TerraCair® - Diesel Exhaust Fluid Market Update August 2012

AUS 32
TerraCair®
ULTRAPURE DIESEL EXHAUST FLUID

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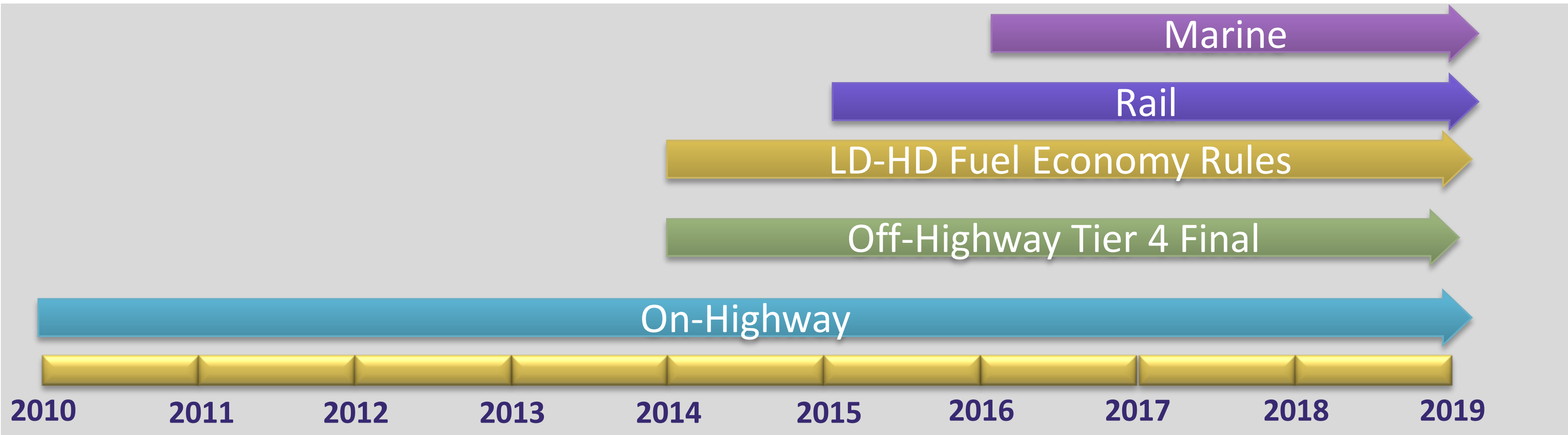
All Diesel Engine Manufacturers in the U.S. Must Comply with EPA Mandates by 2016



*Source: EPA.Gov website

DEF CHARACTERISTICS

- Selective Catalytic Reduction (SCR) technology is accepted and preferred industry emission reduction solution

- Current DEF dosing rates in USA is approximate 2.5% by volume of diesel consumed. Fuel economy rules taking effect in 2014 will require improvements in engine thermal efficiency which will require an increase in DEF dosing rates.
- Current off-road injection rates exceed 5%
- DEF is an essential consumable, and will trade as a fuel commodity
  - 24/7, 365 days per year – imperative that supply is reliable
- Establishing right channels is important for new product
  - Realization that specialized storage, handling and delivery equipment is required
  - Demanding quality requirements

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NOx from marine diesel engines

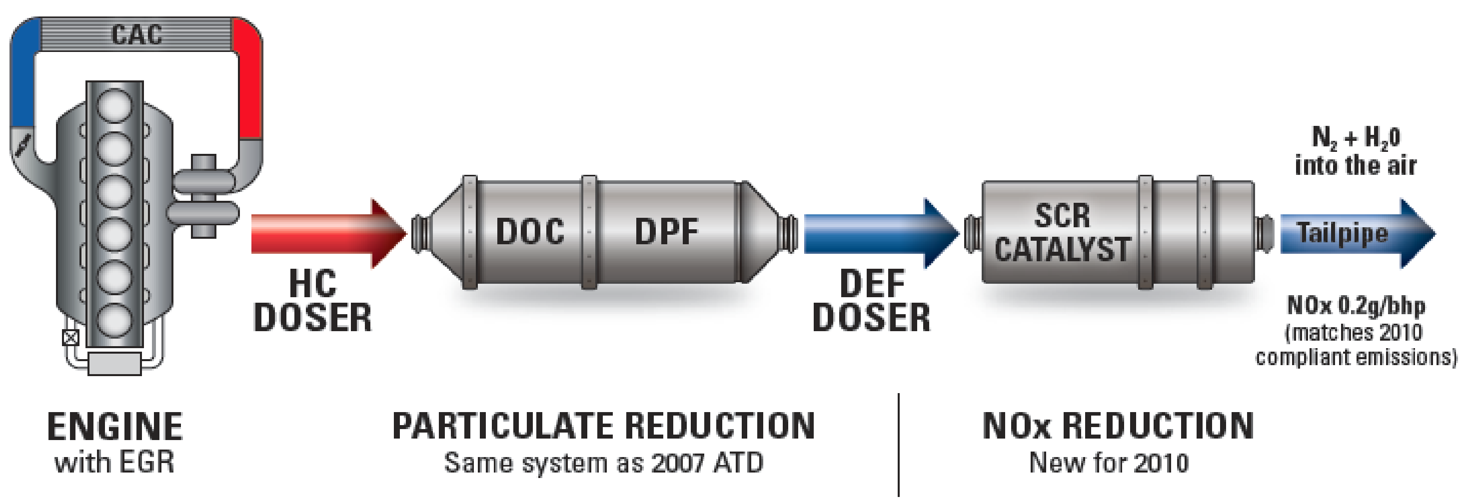
- NOx impacts on human health and environment and is a relevant substance contributing to climate change

- Marine diesel engines are highly efficient engines but produce significant quantities of NOx compared to other types of engines and combustion systems

- In marine diesel engines, the higher the temperature, the more efficient the engine is and also the more NOx it produces. Less efficiency would lead to more fuel consumption…..

- NOx from other sources (e.g. boilers) is relatively small

SCR = Simple, Systematic, Optimized



DD15 + Mild EGR Rate		Less Soot + Active Regen		SCR catalyst + DEF
Better fuel economy Better performance	+	Less regenerations Better fuel economy	+	Near Zero NOx and PM Reduced CO2

SCR Uses Multiple Systems to Reduce Emissions Gradually…Key to Achieving 2014-17 Fuel Economy Stds.

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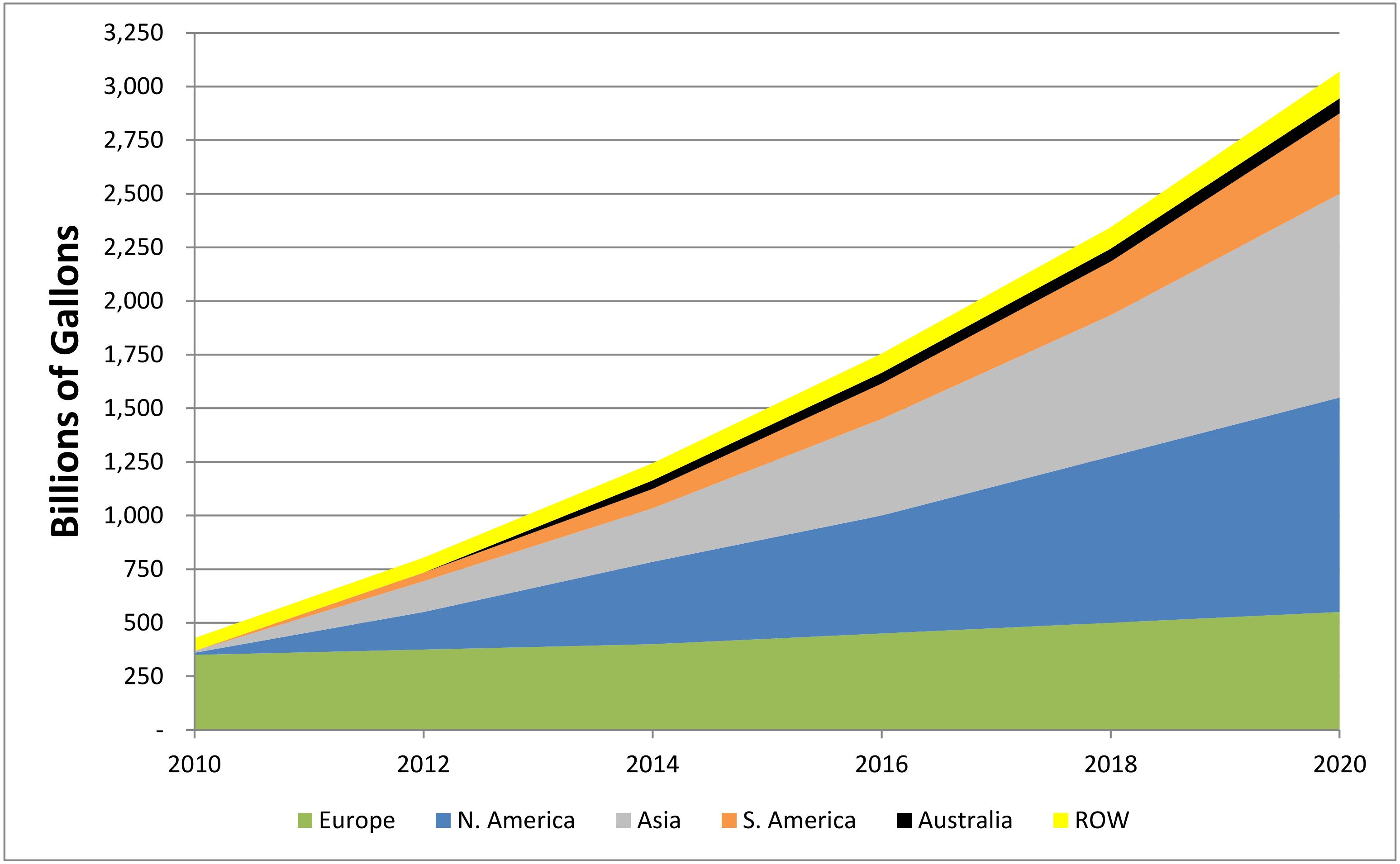
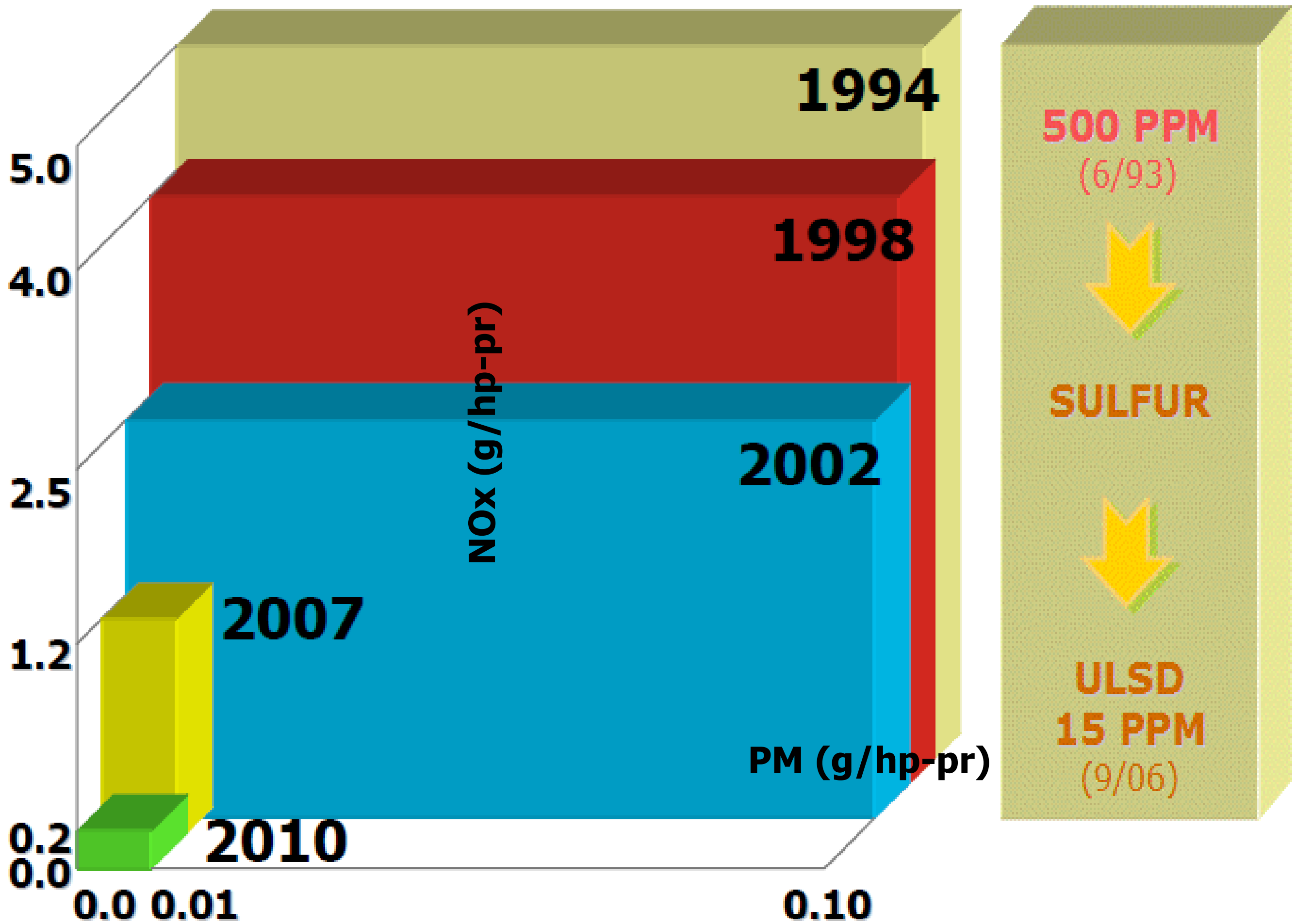
ESTIMATED DEF GLOBAL MARKET GROWTH

- **Urea Based SCR is Being Integrated into Global Vehicle Platforms**



U.S On-Road Emissions Standards are Becoming Stricter

- 1994 heavy-duty emissions were
  - 5.0 g/HP-hr NOx and
  - 10.0 g/HP-hr particulate matter.
- 2010 heavy-duty emissions standards for North America are:
  - 0.2 g/hp-hr NOx is 83% Reduction from 2007
  - 0.01 g/HP-hr particulate matter.



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DEF MARKET OUTLOOK
North American Commercial Vehicle Outlook

ACT Research – New class 8 vehicle outlook (March 2012)

Year	USA	Canada	Mexico	Total
2010	110,004	18,903	11,499	140,406
2011	173,666	25,512	15,788	216,800
2012	213,977	32,500	17,000	264,000
2013	230,000	35,000	19,000	299,594
2014	227,000	32,000	17,500	259,082
2015	200,000	25,000	17,000	215,065

- 2010 U.S. fleet reached a 20-year high in vehicle age – 6.9 Years
- Class 8 vehicles represent ~90% of North American DEF consumption
  - Around 400,000 SCR equipped Class 8 vehicles by end-of-year 2012
- Navistar non-SCR market share dropped from 29.3% to 21.4% (Y-o-Y)
  - July 2012 -Navistar announces it will utilize SCR Technology 2013 exclusively
- Effective 2013 100% of all diesel on-road vehicles will utilize SCR Technology.

DEF MARKET OUTLOOK
US DEF Consumption Forecast 2010 - 2015

December 2011 – Progressive (2.5%)	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Total (in million gallons – 32.5%)	**13**	**78**	**170**	**299**	**447**	**589**
100% UL Short Tons (000)	19	115	249	438	655	862
Average Fleet Dosing Projection	**2.5%**	**2.5%**	**2.5%**	**2.7%**	**3.0%**	**3.3%**

- Dosage assumptions based on new fuel economy standards for 2015 (based on regulatory rules being implemented in 2014) – 2015 dosage rates could reach 5%

Enablers → DEF Product Availability / SCR Technology Performance / Future Regulatory Standards

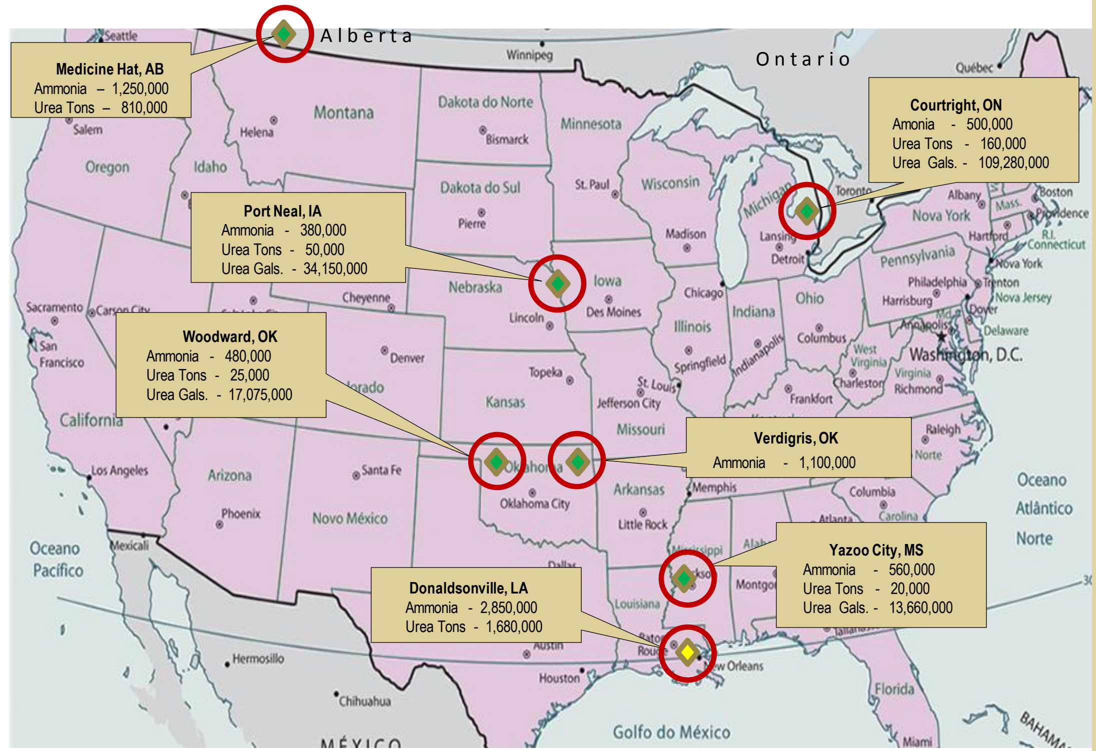
(Bulk Infrastructure) (ROI Technology Acceptance) (Fuel Economy Program)

TerraCair® is the **ONLY** Brand that has DEF manufacturing facilities supplying North America

Dedicated Available Supply

CF Industries' North American Nitrogen Complexes

- Seven manufacturing facilities throughout North America committed to DEF supply
  - # 1 North American Nitrogen production.
  - Annual capacity of 13.5 millon tons.
  - 50% of total Ammonia production in North America
- Four DEF manufacturing sites with two new DEF manufacturing sites added by end of 2013
- Dedicated tonnage tied directly to the Diesel Exhaust Fluid Market
- Commitment to supply availability
- Assures DEF supply



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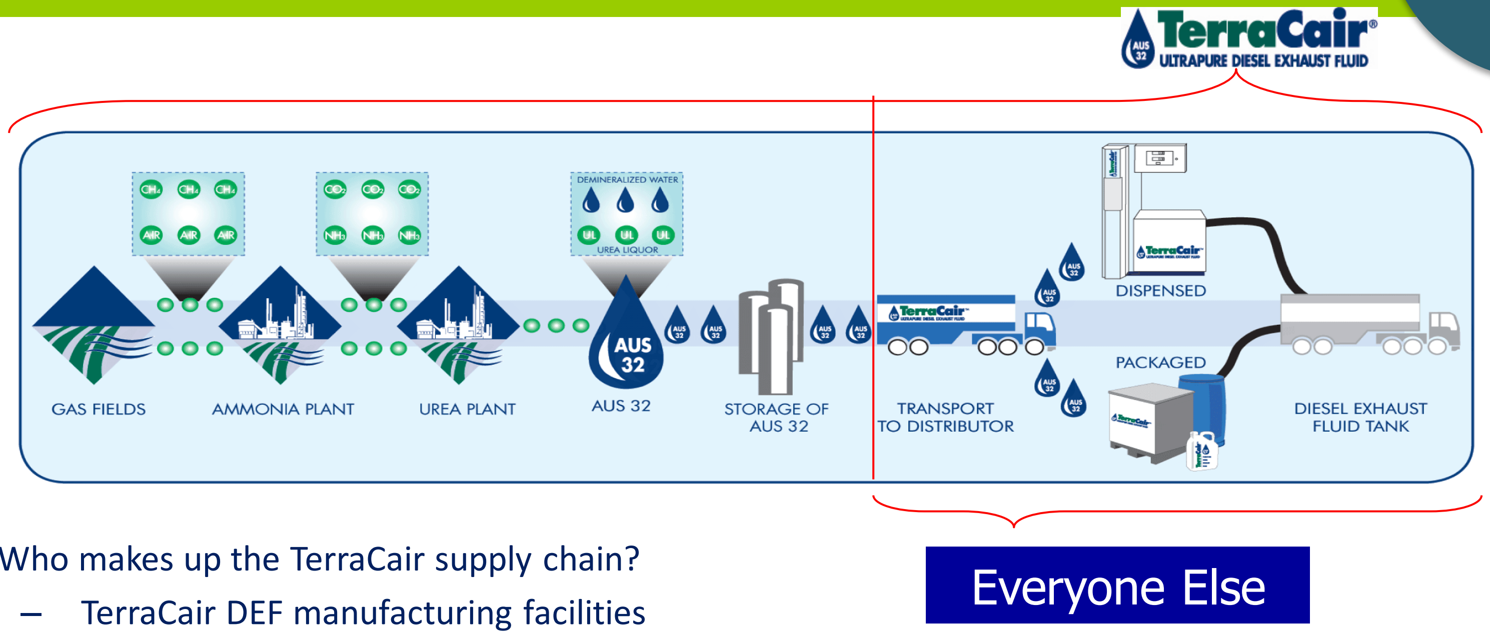
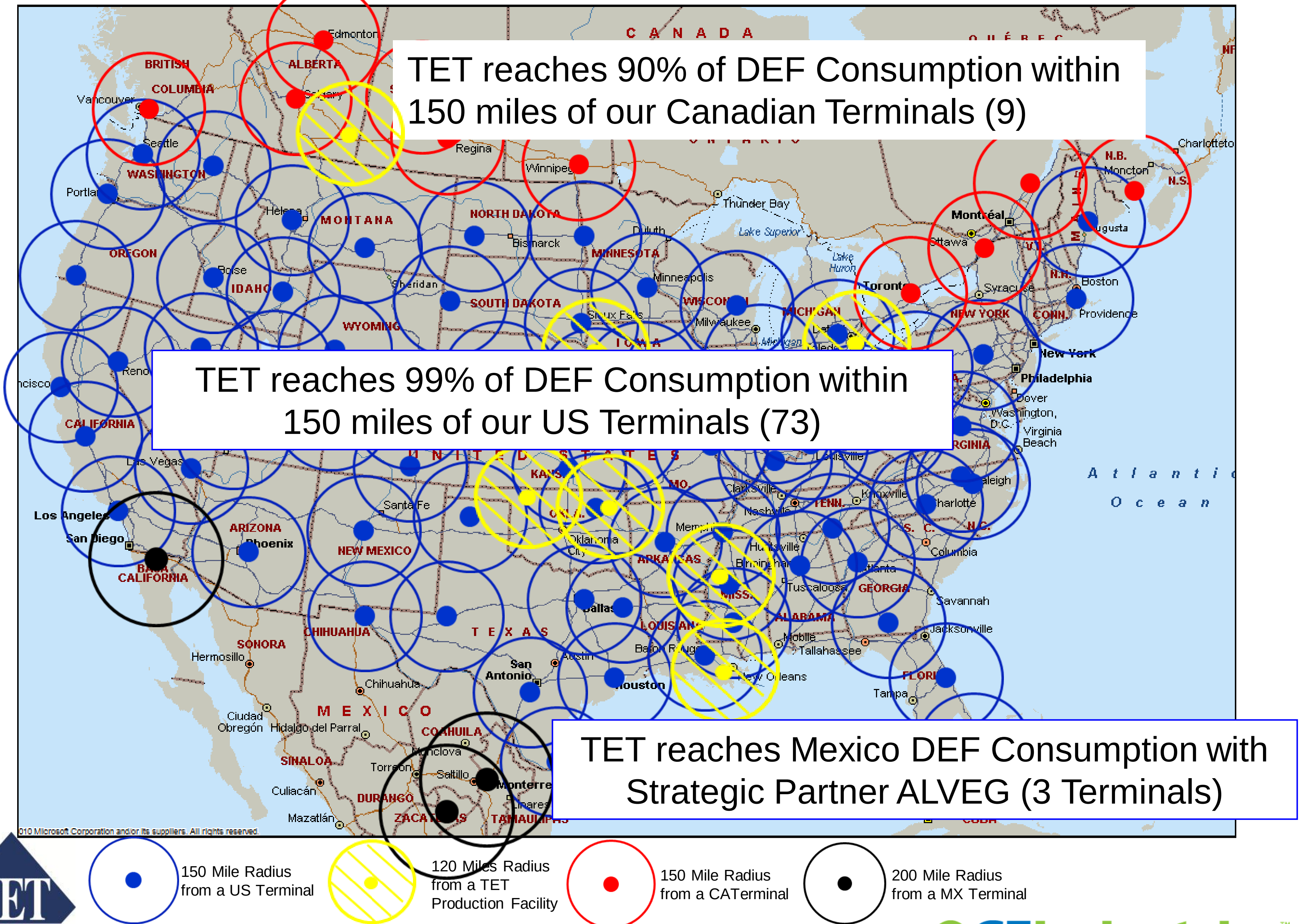
TerraCair® Integrated Supply Chain Ensures DEF Supply Security

Supply Chain Security



- Who makes up the TerraCair supply chain?
  - TerraCair DEF manufacturing facilities
  - Automotive fluid fillers / Distributors
  - Fuel / Oil Distributors
  - Chemical Distributors
- TET manages the complete process from Gas Field to Vehicle Tank. TET is the <u>only</u> manufacturer who controls and oversees the entire distribution chain to ensure and warranty that the product quality delivered to the customers tank complies with ISO 22241
- Integrated supply chain ensures efficient distribution of all package sizes to meet customer's needs
- Certificate of Analysis provides traceability from manufacturer through the chain to the customer
- delivered to the customers tank complies with ISO 22241

2012 TET Distribution Network



DEF Supply in Mexico

Reliable Delivery Network

ALVEG

ALVEG DISTRIBUCION QUIMICA S.A. de C.V has been sucessfully supplying the DEF TerraCair® to OEM's the first fill requirements and aftermarket in México since 2010 in partnetship with CF Industries / Terra.

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Who is ALVEG ?


GRUPO IDESA
GRUPO IDESA PETROQUIMICA
ALVEG ALVI-EGON MEYER
NOVIDESA
Cosmo Nail
Pinturas Marlux
COSMO GRAFICA
Braskem
GRUPO IDESA
Petrochemicals
Distribution
Applications
Logistics
Etileno XXI

ALVEG's 2012 Terminal Network

Reliable Delivery Network

ALVEG
ALVI-EGON MEYER

150 Mile Delivery Radius from T2 Terminal

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TerraCair
ULTRAPURE DIESEL EXHAUST FLUID

ALVEG's Bulk Storage Capacity

Reliable Delivery Network





LOCATION	TOTAL m3
ALVEG - Nacional	11,415
TLAXCALA - IDESA	4,350
PUEBLA - IDESA	8,250
COATZACOALCOS - IDESA	14,300
TOTAL	**38,315**

ALVEG ALVI-EGON MEYER

TET TerraCair ULTRAPURE DIESEL EXHAUST FLUID

ALVEG 's DEF Distribution Capabilities

Reliable Delivery Network

YEAR	DEF Distribution (Tons)	DEF Growth %	Total Chemicals Distribution (Tons)
2009	240	-	126,000
2010	713	197%	173,000
2011	2,559	259%	189,800
2012	3,327	30%	200,000

ALVEG's Transportation Fleet

Reliable Delivery Network

VEHICLE DESCRIPTION	QTY
Short & Large Box Trucks (5.8 & 15 MT)	57
Tank Trucks 15 MT	25
Trucks	33
Tanks and trailers	46
Others	6
Total Units	**156**

ALVEG
ALVI-EGON MEYER

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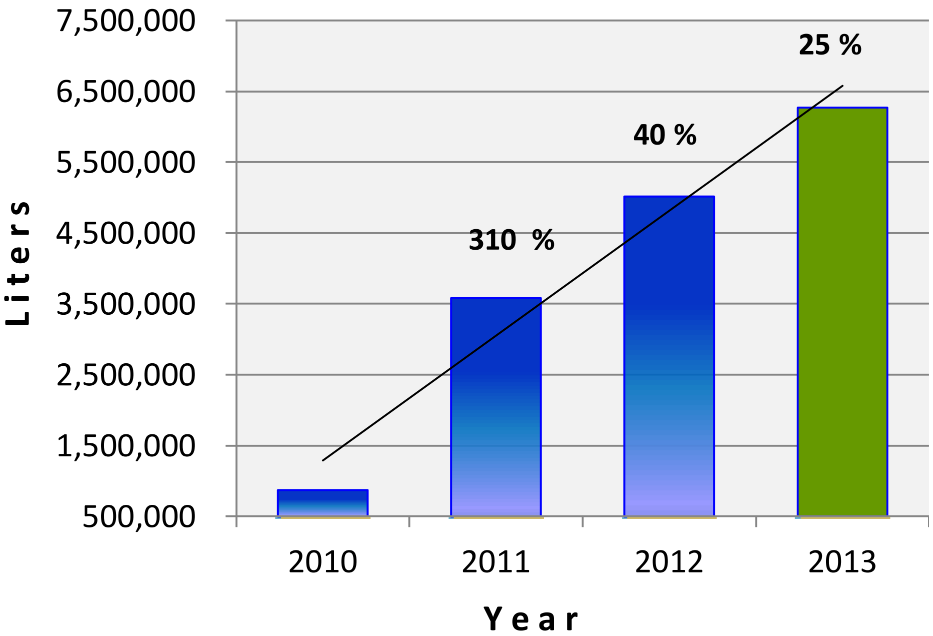
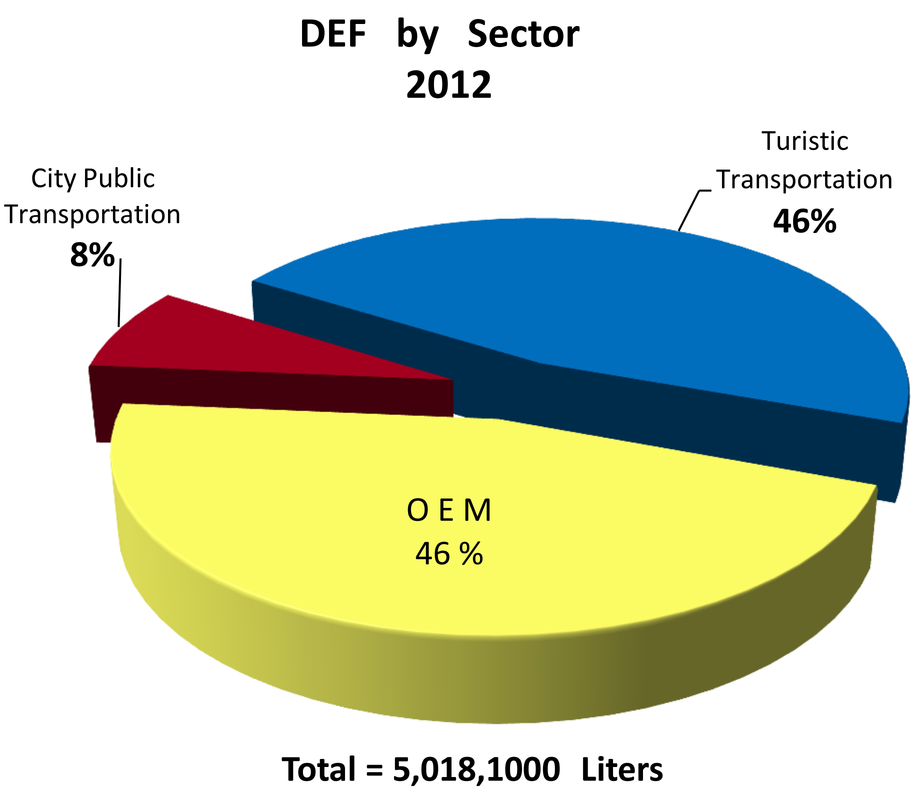
Mexican DEF Market Outlook
2010 - 2013

Reliable Delivery Network





ALVEG ‘s DEF Distribution Capabilities

Thanks