

I Seminario de Energías Renovables



Las energías renovables vistas desde
la Sustentabilidad Empresarial y Conclusiones
Seminario



Las reglas de la competitividad cambian en México (y el mundo)

- Los cambios en el equilibrio legislativo exigen un mejor control en su impacto sobre la competitividad empresarial
- Primera Ola de Sustentabilidad
 - Pasión personal
 - Crisis en las relaciones públicas y *Greenwashing*
 - Presión regulatoria



- Nueva Ola de Sustentabilidad
 - Tormenta perfecta de amenazas
 - Instrumentos económicos
 - **Accionistas más demandantes**
 - **Licencia social** para operar
 - Búsqueda de valor agregado en el medio Ambiente
 - **Mercado** y acceso a clientes (*Greenvertising*)
 - **Marcas diferenciadas**
 - Incremento en la productividad, entre otros

Catalizadores
Efecto Gore
Efecto Wal-Mart



Sustentabilidad y Transversalidad

Ecología



una percepción
equivocada



Back Yard

Selected Time

Desarrollo Comunit

Igualdad social

Social

Capitalismo BANANA

Accionario

Build Anything Anytime
Anywhere

¿PERCEPCIÓN?

Reference: Global Environmental M

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SIGUE LOS PASOS CON GEMI

Diseño Convencional

Diseño Verde

Energía (Eficiencia en su uso)

Energía (Eficiencia en su uso)

Materiales Eficiencia

Manufactura

Uso del Producto

Relleno

Diseño para Reciclado

Desechos Industriales
Prevención

Diseño Para el reuso

Herramientas Sustentables

INVERSIONISTAS

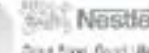
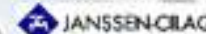
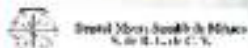
SUSTENTABILIDAD

MEJORA CONTINUA DESEMPEÑO

INCENTIVOS

TRANSPARENCIA

REPORTE DE ACTIVIDADES GEMI 2007



CONCEPTOS

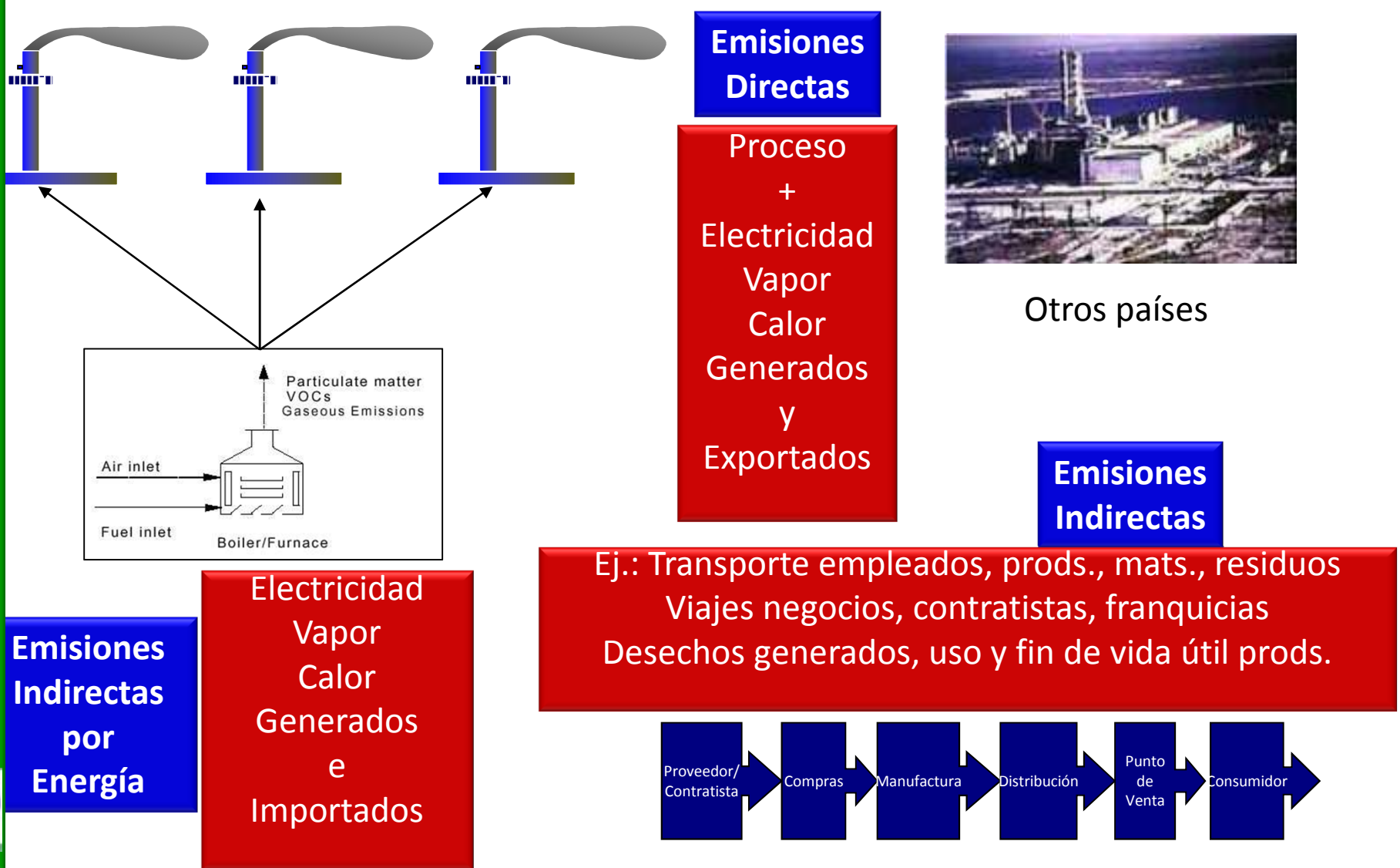


Fuente: Global Environmental Management Initiative, año 2007



Identificación de E&R de GEI

Clave: Control operacional/financiero

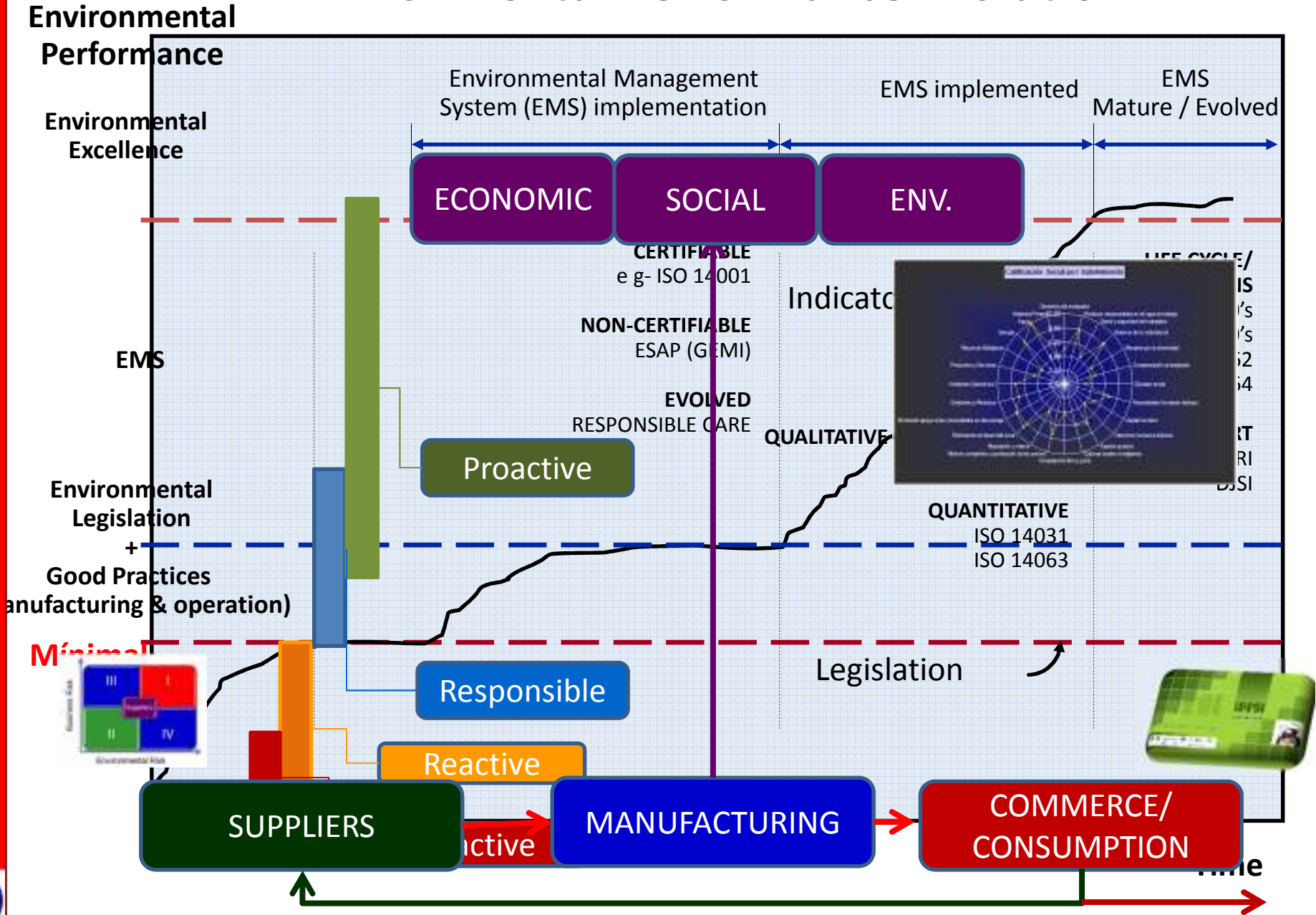


Cadena de Valor



Environmental Performance Evolution

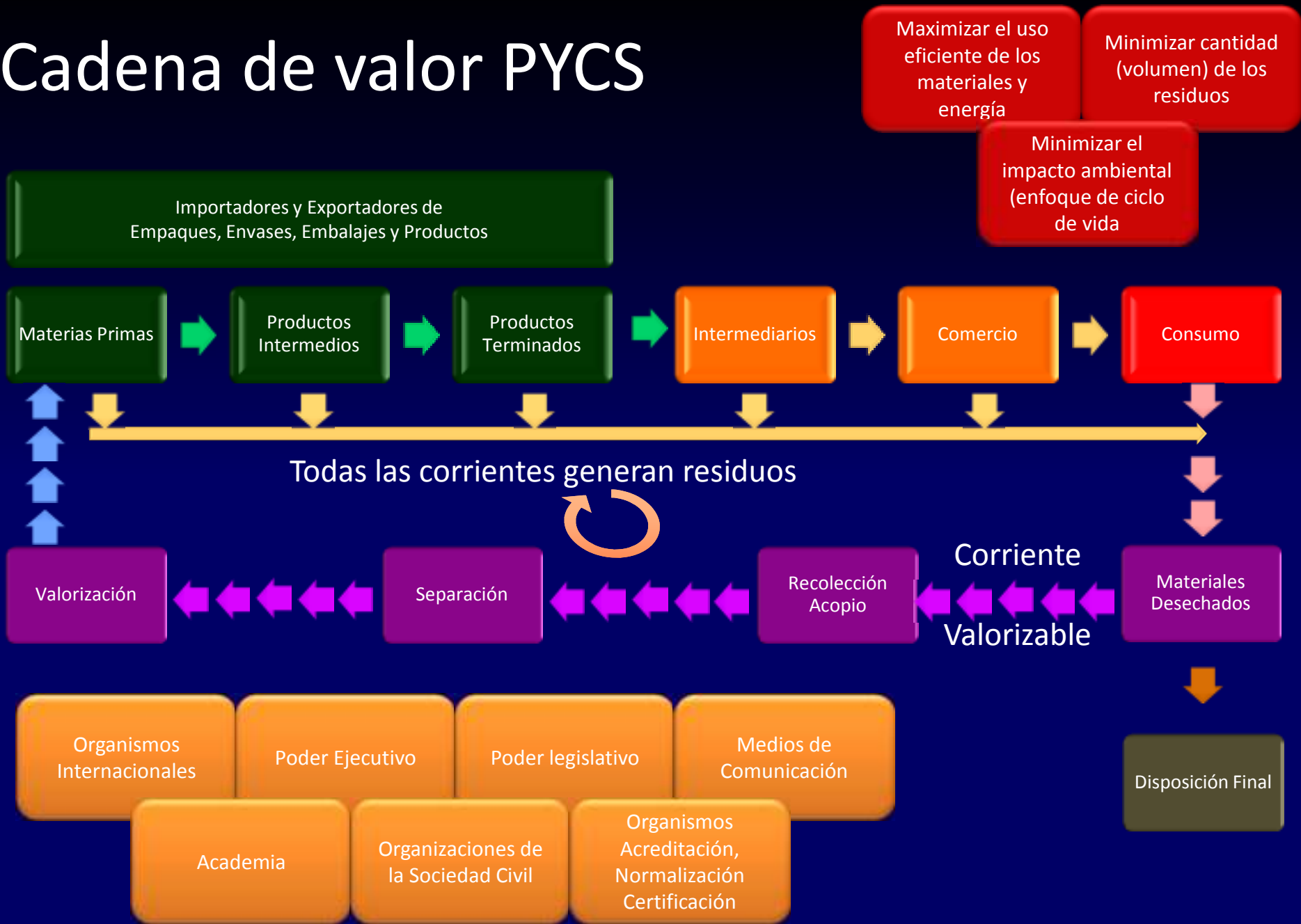
P E R F O R M A N C E



Fuente: Iniciativa GEMI



Cadena de valor PYCS



Airline Carbon Emissions Calculator

Winner of the 2008/2009 ITM ICARUS Award!

Rated #1 in a study from the Stockholm Environment Institute

Validated by ICF Documentation and Sample Report

About this site

Reset Defaults

1 Select Origin and Destination

Origin: Mexico City (Juarez) Mexico - MEX
 Dest: Paris (C.DeGaulle) France - CDG

9,192 statute miles nautical miles km

This site reports emissions for non-stop flights for over 5,600 of the world's most popular city pairs

2 Select Options

Airline: Averages or All Details or Details for ...
 Trip as: One-Way or Return
 Weight in: Pounds or Kilograms
 With or without RFI

Select a carrier:
 Set the Price/ton CO2:
 US\$ 12.00
 Update Price

Airlines ordered by greenest Economy Class

Airline (includes codeshares)	First Class	Business Class	Price
Air France	\$20.64 (1,706 kg)	\$18.31 (1,514 kg)	\$9.6
Aeromexico	\$23.41 (1,936 kg)	\$21.70 (1,795 kg)	
Alitalia-Compagnia Aerea		\$23.83 (1,971 kg)	

Average Carbon Emissions: Cost and for a One-Way flight. RFI

Typical Comparison





Calculators

Run these calculators for estimates of emission reductions and fuel impacts associated with a particular transportation-related strategy:

- [Airport Ground Support Equipment \(GSE\) Model](#)
A spreadsheet tool that provides users with a quick analysis of the emission benefits and cost-effectiveness of controlling GSE emissions.
- [Business Benefits Calculator](#) (EXIT Disclaimer)
Use this tool to estimate the financial, environmental, traffic, parking, and related values of offering employees high quality commuter benefits.
- [COMMUTER Model](#)
Calculate transportation and emissions benefits associated with selected commuter benefits, incentives, and other voluntary strategies. Emission reductions for VOCs, NOx, CO, air toxics, and CO2 may be calculated.
- [SmartWay FLEET Performance Model](#)
Conduct a thorough assessment of the environmental performance of fleet (truck) operations, and calculate additional fuel savings (and PM) that can be achieved through a range of options and strategies.
- [SmartWay Technology Package Savings Calculator](#)
Use this easy-to-use calculator for a quick comparison of costs, fuel savings, and emission benefits associated with various truck and fleet operations).
- [Diesel Emissions Quantifier](#)
Characterize a truck or bus fleet and calculate the tons of emission reductions (CO, CO2, NOx, hydrocarbons, and PM) that a retrofit can achieve.
- [School Bus Calculator](#)
Calculate fuel savings that can be generated by reducing the amount of time school buses idle.

<http://www.epa.gov/oms/stateresources/tools.htm>

<http://www.freightmetrics.com.au/Road/CarbonEmissions/tabid/103/Default.aspx>

Este vehículo es comercializado en México; sus características de emisiones contaminantes cumplen al menos con la norma NOM-042-SEMARNAT-2003.

<http://www.ecovehiculos.gob.mx/>

Ventaja Competitiva

Reducción de
Costos

Reducción de
Riesgo

Acceso al
Mercado

Reputación

Cumplir con
regulaciones

Incremento Valor
al Accionista

Atraer/Retener
clientes

Aumento
reputación marca

Reducción Costos

Minim. Riesgos
asociados a la
Sustentabilidad

Diferenciar
Productos

Aumento
reputación
empresa



Transparencia de
la empresa

Mayores Ingresos

Mejores
Condiciones
Trabajador



Resolver
Problemas
Ambientales

Nuevos Mercados

Resolver
Problemas de
Imagen

Apoyo a Iniciativa
Ecológicas

NUEVAS FUERZAS EN LA SUSTENTABILIDAD

NATURE	MARKETS	BUSINESS	ENERGY
<p>RE-ENGINEERING NATURE</p> <ul style="list-style-type: none"> Conservation to restoration to optimization Designer ecosystems Re-sourcing natural resources <p>THE ENVIRONMENTAL DILEMMA</p> <p>Effective green strategies need to identify:</p> <ul style="list-style-type: none"> Focuses: short-term costs with long-term benefits Tags: short-term benefits with long-term costs 	<p>CAP AND TRADE: A STORMY START</p> <p>Pollution trading strategies seem promising but still must overcome skepticism and controversy. Debates will likely follow other strategies:</p> <ul style="list-style-type: none"> Carbon tax Carbon offsets Carbon sequestration 	<p>INTANGIBLE WEALTH GENERATION</p> <p>Investors get serious about:</p> <ul style="list-style-type: none"> Intellectual capital Social capital Natural capital <p>ECONOMICS AND ECOSCIENCE: A CHAOTIC INTERPLAY</p> <p>Climate change drives development or economic stagnation and markets to incorporate carbon. However, new focus is on clean and highly innovative, creating a virtuous and complex arena of responsibility.</p>	<p>SUSTAINABILITY SCORECARDS!</p> <p>Carbon footprint per worker</p> <ul style="list-style-type: none"> Employee health/wellness Turnover rate Employee civic engagement <p>EFFICIENCY AS CATALYST</p> <ul style="list-style-type: none"> Energy efficiency as engine for radical innovation Clean fossil fuel solutions? <p>GLOBAL REINSURANCE</p> <p>Reinsurance firms force insurance companies to account for climate change in their policies</p>
<p>ROGUE ECO-STATES</p> <p>Some nation states benefit from the status quo and resist sustainable development</p> <p>ENVIRONMENTAL SERVICES</p> <p>Markets for environmental services grow:</p> <ul style="list-style-type: none"> 15-20% of food production depends on pollinators Trees store carbon and reduce stormwater runoff 	<p>INFORMED REFORMS?</p> <p>New institutions and instruments to manage ecologies of risk, but they will need to be deeply informed by science to be effective.</p> <p>ENVIRONMENTAL MARKETING</p> <ul style="list-style-type: none"> Eco-labeling Brand differentiation Carbon information labels <p>Products will display environmental impact of production and use</p>	<p>THE BOTTOM LINE IS BACK</p> <p>Deep self-interest, not altruism, drives strategies of energy efficiency and "green" strategies as realistic business practice.</p> <p>MEGA-RETAILER REGULATORS</p> <p>Increasing internationalization creates opportunities and exacts its consequences, but also creates responsibility to anticipate and handle.</p>	<p>SMALL SCALE SOLUTIONS</p> <ul style="list-style-type: none"> Micro-power (wind and hybrid) Solar walls and roofs Water capture and purification <p>DISTRIBUTED ENERGY</p> <p>Innovative strategies to generate and manage energy through lightweight technologies as viable alternatives to centralized grids.</p>
<p>CONTROVERSIAL TESTING GROUNDS</p> <p>Developing and undeveloped countries pilot green tech, fueling debates about:</p> <ul style="list-style-type: none"> Environmental justice, self-governance and development Innovation, hacking, competition and exploitation 	<p>BLACKENED MARKETS</p> <p>Demand for non-sustainable fuels by nouveau riche tech and palm economies</p> <p>BLACKENED MARKETS</p> <p>Tools to identify, offset, and create stopped business value</p>	<p>BEYOND COMPLIANCE</p> <p>Companies must create value while navigating among diverse voices, all of whom may have different conceptions of sustainability</p> <p>DATA FILTERS</p> <p>Tension between transparency, ubiquity of data, and need for accessibility</p>	<p>GRAMEN SHAKTI</p> <p>Renewable energy microentrepreneurs</p> <p>BARFOOT SOLAR ENGINEERING</p> <p>Rural women in South Asia trained to install and maintain solar power systems</p>
<p>ENVIRONMENTS</p> <p>Open and RFD of culture via digital food places</p> <p>COLLABORATIVE ECO-MAPPING</p> <ul style="list-style-type: none"> Bottom-up pollution mapping and environmental monitoring Field-based field data Earth Transparency Project <p>OPEN-SOURCE ENVIRONMENTALISM</p> <p>Sharing environmental practices and IP to create an environmental knowledge commons</p>	<p>PARTICIPATORY PHILANTHROPY</p> <ul style="list-style-type: none"> Social entrepreneurship Stakeholder, shareholder activism <p>WORK THE PLANET</p> <p>Labor issues become a key focus in sustainability debates</p> <p>SMART NETWORKING</p> <p>Online lifestyles, mobile communication and collective behavior take networking to the next level</p>	<p>BOTTOM-UP CSR RATING</p> <ul style="list-style-type: none"> Right2Life.org World Index for Social Environmental Responsibility Online eco-labelling <p>IMMERSIVE STRATEGY</p> <p>Simulations, persuasive media and open modeling take off as standard learning tools</p>	<p>IN THIS TOGETHER...</p> <p>Citizens share strategies for eco-friendly, energy-efficient lifestyles, often in innovative ways</p>
<p>PLANETARY MARKUP LANGUAGE</p> <p>Universal data protocols for field research</p> <p>LABS ON A CHIP</p> <p>Support in situ environmental sampling and analysis</p>	<p>NEW SOCIALLY FUNDS COMMON-BASED STRATEGIES</p> <p>Social returns development and social identity via above-average value-led asset markets:</p> <ul style="list-style-type: none"> Regenerative Commerce Viva Terra ShiParadise 	<p>ECO-CONSUMER COLLECTIVES</p> <p>Online buying groups nurture relationships between consumers and companies</p> <p>HUMAN RESOURCES</p> <ul style="list-style-type: none"> Employee health as new commons Programs to support employees' eco-friendly lifestyles 	<p>CARBON COMMONS</p> <p>Emissions as common values, decisions and choices</p> <p>ENERGY: NEW COMMONS OR WEAPON?</p> <p>States vary in their strategic approach to energy resources depending on geopolitics and presence of activism</p>
<p>BIOLOGICAL RESOURCE MANAGEMENT</p> <ul style="list-style-type: none"> Bioengineered fuel cells Cellulose converting synthetic termites Beehive-inspired fog collector for desert water 	<p>WASTE AS RESOURCE</p> <p>New design and production methods create demand for waste as raw material</p> <p>RAPID, FLEXIBLE MANUFACTURING</p> <p>3D printers + computational design trigger transformation of factories and manufacturing, and enable rapid prototyping of eco-friendly products</p>	<p>BIOTEAMING</p> <p>Beyond project management, to health, performance, guidelines, models</p> <p>BIOHACKING</p> <p>DIY molecular biology for health, performance, fashion and fun</p>	<p>POWER AND ENERGY INNOVATION</p> <ul style="list-style-type: none"> Options for alternative energy increase: Bioethanol from grass, cellulose ethanol algae fuels cells Solar organic polymer solar goods Indian molten salt thorium nuclear power Mass: nano-bee-hatched photovoltaics

BUSINESS

ENERGY

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- Buyblue.org
- World Index for Social Environmental Responsibility
- Online eco-tagging

IMMERSIVE

Simulations, pervasive media and open modeling take off as standard learning tools

QI, participants document and post their responses to a fictional oil crisis



Source: <http://www.world-withoutoil.org/>

Citizens share strategies for eco-friendly, energy-efficient lifestyles, often in innovative ways

ECO-CONSUMER COLLECTIVES

Bioplaneta is a network of sustainable companies and cooperatives in Mexico

Online buying groups redraw relationships between consumers and companies

HUMAN RESOURCES

- Employee health as new commons
- Programs to support employees' eco-friendly lifestyles

CARBON COMMONS

Emissions as commons reframes decisions and choices

ENERGY: NEW COMMONS OR WEAPON?

States vary in their strategic approach to energy resources depending on geopolitics and presence of activism

TURING

ign

BIOTEAMING

Beyond project management: bio processes as guidelines, models

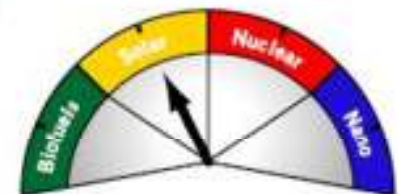
BIOHACKING

DIY molecular biology for health, performance, fashion and fun

POWER AND ENERGY INNOVATION

Options for alternative energy increase:

- Biofuels: saw grass, cellulose ethanol algae fuels cells
- Solar: organic polymer solar goods
- Nuclear: molten salt thorium nuclear power
- Nano: nano-boosted photovoltaics



BOTTOM-UP CSR RATING

- Buyblue.org
- World Index for Social Environmental Responsibility
- Online eco-tagging

IMMERSIVE STRATEGY

Simulations, pervasive media and open modeling take off as standard learning tools

In the alternate-reality game World Without Oil, participants document and post their responses to a fictional oil crisis



Source: <http://www.world-withoutoil.org/>

IN THIS TOGETHER...

Citizens share strategies for eco-friendly, energy-efficient lifestyles, often in innovative ways



Conclusiones

De la crisis, a la oportunidad

- En GEMI no nos gustaría hablar más del cambio climático. Centramos nuestra atención en la solución principal. **Descarbonizar** la economía.
- No desperdiciemos más petróleo convirtiéndolo en CO₂
- En forma **gradual e inteligente**;
- Ofreciendo condiciones **propicias y certeza** energética a precios competitivos y **disponibilidad** adecuada;
- Aprovechando **sinergias** y destruyendo **barreras** y mitos.



M R V---Huella de C--- Descarbonización

Drivers:

- Precio
- Calidad
- Servicio
- Tiempo de entrega
- Protección al ambiente y Responsabilidad social



- Hoy las empresas deben elegir opciones para la diversificación de su cartera energética, bajo criterios de **rentabilidad**, **factibilidad técnica** y **licencia social**.
- A nivel local, nacional e internacional
 - Minihidráulica
 - TLC, Kyoto, Programáticos, Río+20,...

Escenarios 2030

La Vida no Vale Nada

- El país se **estanca política y económicamente**
- No es posible ni siquiera **mantener vigentes** los instrumentos de política pública existentes a la fecha
- La **economía formal no crece** y la **dependencia** del Estado en los recursos **petroleros** para su funcionamiento se acentúa (el gasto público esté sujeto al vaivén de los precios del petróleo)
- Hay **incertidumbre y altos costos** de transacción:
 - La inversión privada, se concentra sólo en actividades con **períodos muy cortos de recuperación**
 - Las **inversiones** en infraestructura y la aplicación de nuevas y mejores tecnologías se ven muy limitadas
 - La **sociedad se vuelve menos solidaria** y sólo ve por sus intereses más inmediatos
 - El medio ambiente se **deteriora** y aumenta el costo individual y social por crecientes problemas de salud y por catástrofes naturales y de abastecimiento de alimentos y agua.



Escenarios 2030

Atole con el dedo

- Se llega a acuerdos políticos que permitan **reformas de largo plazo**, algunas de éstas se logran
- La economía funciona lo suficientemente bien para que el Estado y las principales **instituciones** tengan los **recursos mínimos necesarios** para seguir operando los instrumentos ya en funcionamiento y reaccionar ante algunos eventos no previstos (como desastres naturales o caídas en los precios del petróleo)
- **No hay recursos para inversión pública en infraestructura** ambiental ni los necesarios para capacitación y para investigación y desarrollo, por lo que no se pueden aplicar instrumentos de política pública más avanzados o más adecuados
 - Se afecta la necesaria **descentralización** de facultades, en particular las ambientales, que se ve **detenida por la falta de infraestructura** técnica, humana y material, y por los grandes desequilibrios regionales que no se han podido disminuir
 - Hay **poca inversión privada** en infraestructura ambiental, la cual se ubica en unos cuantos nichos tecnológicos y regionales
 - Las tendencias actuales de deterioro ambiental se modifican ligeramente, pero sin resolver los problemas de fondo.



Escenarios 2030

Abriendo brecha

- México logra una **madurez política** que permite llegar a los grandes acuerdos necesarios para las políticas de Estado que permiten que la economía funcione de acuerdo con parámetros de país desarrollado
 - El **Estado opera sin discontinuidades** institucionales y con los recursos para llevar adelante políticas públicas de fondo y de largo plazo
 - La **inversión privada** tiene las **condiciones adecuadas de certidumbre** para ser motor de la infraestructura ambiental que se necesita
 - El Estado tiene la solidez para asegurar el **cumplimiento de regulaciones** que cuiden bienes comunes
 - La población acepta el costo y los inconvenientes transitorios de la construcción de dicha infraestructura
 - Se **mejora notablemente la calidad de los servicios ambientales** y se reducen los costos sociales del deterioro de la salud y los gastos por desastres prevenibles.



¡Gracias!



INICIATIVA GEMI



GOBIERNO FEDERAL

SENER

