vehicles, NOx and PM are reduced 99 percent compared to engines made before 1998. It takes about 65 of today's trucks to generate the same level of emissions as just one truck manufactured in 1988. Biodiesel, in these cleaner, "near-zero" emission engines, continues to reduce petroleum use and all tailpipe emissions.⁷³

In every vehicle and application, U.S. biodiesel lifecycle greenhouse gases are reduced by 80 percent.

The health benefits of reducing these emissions include:

- Reduced mortality of adults and infants
- Reduced cancer risk
- Less chronic and acute bronchitis
- Fewer acute myocardial infarctions and cardiovascular hospital admissions
- Reduced upper and lower respiratory symptoms, exacerbation of asthma, and lost work days.⁷²

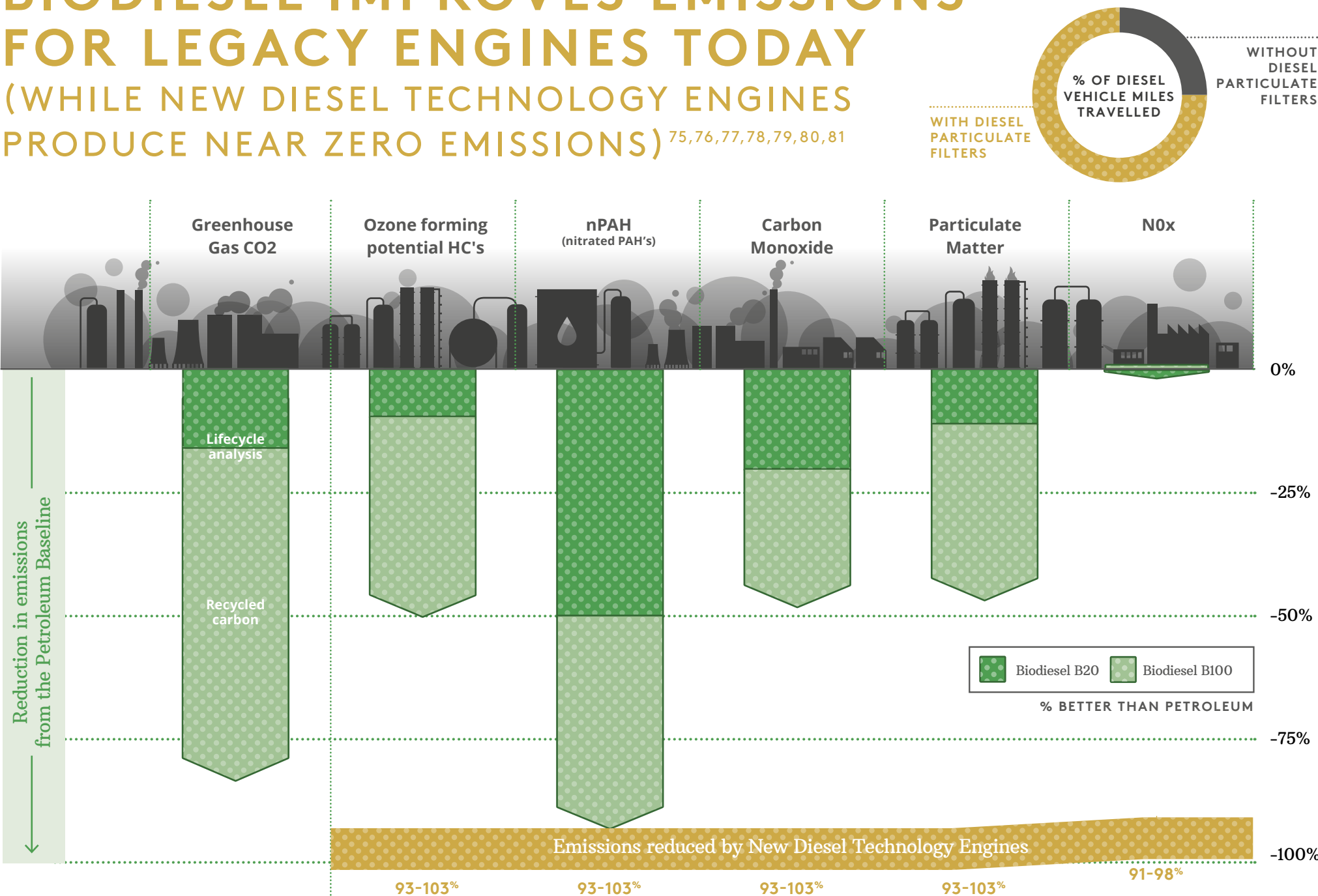
300 PREMATURE DEATHS ANNUALLY PREVENTED

Biodiesel's reduction in particulate matter alone equates to preventing more than 300 premature deaths annually.⁷⁵

“Those improvements in fuel, engine design and emissions controls technology have resulted in remarkably clean diesel vehicles that maintain their efficiency advantage over comparable gasoline engines and are clearly an important part of the portfolio of solutions to develop environmentally friendly and high efficiency automobiles.”⁷⁴

RAMANAN KRISHNAMOORTI, Ph.D.
THE UNIVERSITY OF HOUSTON'S CHIEF ENERGY OFFICER, AND
WILLIAM S. EPLING OF THE CULLEN COLLEGE OF ENGINEERING

BIODIESEL IMPROVES EMISSIONS FOR LEGACY ENGINES TODAY (WHILE NEW DIESEL TECHNOLOGY ENGINES PRODUCE NEAR ZERO EMISSIONS)^{75,76,77,78,79,80,81}



SCALABLE REDUCTIONS IN CALIFORNIA

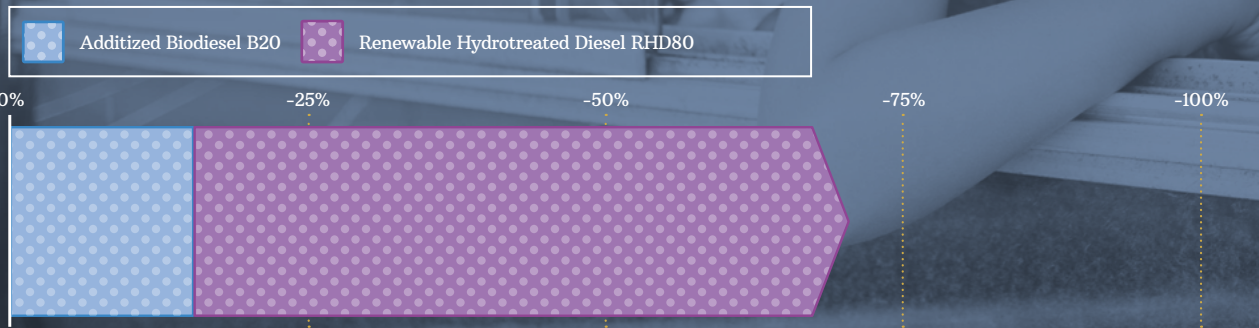


In California, diesel formulations differ from those in the 49 other states. Here, almost all B20 is additized. These additives further reduce criteria pollutants from New Diesel Technology Vehicles. As the state fleet average in these vehicles increases, greater reductions will be realized.

The Low Carbon Fuel Standard has helped to stimulate these renewable alternatives and helped to reduce their carbon intensities. This market-based approach rewards lower carbon fuels with lower costs. Since 2011, biomass based diesel fuels have helped California reduce over 15 million metric tons of CO2 of the 37 million metric tons the entire program has reduced through Q1, 2018.

Today's Super Clean Diesels are certified 99.0 % lower than the 1990 NOx Standard. Today's Super Clean Diesels now emit less or equal NOx per mile, as the heavy-duty ZEV recharged by most California power plant emission rates. Additionally, 17% of Super Clean Diesels are certified at zero hydrocarbon emissions.

REDUCTION IN EMISSIONS FROM THE PETROLEUM BASELINE



70% ↓

In California, the average gallon of biomass based diesel reduces carbon intensity by 70 percent compared to Diesel fuel (Based on CARB datasets)⁸²

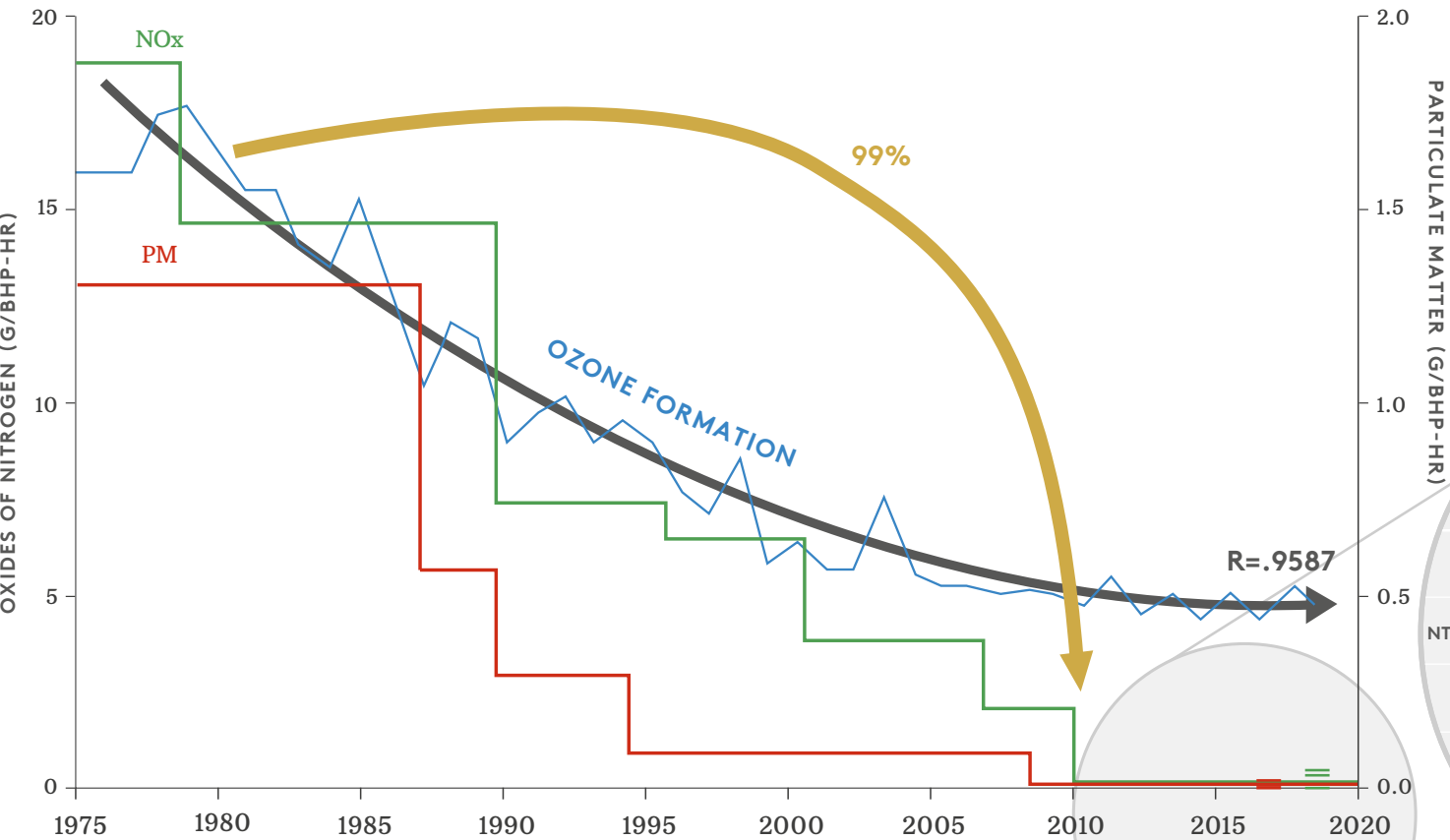
“Increases in alternative fuel use and declines in carbon intensity (CI) rating came primarily from the diesel pool. Biomass-based diesel—biodiesel and renewable diesel—accounted for 0.4 percent of liquid diesel fuel by volume in 2011 and 15.6 percent in 2018 Q1.”⁸³

JULIE WHITCOVER, Ph.D.
UC DAVIS, STATUS REVIEW OF
CALIFORNIA'S LOW CARBON FUEL
STANDARD, 2011-2018

ON-ROAD DIESEL ENGINES ARE NOW 99%+ CLEANER^{84,85,86,87}



SOUTH COAST OZONE FORMULATION SENSITIVITY PER TRANSPORTATION GALLON
TRACKS U.S. ON-HIGHWAY EMISSION STANDARDS OF PM AND NOX IN DIESEL ENGINES⁷⁹



HEAVY DUTY VEHICLE EMISSIONS COMPARISON IN 2018 (GRAMS/MILE)^{88,89}

	% OF FLEET	NOX	PM	CO ₂
NTDE	~98	1.237/ 0.371	0.002/ 0.006	3511/ 1960
NTDE B20/RHD 80	~18*	1.237/ 0.371	0.002/ 0.006	964/ 538
NGV/RNG	~2	0.44X/ .08	0.004	2400/ 0
EV**	<1	0.212/ 0.159	0.06/ 0.08	946/ 709

*BBD is ~18% of Diesel Pool in CA in 2018
**Stationary + Mobile Sources in CA

WHAT WILL THE NEXT 100 MILLION U.S GALLONS DO FOR YOUR:

Company?

City?

State?

Region?

Why wait? Our planet can't.

BETTER WITH BIODIESEL



EVERY 100 MILLION GALLONS OF U.S. BBD WILL...

➔ DISPLACE DIESEL TODAY:

Save our planet over 900,000 metric tons of CO₂. Only biomass based diesel can—immediately and at competitive prices—displace petroleum diesel in the hardest to reach heavy-duty vehicles today. BBD uses the same infrastructure with older diesel and the latest near-zero New Diesel Technologies Engines TODAY, when CO₂ emissions matter most.

➔ SAVES LIVES:

Displace petroleum and reduce PM emissions by approximately 250 tons, Hydrocarbons by over 275 tons and Carbon Monoxide by over 375 tons. This improves the local air emissions and extends the lives of hundreds of people. These reductions would prevent over 15 premature deaths. When used in older diesel vehicles, BBD dramatically improves air quality. NTDEs are 99% cleaner than they were in 1988. In older diesels or the latest diesel engines, BBD can help save lives today.



➔ SUPPORT LOCAL JOBS AND ECONOMY:

For every 100 million gallons of increased biodiesel production, an estimated 3,200 U.S. jobs will be supported. Many of these jobs are in our rural economy where U.S. unemployment is at its highest. With a rough estimation, these gallons would support \$1 billion in total economic impact and \$150 million in wages paid.

➔ PRESERVE FORESTS:

Every gallon of U.S. BBD complements the growing global demand for proteins. U.S. farmers feed more people using less land, because they are planting more efficient crops like soybeans. While difficult to measure the impact of 100 million gallons on recycling the coproducts from global protein demand, U.S. BBD has contributed to forest expansion. Between 2004 and 2011, the amount of forested areas grew globally by 19 million acres—partially because global agricultural land decreased by 60 million acres.



➔ PROVIDE CLIMATE EQUITY:

Diesel fuel is often burned near ports and urban areas where other alternatives are not easily available. Low-income areas are disproportionately impacted by dirty petroleum diesel exhaust. Reducing petroleum diesel from these areas will have an enormous health benefit to those who have suffered from poor air quality for far too long. Biodiesel should be utilized first in high-impact areas so the air quality benefit can be achieved more rapidly.



➔ OFFERS REAL SOLUTIONS NOW:

100 U.S. BBD gallons are likely a phone call away TODAY! Biodiesel works for the heavy-duty sector in synergy with our current infrastructure and fleets. The quality, reliability and competitive cost profile works in tandem with vehicles and solutions considered less polluting for the light-duty sector. Biodiesel's energy density is 35x that of our best batteries today and therefore fills an important and completely different niche for the heavy-duty sector. Why not use BBD immediately while you determine how to integrate additional solutions of tomorrow?



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