

# Sustainable & Safe Products at P&G

## Experience with DfE

Don Versteeg  
Environmental Toxicologist  
[Versteeg.dj@pg.com](mailto:Versteeg.dj@pg.com)



**Billion-Dollar  
Brands**



Global Household Care

Global Beauty & Grooming

Global Health & Well-Being

**\$500 Million  
to \$1 Billion**



# P&G and DfE



- P&G support of DfE program
  - Applaud DfE's efforts to help companies formulate safer products
- DfE the leader in promoting green products and continuous improvement
- DfE has strong science based approach, excellent chemistry and toxicity input

# P&G and DfE Interactions

- SDSI Award
  - P&G investment and expertise helped create common ground for SDSI
  - Champion level
- DfE 2007 letter - lauds P&G and Tide Coldwater
  - But, Tide Coldwater still not recognized by DfE

# P&G and DfE Interactions

- Product applications
  - Several products submitted, two approved to date
  - More in the pipeline (I&I)
- DfE Criteria for Safer Fragrances & Chelators
  - P&G expertise positive force on technical committees
  - Engagement with stakeholders valuable for all!!

**We are  
Purpose-Driven  
and Values-  
Led.**

**The Consumer  
is Boss.**

**Innovation is  
Our Lifeblood.**



# Our Purpose, Values and Principles

## •P&G Purpose

We provide branded products and services of superior quality and value that **improve the lives of the world's consumers, now and for generations to come.**

## •P&G Principles

**We incorporate sustainability into our products, packaging and operations.**

## •P&G Policy

**Ensure that our products, packaging and operations are safe for our employees, consumers and the environment and comply with all applicable regulations.**



# P&G Safety Assessment Methods

- Published, internationally accepted methods based on exposure and effects/hazard
  - Multiple endpoints (toxicity, sensitization, repro, etc.)
- In addition to regulatory assessments
- Ensure safety
  - All ingredients, all products, all geographies

# Sustainable Innovation: Inventing Technologies that Improve Environmental Quality

Old Technology	Replacement Technology	Why change?
ABS	LAS	Anionic surfactant Foaming in rivers/improved biodeg profile
APE	AE	Nonionic surfactant Marginal to complete biodeg, toxicity & EDC issues
DTDMAC	DEEDMAC	Fabric softener active Non-biodegradable to biodegradable
Anionic surfactants	HSAS	Anionic surfactants with superb environmental pedigree replaced; cold water wash need



# Beyond safety is sustainability

- Need to reduce:
  - energy use
  - greenhouse gases
  - freshwater use
  - solid waste
  - hazardous waste
  - etc.



# 2012 Sustainability Goals & Progress

## 2009 Report Card

Strategy

2012 Goal

Progress



**Products**

**\$20 Billion**

**\$50b**

**\$13.1 Billion**



**Operations**

10% reduction  
(per unit production) in:

- Energy consumption
- CO<sub>2</sub> emissions
- Disposed solid waste
- Water consumption

Total reductions over the decade  
of at least 40%

**20%**

	Since 2007	Decade
Energy	-11%	-48%
CO <sub>2</sub> emissions	-10%	-
Solid waste	-30%	-53%
Water	-13%	-52%



**Social  
Responsibility**

Live, Learn and Thrive  
250MM Children

**300m**

135 MM Children

Prevent 80 million days of disease  
and save 10,000 lives by delivering 2  
billion liters of clean water in our  
Children's Safe Drinking Water  
program

39 MM Days

2,442 Lives

930 MM Liters

# Life Cycle Assessment (LCA)



Covers a variety of environmental indicators

Energy consumption

Water consumption

Use of resources

Solid waste

Global warming

Emissions into air

Ozone depletion

Human toxicity

Aquatic ecotoxicity

Emissions into water

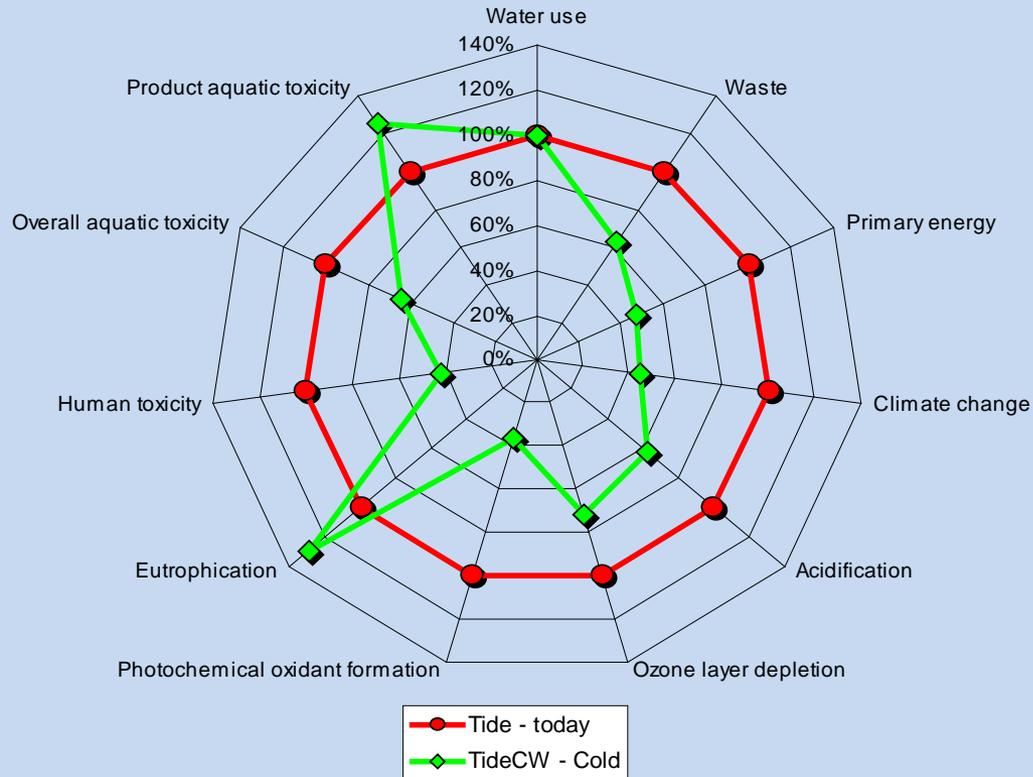
Acidification

Eutrophication

Summer smog

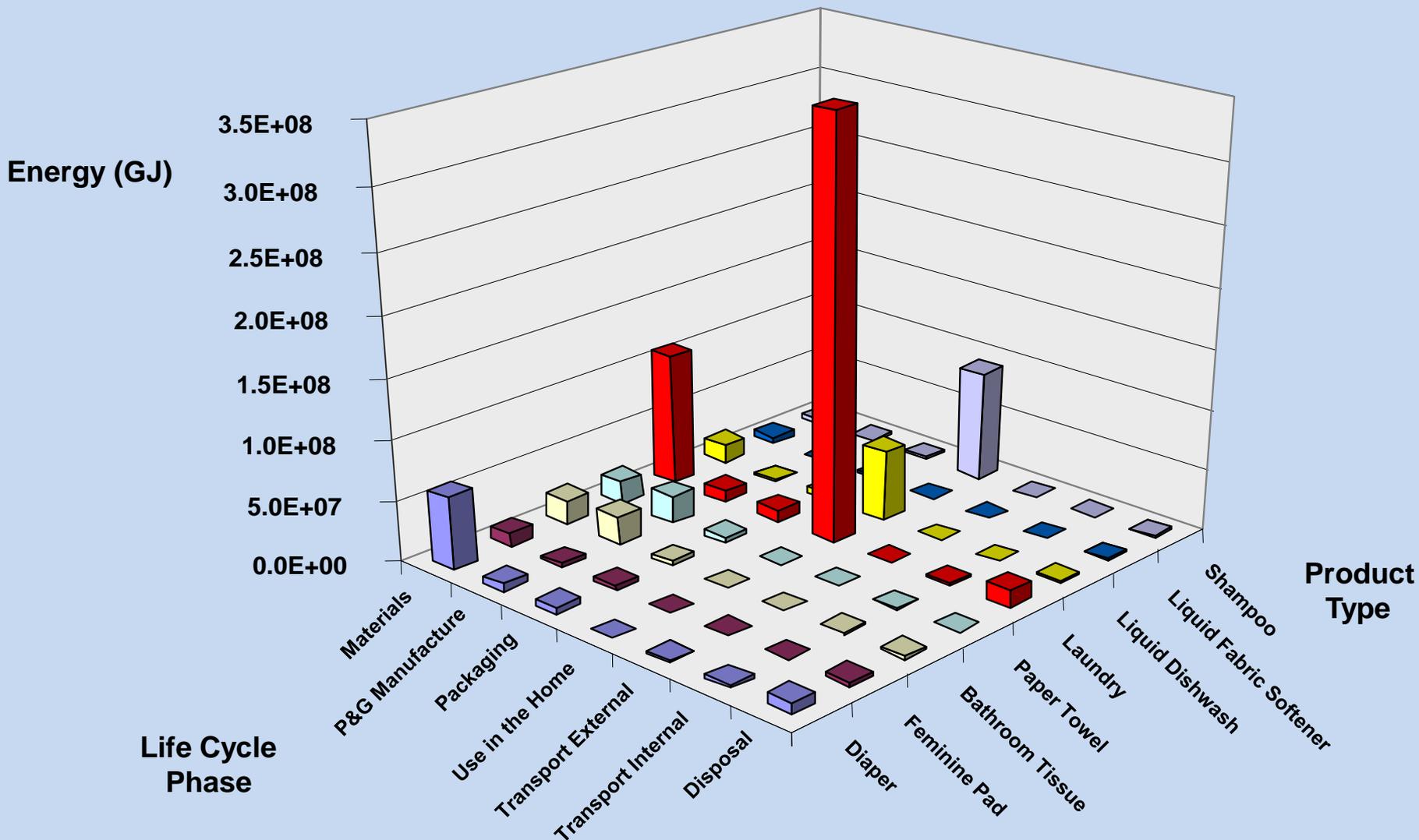
Tool to assess env. impact of technologies and products through their entire life cycle

# Spider Diagram



**LCA profile of the wash process using liquid Tide Coldwater in cold water compared to regular liquid Tide following current wash practices.**

# Company Product Energy Usage from Life Cycle Perspective



- Diaper
- Bathroom Tissue
- Laundry
- Liquid Fabric Softener
- Feminine Pad
- Paper Towel
- Liquid Dishwash
- Shampoo

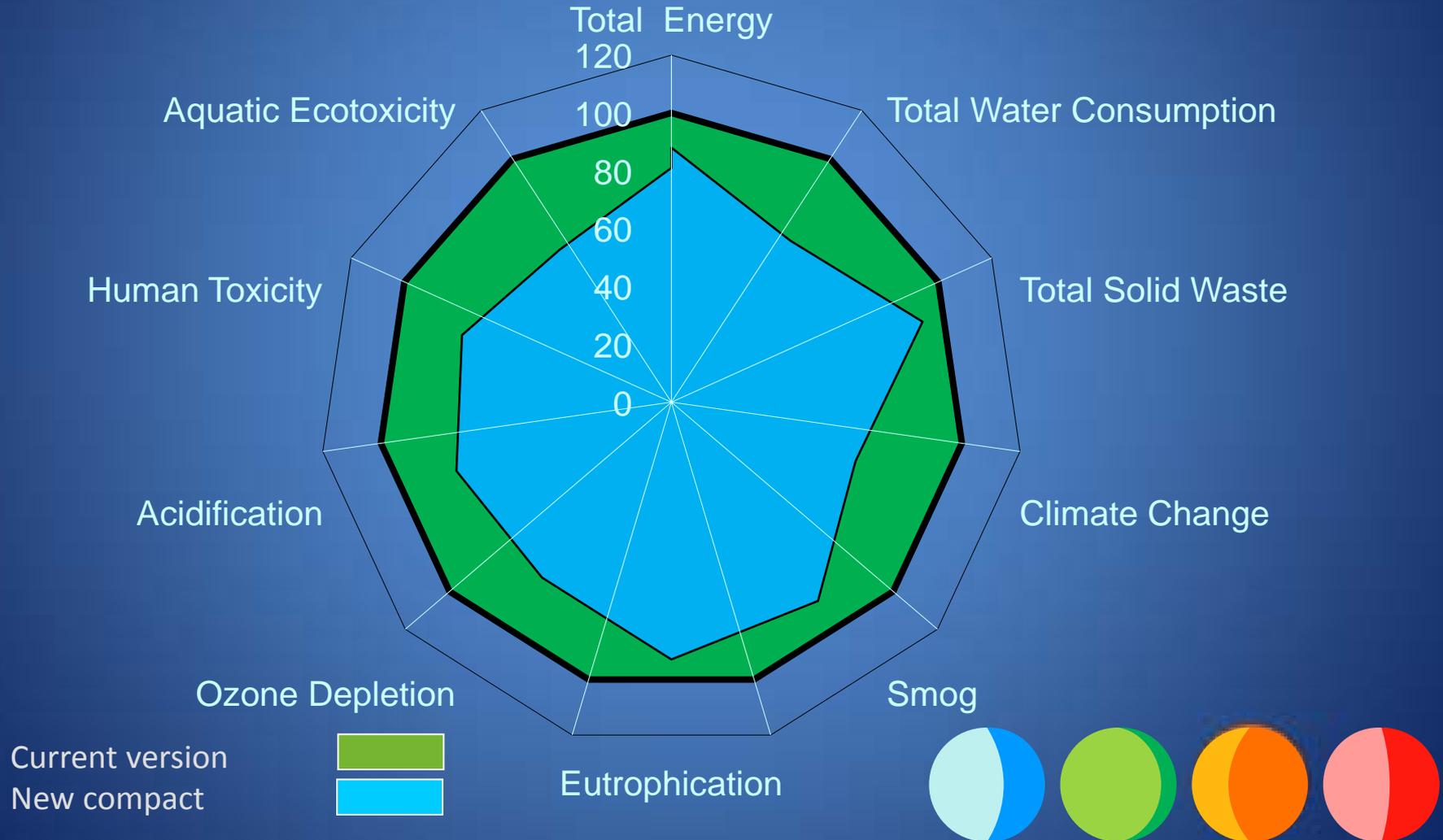
# Helping Consumers Save

- **Tide Cold Water**

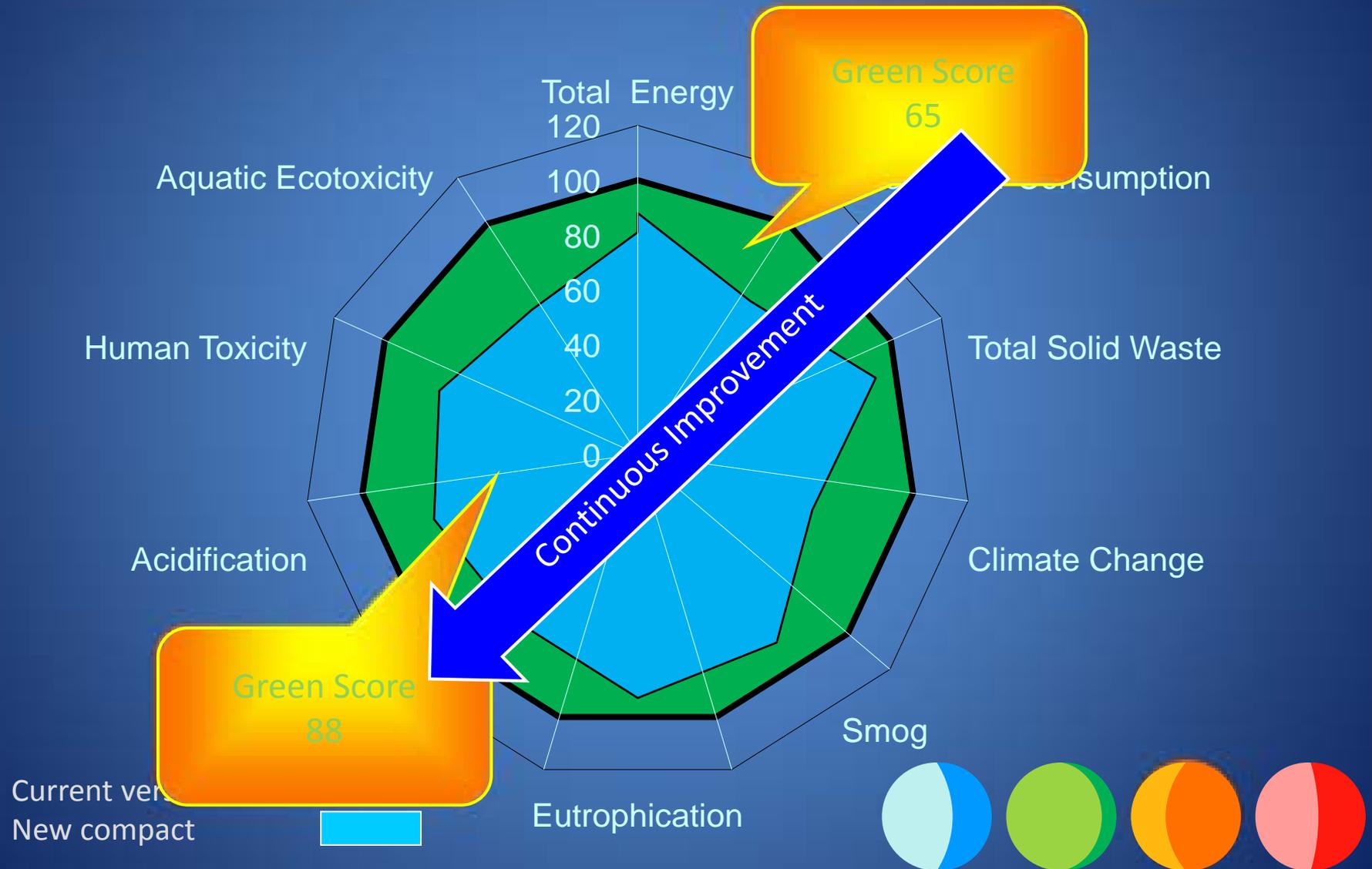
- Cleaning with no trade-offs
- Consumer can save \$10 on their energy bill with a 100oz. bottle of Tide
- Substantial impact
  - If every U.S. household used cold water for laundry, the energy savings would be 70 to 90 billion kilowatt hours per year.
  - These savings would translate into 34 million tons of carbon dioxide per year not released into the environment (~8% of the US Kyoto target).



# LCA



# LCA



# American Chemical Society

- Development of a green standard
- Multistakeholder
  - Includes NGOs, government (state & federal), industry, consultants
- Green chemistry focus, initially
- Content – LCA rich
- Timing



# President Obama

- ↓ Overall energy usage
- ↑ Renewable energy
- ↓ Fossil fuel
- ↓ Water usage
- ↓ GHG
- ↓ Hazardous waste
- ↓ Toxic chemicals
- ↑ Reuse of water
- ↑ Reuse of nonhazardous waste

Consistent with P&G's  
sustainability initiatives

# Paul Anastas

EPA Assistant Administrator ORD

## Green Chemistry Principles

Prevent wastes during synthesis

Use safer solvents and reaction conditions

Less hazardous synthesis

Degrade after use

Design safer ingredients & products

Use renewable feedstocks

Catalysts, not stoichiometric reagents

Avoid chemical derivatives

Maximize atom economy

Increase energy efficiency

Real time pollution prevention

Minimize the potential for accidents



Consistent with P&G's  
sustainability  
initiatives

# Public Input on Environmental Issues

## Gallup Poll

Global climate change

Lack of freshwater

Loss of tropical rainforests

Species extinction

Pollution

## Experts

Overpopulation

Global climate change

Energy

Lack of freshwater

Desertification/biodiversity

Pollution

# DfE Approach

- Actionable, objective criteria
  - Limited negative lists
- Move to “safer” ingredients
  - Individual compounds assessed
  - Hazard based
  - Less toxic to humans and environment
  - Biodegradable

# DfE Approach

- Risk is ignored
  - Whole product toxicity not evaluated
  - Does it always lead to less toxic products?
- Humans - acute toxicity evaluated, but are products acutely toxic?
  - Epidemiology data – make sure we fix a problem, not just create more work
- Environment – do these products negatively impact the environment?
  - Available ecoepidemiology studies say no for cleaning products

# DfE – Sustainability Disconnect

- DfE does not include sustainability metrics
  - Greenhouse gas production
  - Energy used in production & product use
  - Water used during production & product use
  - Impacts of raw material supply
  - Solid waste generation
  - Hazardous waste generation

Not included

# Product Effectiveness

If it is not clean, it is not green

- ★ AWFUL!!!! DO NOT IGNORE THESE BAD REVIEWS!!!!, October 2009
- ★ Pure Bleach!!, September 2009
- ★ white residue, July 2008
- ★ I wish I could choose zero stars., April 2009
- ★ Worst detergent even, but not all is lost!, February 2009
- ★ Don't Buy!!! Spare yourself the hassle (I'd give it ZERO stars if i could), January 2009
- ★ Dismal performance., December 2008
- ★★★★★ *works great, October 2008 (5 stars)* ←
- ★ Terrible--always leaves a film, October 2008
- ★ Doesn't clean worth a darn!!!, September 2008
- ★ Terrible Product, September 2008
- ★ Washes away your time and money!, June 2008
- ★ White residue over everything, April 2008
- ★ Leaves residue on silicone items, March 2008

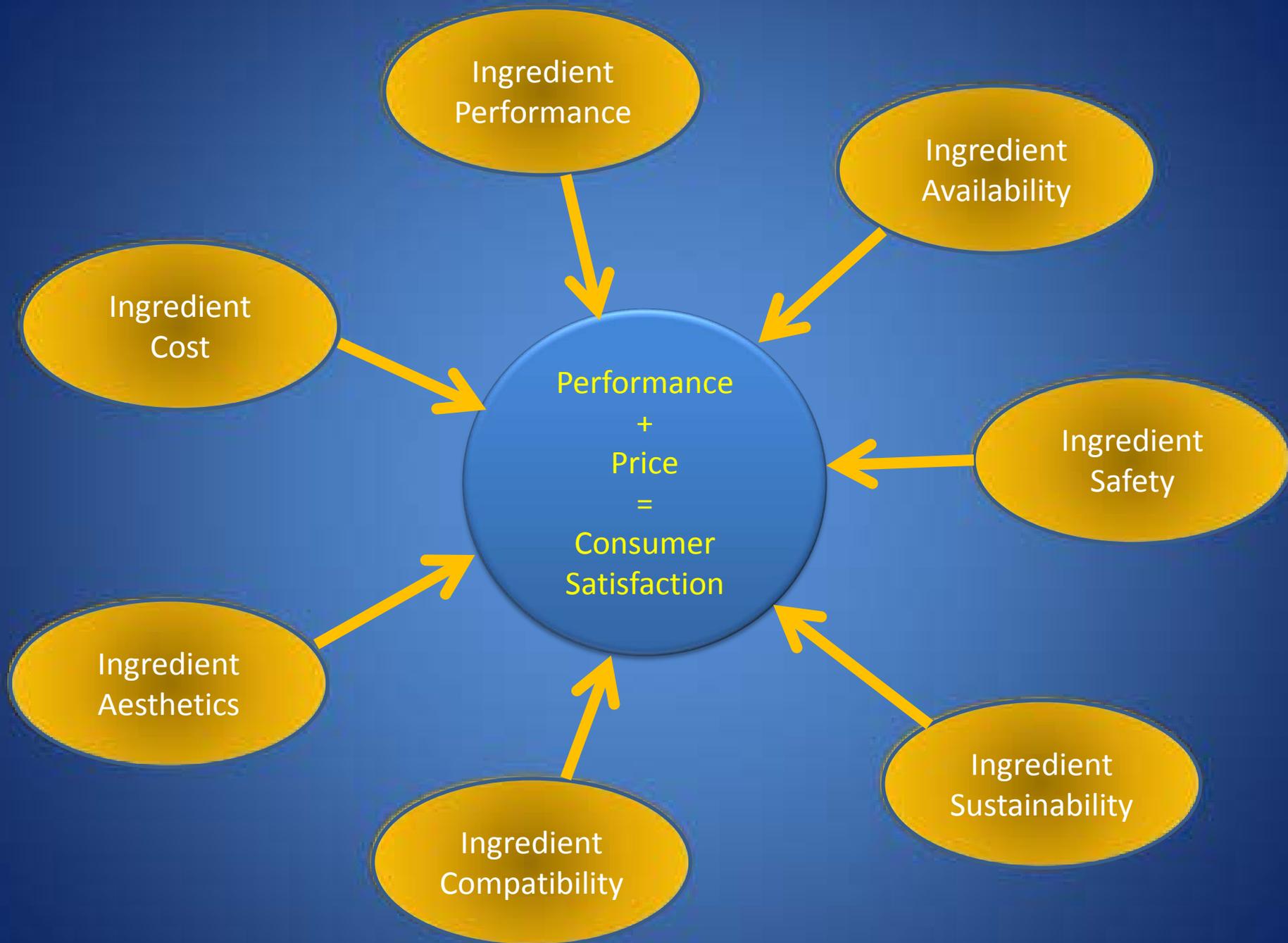
# Green AND Clean



- Ineffective products lead to:
  - Recleaning
    - Increased product used, packaging, solid waste, etc.
    - Increased energy to produce & transport the product and package
    - Increased energy to heat water, apply the product, etc.
    - Worker time & expense (and aggravation)
  - Less sanitary conditions
    - Spread of disease, illness

# Ingredient Substitution

- Consumer products are complex
- Simple answers are hard to find
  - Small Amines
    - Chemical suppliers & formulators consulted
      - Nine months ago
  - Solvent



Ingredient  
Performance

Ingredient  
Availability

Ingredient  
Cost

Performance  
+  
Price  
=  
Consumer  
Satisfaction

Ingredient  
Safety

Ingredient  
Aesthetics

Ingredient  
Sustainability

Ingredient  
Compatibility

# Final Thoughts

- Continue to engage stakeholders, we can be part of the solution
- Make sure you are solving real problems
  - Identify human health & environmental issues with a set of products, then target rules
- Focus on safer chemicals but allow for minimizing overall risk from product
  - Tiered risk approach
    - De minimus (0.1% in EU & GHS)

# Final Thoughts

- Incorporate sustainability metrics
  - . . . but only when risk is low
- Speed to market -> Greatly needed
  - Allow self-certification for companies with that ability
    - GLPs, ISO standards, LCAs, Clinical trials, etc.
- Clean AND Green
  - Incorporate quantitative measure of efficacy

# Sustainable Innovation

Improve environmental quality

Protects the consumer

Conserve resources

Improving quality of life, now and for generations to come





# Appendix

# P&G Defines Sustainability Broadly...



Social  
Responsibility

## Sustainability

... better quality of life for everyone, now and for generations to come



Environmental  
Responsibility

# 2012 Sustainability Strategies

Built into the *Rhythm* of the Business



**Strategy 1:**  
Products



**Strategy 2:**  
Operations



**Strategy 3:**  
Social  
Responsibility



**Strategy 4:**  
Employees



**Strategy 5:**  
Stakeholders

# Strong Sustainability Heritage



•First environmental safety publication (1950s)



Pioneered use of Life Cycle Assessment (1990s)



One of the first companies to form a “corporate sustainability department” and publish a sustainability report (1999)



Introduced global corporate cause – *Live, Learn and Thrive™* (2005)



Double Concentrate (2X) liquid laundry detergents debut (2007)

2006  
P&G is National Inventor of the Year for the design and development of P&G purification sachets



2008  
EPA awards P&G's Cincinnati corporate headquarters with the Energy Star Certification

2008  
P&G receives the European Business Award honoring commitment to corporate sustainability



2007  
P&G launches its new Sustainability Strategy and five-year goals

2007  
P&G is named one of the world's most innovative companies



2005  
Tide Coldwater and Afta Cool Clean are introduced, promoting low-temperature washing

2005  
Downy Single Rinse introduced, offering water savings in critical regions

2004  
P&G creates the Children's Safe Drinking Water Program, using the program to reduce lead in drinking water

2001  
FTSE4Good launched, P&G listed every year since inception

1999  
P&G's 30th anniversary environmental publication is produced

1999  
P&G forms a corporate sustainability department and publishes an annual sustainability report



1992  
P&G reacts to elemental chlorine leakage for all of the Company's paper products



1993  
P&G commits to sustainable forestry for sourcing pulp



1992  
United Nations World Commission on Environment and Development (WCED) report, 'Our Common Future', published



1999  
P&G creates the first environmental exposure model for consumer products

1997  
Developed the Geo-referenced Regional Exposure Assessment tool for European sites

1991  
P&G helps define the field of Life Cycle Assessment



2009  
P&G ranked as a Sector Leader in Dow Jones Sustainability Indexes (DJSI)



2005  
P&G awarded Stockholm Industry Water Prize for providing safe drinking water

2005  
P&G introduces its global corporate cause—Live, Learn and Thrive

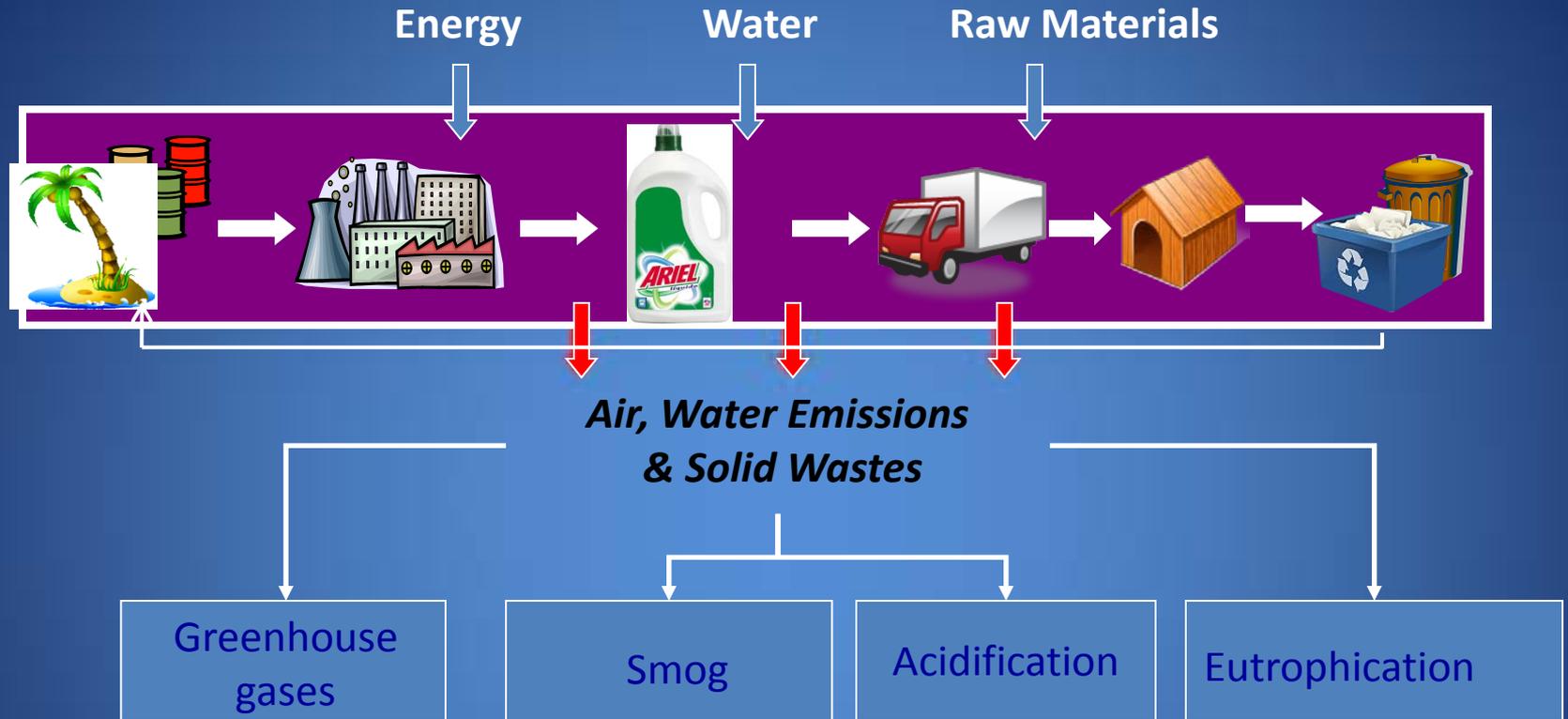
P&G recognized by EPA for Children's Safe Drinking Water program

2007  
P&G awarded the Ron Brown Award for Corporate Leadership

OECD adopts P&G's laboratory biodegradation test series

2008  
P&G delivers the billionth liter of clean water in its Children's Safe Drinking Water program

# Outline of Life-Cycle Assessment



# Detergent Compaction: Reducing the dosage of liquid detergent by 50% drives Sustainability ...

- 35% reduction in plant water usage
- 35% reduction in non-renewable package materials
- 60,000 distribution trucks trips eliminated
  - 40 MM fewer miles traveled to save 8 MM gallons of diesel fuel
- Reduced P&G carbon footprint

