



The miracles of science



Sustainable Growth Through Clean Energy Products

**Ed Mongan
DuPont Company
Safety, Health & Environment**

Corporate Environmentalism

**“Moving beyond compliance to
environmental stewardship that is
fully in line with public expectations”**

Ed Woolard - 1989

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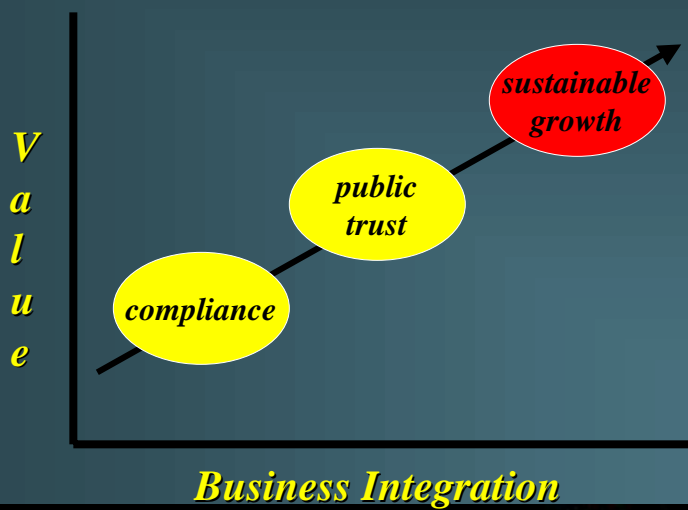
Sustainable Growth

“Creating shareholder and societal value *while*
decreasing our environmental footprint”
.... along the value chain

Chad Holliday - 1999

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The Journey



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Transformation

Today

Volume Driven

Energy & Resource Intensive

Inherently Hazardous/Toxic

Linear Systems

Chemistry & Physics

Internal Out

Future

Value Driven

Knowledge Intensive

Inherently Safe

Circular Systems

Biology & Information

External In

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Clean Energy Products

- ⑤ Renewable Energy from Biomass
- ⑤ Clean Energy Source for Vehicles
- ⑤ Fibers from Corn-based feedstocks
- ⑤ Energy savings from housewrap

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Corn to Energy Alternative

- ⑤ Discarded seed corn currently disposed at \$40 - \$70 per ton cost
- ⑤ Joint effort of Pioneer, Iowa State U. and Carbon Energy Technology, Inc.
- ⑤ Developed method to convert waste to a clean-burning gas
- ⑤ Exploring potential applications

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Fuel Cell Development

- ⑤ DuPont Nafion® film
 - Ionic conductor
- ⑤ DuPont Engineering polymers
 - Fuel and water management systems
 - Thermoplastic heat exchangers
 - Power conditioning and distribution
 - Stack components

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Bio-Based Polymer

- ⑤ **DuPont Sorona®**
 - New fiber with superior properties
 - Currently petrochemical based
 - Recently demonstrated pilot fermentation process to produce polymer from corn sugar
 - Corn to replace petrochemical feedstocks by 2003

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Energy Savings at Home

- ⑤ **DuPont Tyvek® HomeWrap**
 - 25% of composition from recycled milk and water containers
 - Protects walls and reduces energy bills
 - Energy to produce product is recovered ten-fold in first year of use

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