

Corporate Strategies for Clean Energy

1. Utility Companies	<ul style="list-style-type: none">• invest in renewables• invest in cleaner fossil generation• reduce power losses• conduct customer DSM• sell green power
2. “Energy End-Use Product” Manufacturers	<ul style="list-style-type: none">• produce more efficient products• reduce manufacturing energy intensity
3. Commodity Manufacturers	<ul style="list-style-type: none">• reduce manufacturing energy intensity
4. Oil/Fuel Companies	<ul style="list-style-type: none">• reduce refining/exploration energy intensity• get into renewable energy business• produce and sell biofuels
5. Clean Energy Companies	<ul style="list-style-type: none">• innovate new product designs and reduce product costs• reduce manufacturing costs
6. Retailers	<ul style="list-style-type: none">• stock and promote efficient products• provide product labels and information• offer “turn-key” packages including installation/maintenance

1. Utility Companies

Company	Strategies	Impact
Entergy	<ul style="list-style-type: none"> • Stabilize GHG/CO2 emissions at 2000 levels by 2005, with further reductions beyond 2005 • Encourage demand-side management among customers 	Depends on demand, prices. Doesn't include other non-GHG emissions.
Los Angeles Dept. of Water and Power	<ul style="list-style-type: none"> • "Green LA" strategy for increased use of solar rooftop PV, more energy efficiency, green power program, electric vehicles, landfill gas 	small, still, a "model" program for other utilities to follow
Ontario Power Generation	<ul style="list-style-type: none"> • more (but not major) development of renewables--\$50 million for 500 MW by 2005 • own energy consumption savings of 3% by 2005 	dubious with more nuclear and uncertain prospects for less coal
PEPCO (Washington DC)	<ul style="list-style-type: none"> • Sell green-e to residential and commercial customers (mostly landfill gas, solid waste, with some wind) • Investments in RE and EE 	Impacts of programs appears small
Seattle City Light	<ul style="list-style-type: none"> • Zero net GHG/CO2 emissions through: (a) customer EE programs, (b) increased generation share from RE through net metering, green electricity purchases, (c) purchase of offsets; (d) tree planting 	Utility and consumer education. GHG impact unprecedented, even with existing base 80% hydro.

2. “Energy End-Use Product” Manufacturers

Company	Strategies	Impact
Daimler Chrysler	<ul style="list-style-type: none"> • research on improving efficiency of internal combustion engine • research on fuel cell and hybrid vehicles, based on methanol and hydrogen fuels; starting with buses 	large potential impacts on local emissions from fuel cell and hybrid vehicles
Ford	<ul style="list-style-type: none"> • research on efficient vehicle technologies • bring to market fuel cell and hybrid vehicles • fleet efficiency for EU sales 25% below 1995 by 2008 • reduce energy consumption of manufacturing 	large potential impacts on local emissions from fuel cell and hybrid vehicles; technologies not guaranteed to be profitable
Toyota	<ul style="list-style-type: none"> • Develop and aggressively market hybrid vehicles • Improve fuel economy of all vehicles • Reduce E intensity by 15% in manufacturing by 2005. • Participate in California Fuel Cell Partnership 	More hybrids, but impact moderated by higher share of light trucks and SUVs. Achieved 7% reduction in mfr energy intensity since 2000.
Maytag	<ul style="list-style-type: none"> • energy efficiency as part of new product development • new horizontal-axis designs, such as Neptune washer, 45% above Energy Star. 	minor beyond following federal standards

3. Commodity Manufacturers

Company	Strategies	Impact
Alcoa	<ul style="list-style-type: none"> • reduce non-CO2 emissions by 30-80% by 2007-2010 • reduce CO2 emissions 25-50% by 2010 (from 1990 baseline) • Reduce NOx, SO2, other emissions by 2010 • product design for maximum recyclability 	new technologies could have large impact on industry; Achieved 10% reduction in total U.S. emissions of HFCs, PFCs, SF6 (GHGs)
Dupont	<ul style="list-style-type: none"> • energy use remains flat while reduce GHG emissions to 35% of 1990 levels (already down to 37% of 1990) • obtain 10% of own energy from renewables 	large reduction in GHG from own operations
IBM	<ul style="list-style-type: none"> • Reduce CO2 from facilities by 4%/yr avg. 1998-2005 • Reduce PFCs by 10% from 2000 to 2005 • “Conserve” 4% of E each year • Products 90% PCs, 100% monitors meet Energy Star 	Total E reduced 7% in 2001, saved 9 GWh last 10 years. Energy star impact.
Intel	<ul style="list-style-type: none"> • Increased EE in semiconductor fabrication • Lower emissions in self-generation power plants • Lower E consumption of electronics products 	Large E savings possible in fabrication, chip power, stand-by power

4. Oil/Fuel Companies

Company	Strategies	Impact
Archer Daniels Midland	<ul style="list-style-type: none"> • open new markets for ethanol mixed with gasoline • promote ethanol-diesel blended fuels • produce biodiesel from soybean oils 	huge potential markets in vehicle fuels, but more energy needed to produce ethanol than fuel provides! Ethanol realistic only if public subsidies continued
BP	<ul style="list-style-type: none"> • Reduce GHG to 10% below 1990 by 2010 • Promote natural gas among customers & CNG buses • Invest in wind and solar to \$1 billion by 2007 • Invest in hydrogen and fuel cells 	Large GHG impact possible. Also influencing public perception of climate change. Set up internal cap and trade system and met GHG target already, in 2002
Shell Renewables	<ul style="list-style-type: none"> • Reduce GHG to 5% below 1990 by 2010 • Increased use/sales of RE, gas, biofuels to 2050 • Spend \$500 million investment in RE • Focus on long-term hydrogen production and use 	Large impacts possible. Long-term perspective should be significant.

5. Clean Energy Companies

Company	Strategies	Impact
Ballard Power	<ul style="list-style-type: none"> • Be viable/sustainable as a commercial company based on future fuel cell markets • Innovate FC technologies for viable end-use products by utilities, builders, automakers, electronics firms. 	Big impact on future energy mix if successful, including fuel switching, new infrastructure, social change
Millenium Cell	<ul style="list-style-type: none"> • R&D on cost reduction of sodium borohydride fuel • Pilot borohydride manufacturing plant • Concept cars using integrated borohydride/FC techs 	Innovative H2 carrier (liquid) & integrated vehicle technology could make transition to FC/H2 easier.
Ormat	<ul style="list-style-type: none"> • develop renewable energy power generation, particularly geothermal power • develop innovative geothermal technologies • industrial waste-heat recovery for greater efficiency 	large technical and political potential for geothermal
Goldwind	<ul style="list-style-type: none"> • develop new products: 800kW and 1.2 MW direct drive and decrease manufacturing cost • conduct technology exchange with “international organizations” • start to export wind turbines from China 	large share of Chinese market; potential low costs for export

6. Retailers

Company	Strategies	Impact
Home Depot	<ul style="list-style-type: none">• “E-plus” program: be first to offer energy-efficient products, such as those with Energy Star labels; educate consumers, actively market energy efficiency• offer turn-key home solar PV panels (w/installation)	large influence on consumer purchases; second largest retailer in U.S. with \$50 billion annual sales