

ABENGOA

Innovative Solutions for Sustainability



ABENGOA

Second-Generation Biofuels: Ready for Take-off

Javier Salgado Leirado
Executive VP

Analyst and Investor Day

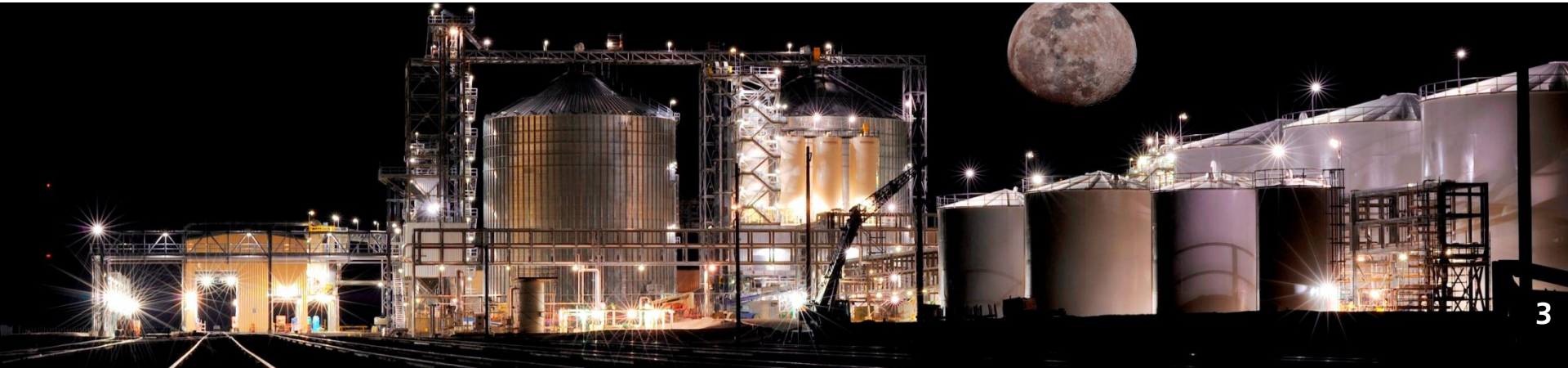
April 2011

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- Such statements reflect the current views of Abengoa with respect to future events and are subject to risks, uncertainties and assumptions.
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- Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those described herein as anticipated, believed, estimated, expected or targeted.
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Biofuels demand is growing worldwide and supply-demand unbalance is shifting

Abengoa posses a unique 1G ethanol platform that has yield stable margins over time

Abengoa plans on leveraging its 1G platform and 2G proprietary technology to become one of the leaders in 2G



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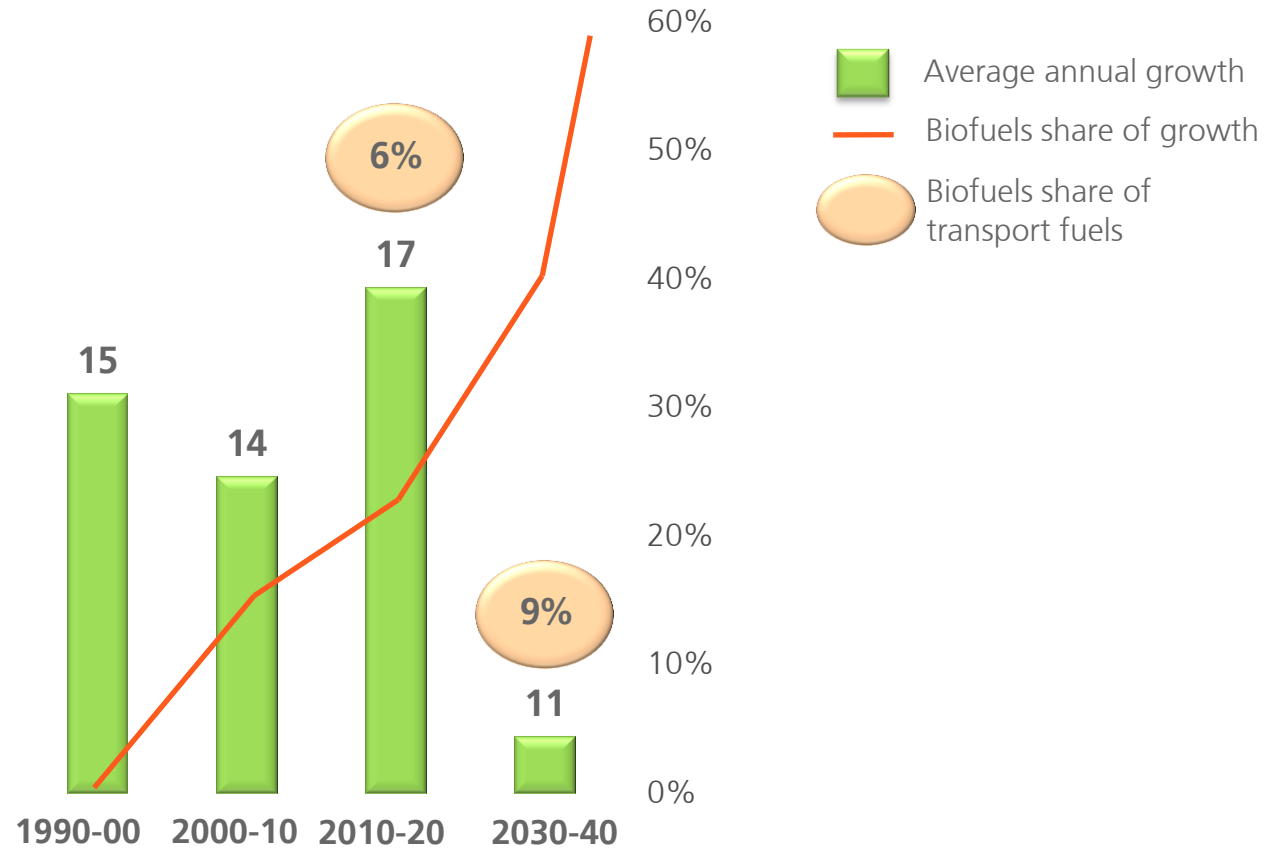
Business Description. Our Capabilities

2

Future Opportunities

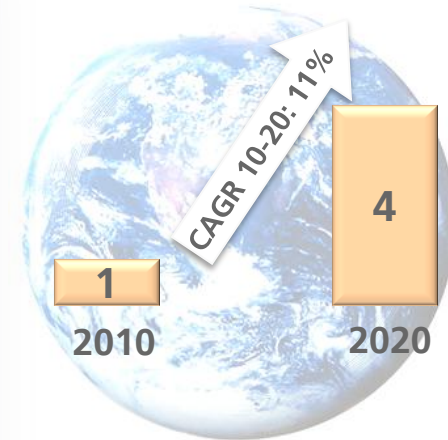
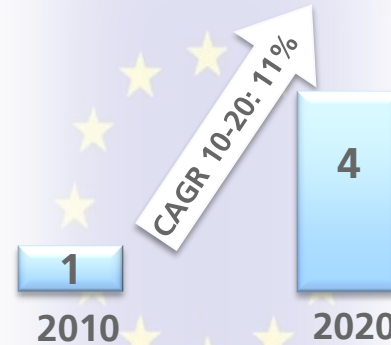
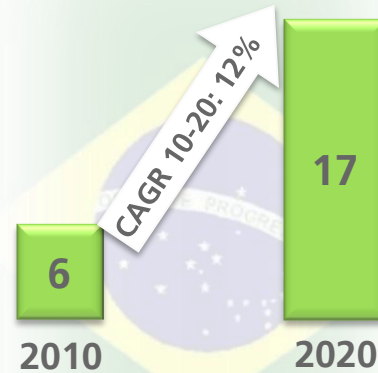
Biofuels expected to make up 60% of global fuel demand growth by 2030

Liquids Demand Growth (BGY)



Expected +10% CAGR ethanol demand in all markets through 2020, supported by energy security and sustainability

Ethanol demand (BGY)



Drivers

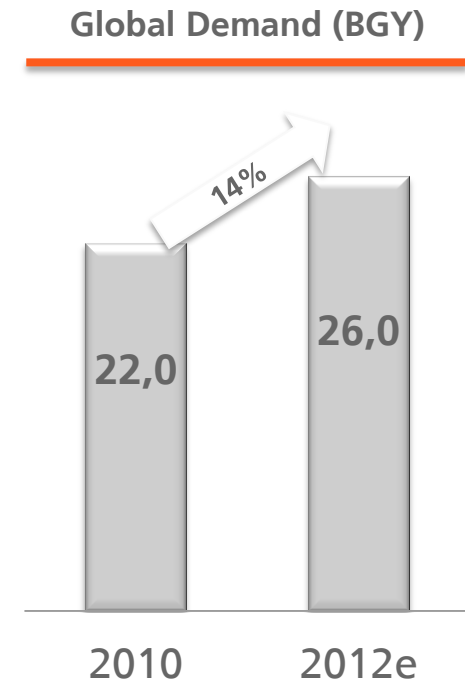
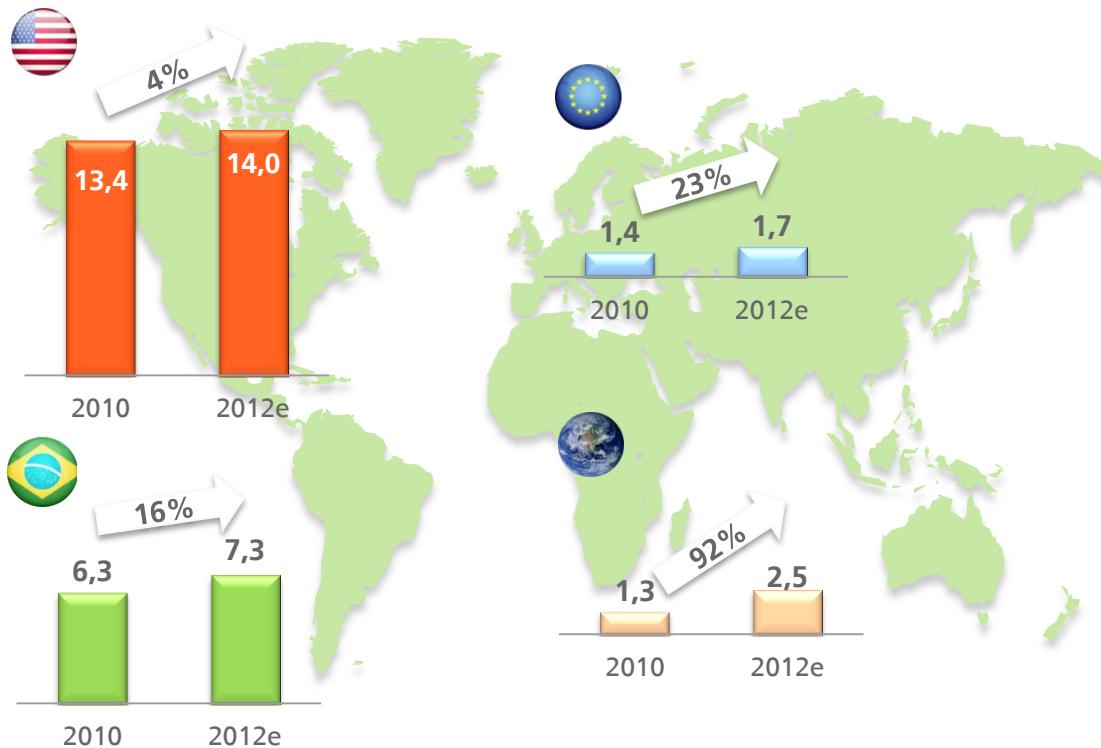
- ✓ Legislation: RFS (36 BGY in 2022)
- ✓ Energy security

- ✓ Energy security

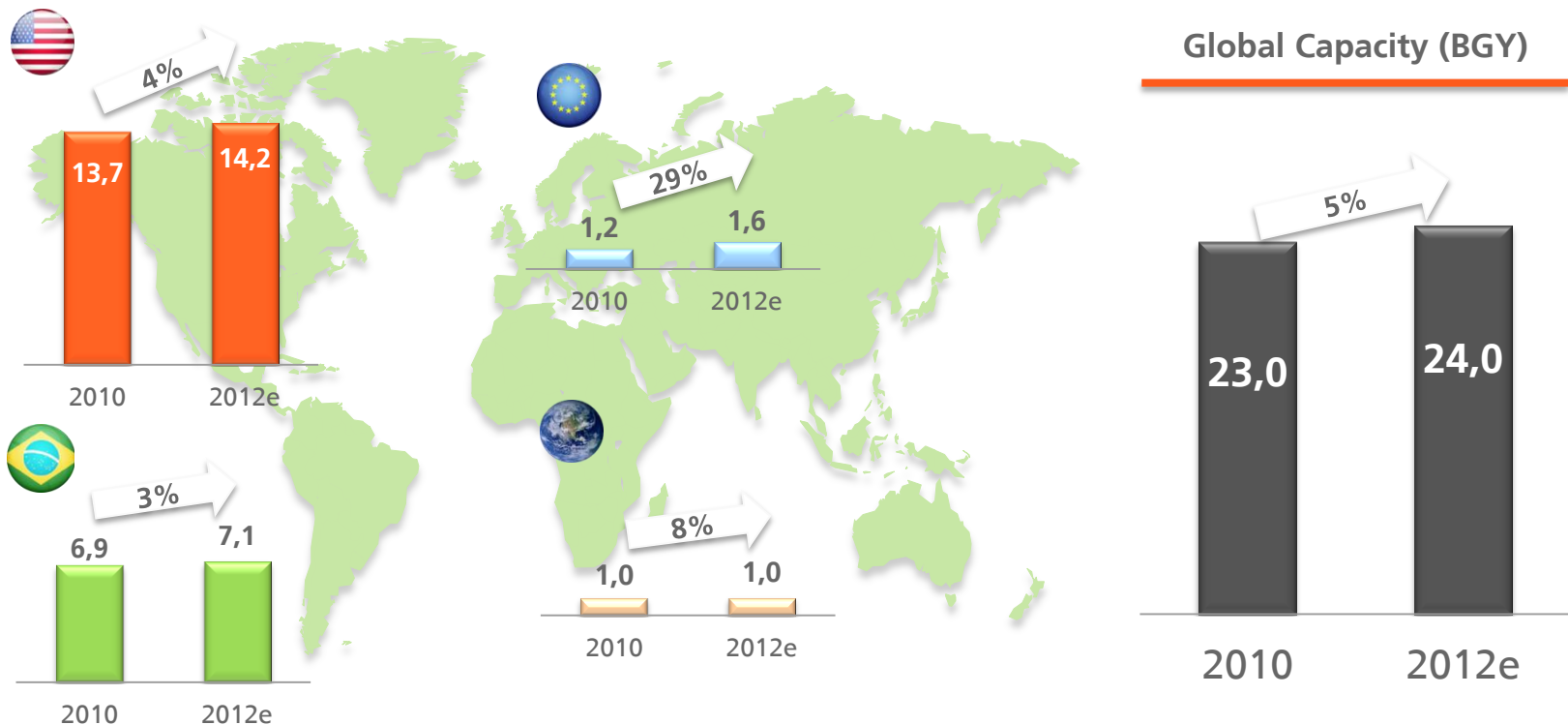
- ✓ Legislation: RED (10% renewable energy in transportation by 2020)
- ✓ Sustainability

- ✓ Population growth
- ✓ Income increase

Demand will remain strong due to legislation, sustainability & better economics



While ethanol supply growth has slowed down in the past 2 years ...



... resulting in demand expecting surpassing supply by 2011

Strong position through diversification

Biofuel capacity = 380 MGY

Feed capacity = 980 KTY



Biofuel capacity = 395 MGY

Feed capacity = 885 KTY



Biofuel capacity = 50 MGY

Sugar capacity = 540 KTY



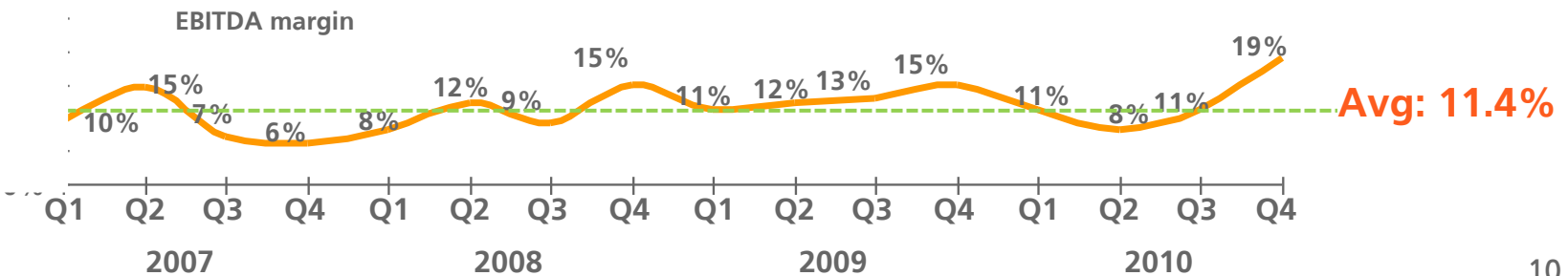
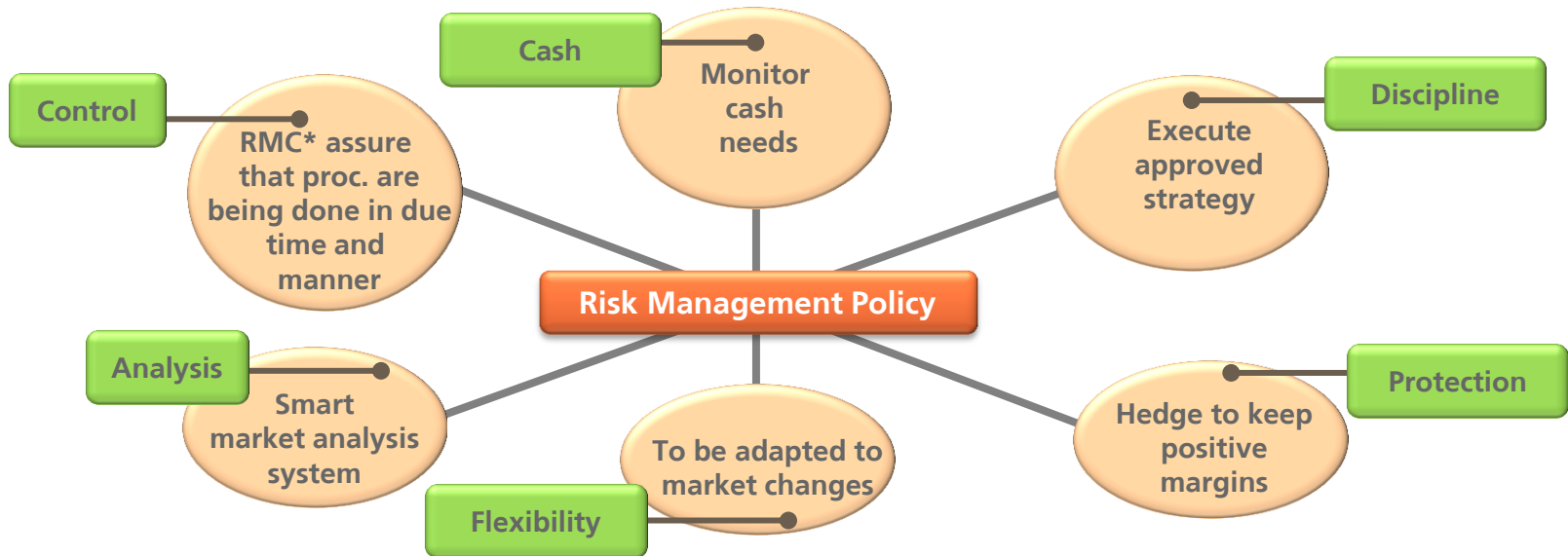
Global	
Biofuel (MGY):	825
Sugar (KTY):	540
Feed (KTY):	1,865

Abengoa Advantages

- Large asset base
- Access to various geographies
- Logistic leverage/arbitrages
- Raw material alternatives
- Experienced team
- Risk management platform

Margin protection is at the core of our policy

The correct management of our assets and implementation of our Risk Management Policy allow us to protect margins



1

Business Description. Our Capabilities

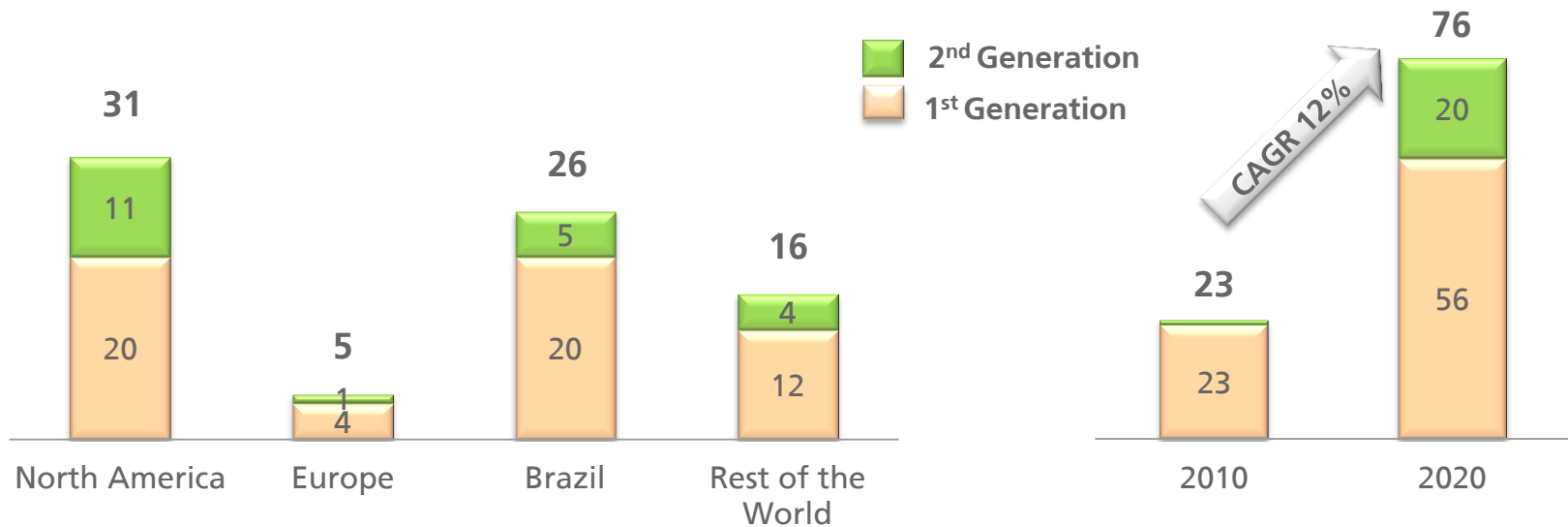
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Future Opportunities

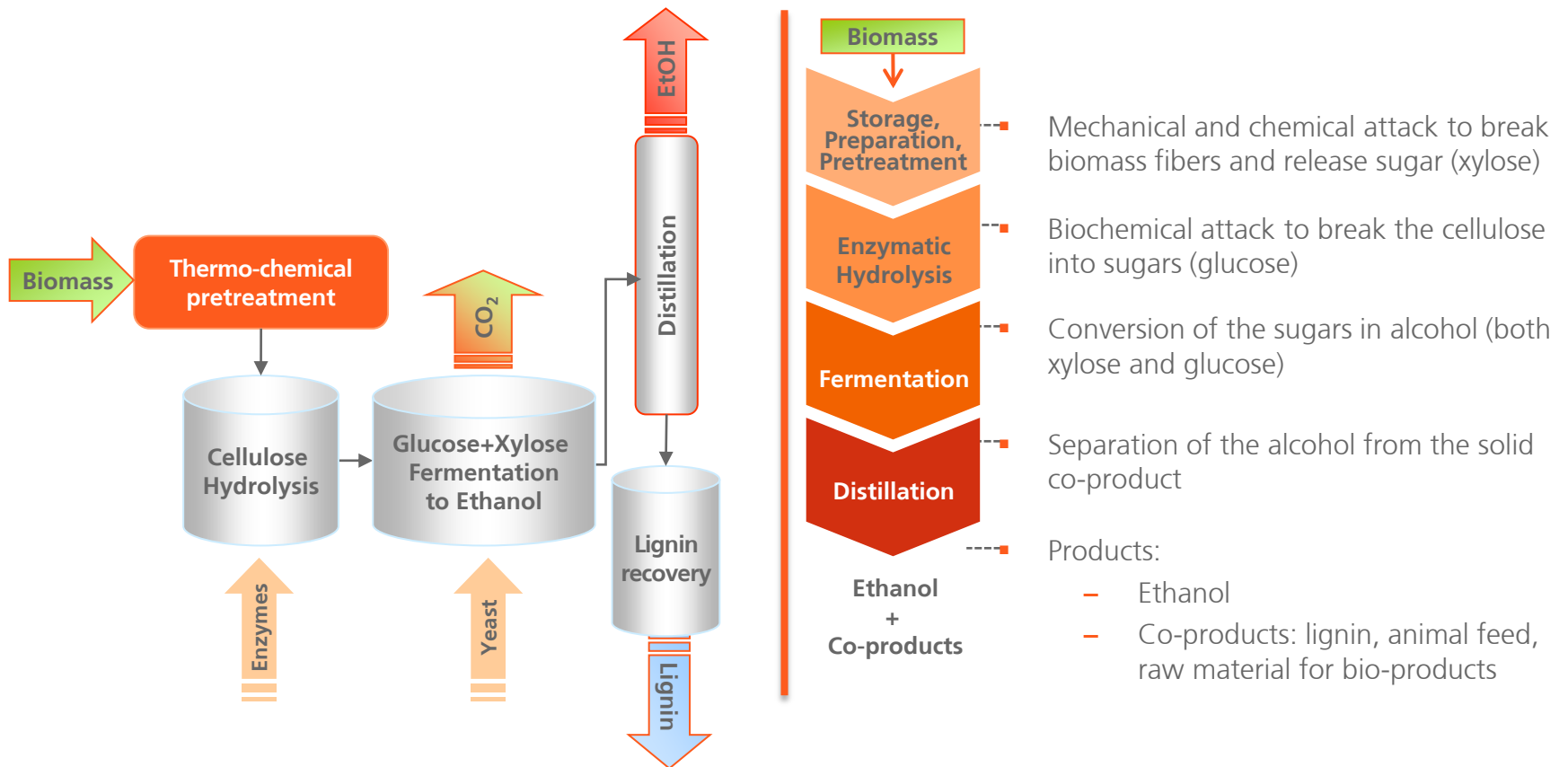
Global ethanol to show solid growth through 2020 with 25% share by 2G

2020 Ethanol Production Mix by Geography (BGY)

Global Ethanol Output (BGY)



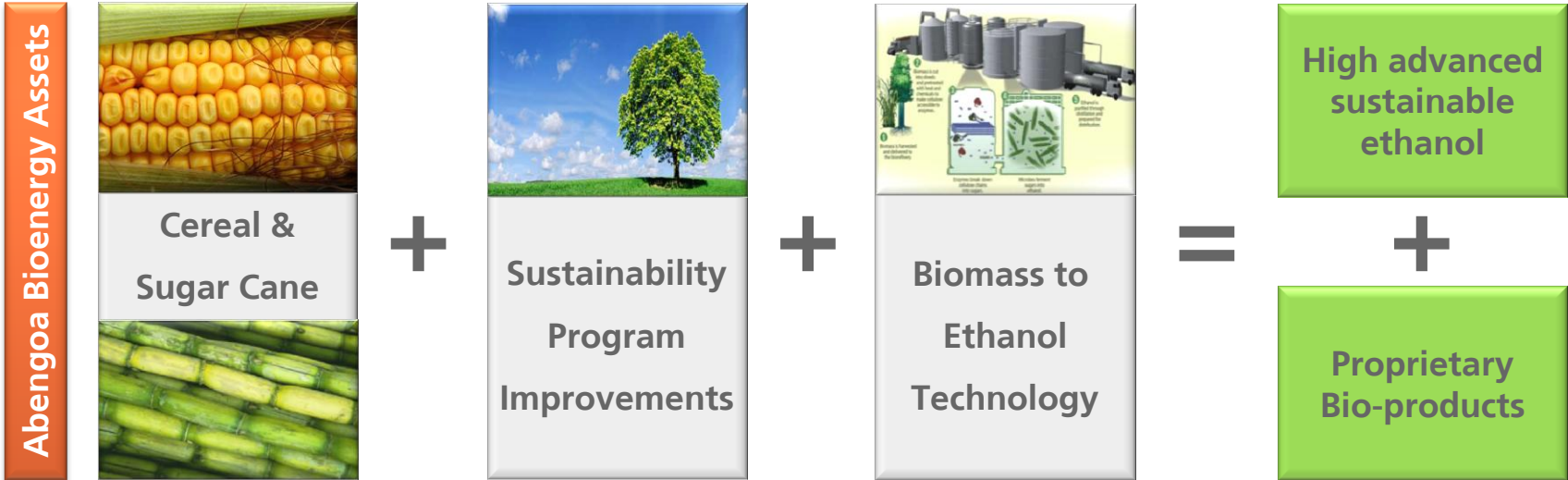
Biomass enzymatic hydrolysis process



On the right path to a consolidated industry

	Targets	Strategic & financial investors
2010 2009		 
2010		
2010		 
2009		
2010 2009		 
2010 2009		 
2010		 

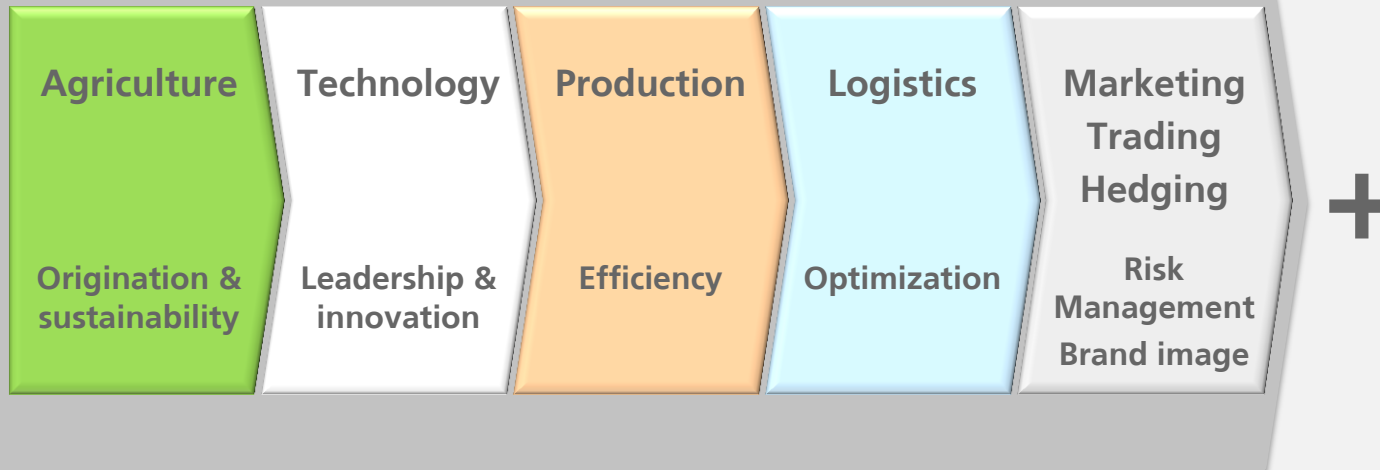
Develop IP biomass-to-ethanol technology and integrate 2G over 1G platform



High capacity to leverage 1G competencies into 2G

2G Model

1G Model



+

Pre-treatment
& Presach
Process

Enzymatic
Hydrolysis

C5
Fermentation

By-Products

2G Technology

2G: Biomass, Management, procurement, logistics & distribution

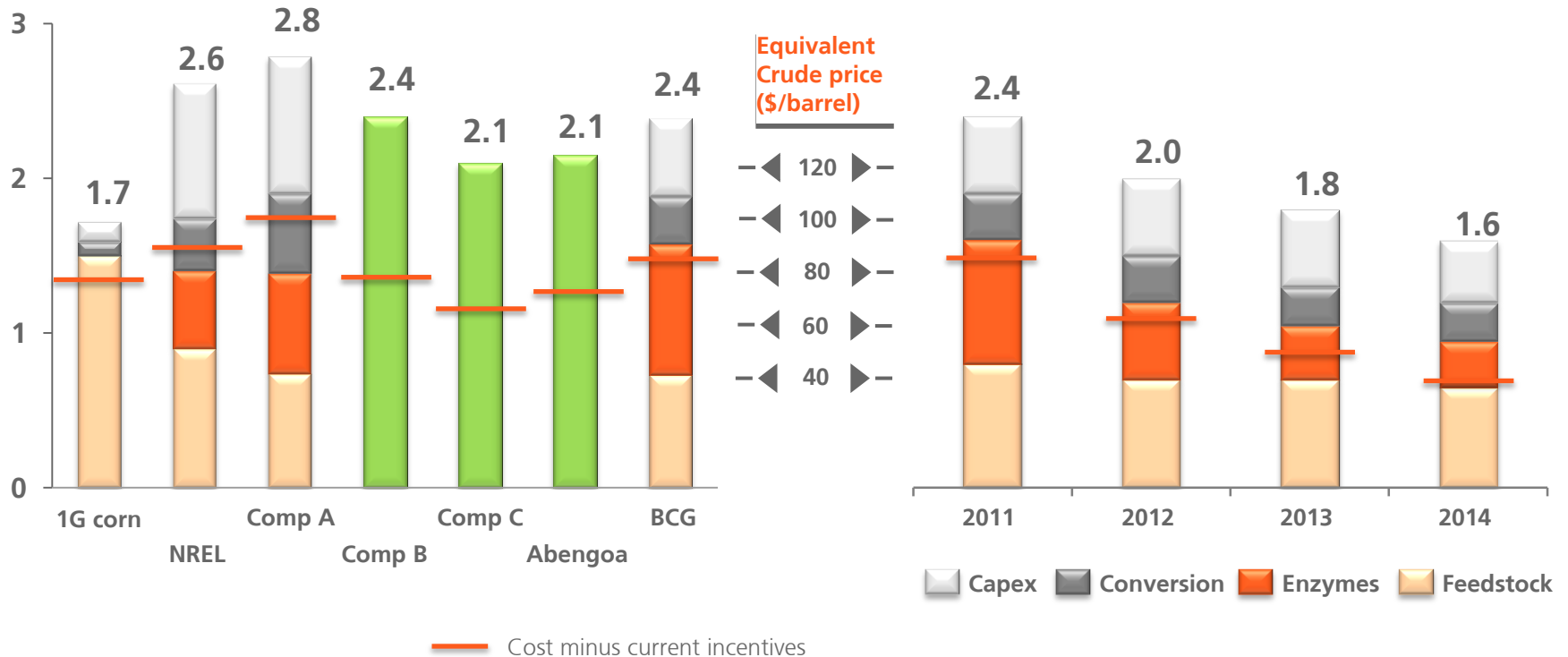
Synergies of merging 1G & 2G result in significant cost savings (10-15 \$cent/gal)



2G very close to be a disruptive solution

First-commercial lignocellulosic ethanol production cost (\$/gal)

Expected lignocellulosic ethanol production cost (\$/gal) (1)

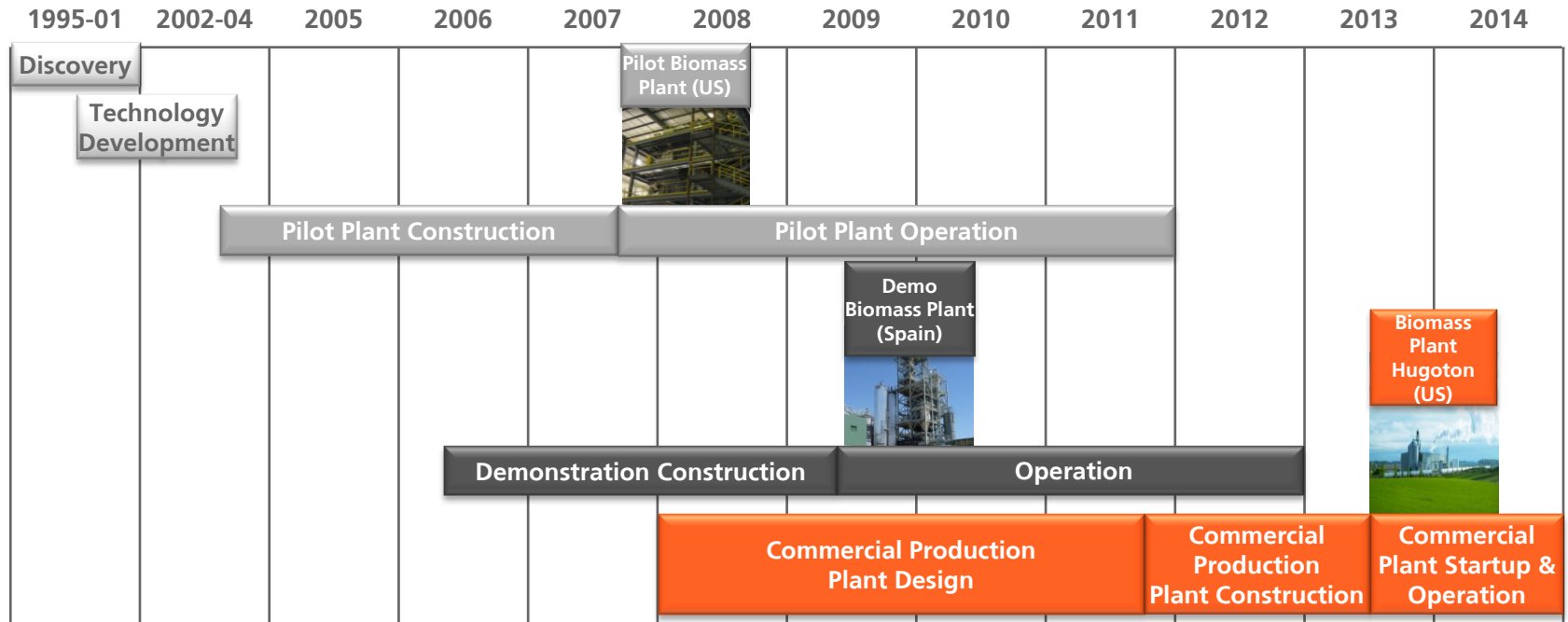


We own integrated process biomass to ethanol Intellectual Property

Biomass pretreatment & presach process	Patent applications: + 12 inventions for cleaning, sizing biomass feedstock; dilute acid & steam explosion pretreatment		
Enzymatic Hydrolysis (Enzymes program)	Patent application for + 12 inventions for fractionation of biomass, cellulases production, multiple fermentation routes		
Fermentation (C5 Program)	License for manufacture of hydrolysis enzymes & custom-developed organism for C5 fermentation		
By-Products valorization (Bioproducts program)	Patent application for CS sugar products, lignin and silica products, high protein feed products		
Target	Enzyme cost	Yield	C5/C6 conversion
	40 \$cent/gal	70 gal/t	90%

Aiming to reach production cost of 2.15 \$/gal in first commercial plant

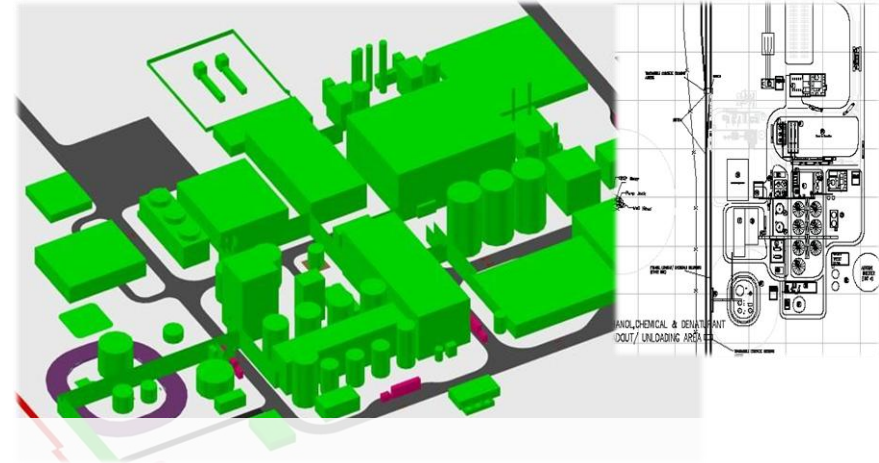
10 years of technology progress through stage-gate process



- ✓ 10 years of technology development
- ✓ +100 people in R&D
- ✓ +\$300 M invested (+\$150 M co-financing DOE + EU)
- ✓ +26,000 hours of operation in pilot plant
- ✓ +4,000 hours of operation in commercial demo plant

Started E&C of 1st commercial scale biomass to ethanol plant (2G)

- Primary objective is to build **first-of-its-kind commercial-scale** enzymatic hydrolysis conversion of biomass to ethanol
- Hugoton Kansas **site selected based on significant supply of biomass and strong** state and local support for the project
- **\$100 M DoE contract** to co-finance project
- Project selected for **DoE Federal Loan Guarantee program, in due diligence process**
- **Biomass: ~320,000 dt per year contracted fix price for 10 years**



- **Capacity: 25 MGPY ethanol from biomass**
- **Electricity capacity: 18-MW gross electrical power. Neutral to grid**
- **Location: Hugoton, KS (US)**
- **Site: 400-acre parcel**
- **Feedstock: Corn stover**
- **End of construction: 2012 E**

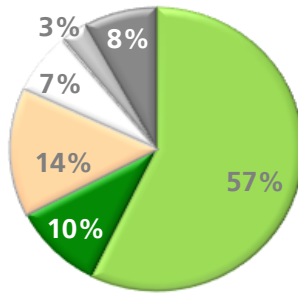
To a more diversified business going forward

Ebitda Margin	
Volatility	
Products	Biodiesel
	Feed
	Sugar
	Electricity
	Bioproducts
	Adv. Ethanol Conv. Ethanol
Target Market	

Now

10 % – 15 %

Medium / High



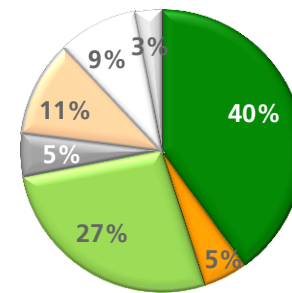
Ethanol-focused (26 BGY)



Target 2020

15 % – 20 %

Low / Medium



Incorporated biomaterials (994 BGY)

Plastics, Fibers,
Rubber & other
Polymers



PMMA
Market size
739 BGY



Polyesters/
Xylene/Styrene
27BGY



Poly-
Propylenes
32 BGY



Rubber, Lubricants
& Additives
8 BGY

Hydrocarbon
Fuels



Gasoline
349 BGY



Diesel
484 BGY



Jet
94 BGY

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Thank you

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