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# INNOVATIVE STRATEGIES TO REDUCE GHG EMISSIONS

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Climate Leaders Partners Workshop

June 10-11, 2003

# Johnson & Johnson's Climate Leaders Goal

- Reduce US/PR CO<sub>2</sub> emissions from stationary sources (direct & indirect) and mobile sources (leased fleet) by 14% in absolute terms by 2010
- 2001 as base year
- Equates to a 7% absolute reduction Worldwide compared to a base year of 1990



# Challenges to Complete Goal

- Sales have increased 3.3 times between 2002 & 1990
- Sales are projected to increase at similar rate through 2010
- CO<sub>2</sub> emissions from stationary sources have increased 20.7% between 2002 & 1990
- Major building expansion underway for additional research & manufacturing
- Most energy projects with 20+% IRR's completed
- Business as usual will not get it done



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# How to Achieve CO<sub>2</sub> Reduction Goal

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- Proposed Climate Friendly Energy Policy
- Progress Reported on Company Dashboards
- Needs Attention (Red code) requires a formal, written Management Action Plan (MAP)
- CO<sub>2</sub> Reduction Pathway





# Environmental Performance Dashboard: 2002

## Worldwide Progress

### Next Generation Goal

Compliance/Risk Management

Mgt Systems/ISO 14001

New Product/Process Review

Conservation/Community Outreach

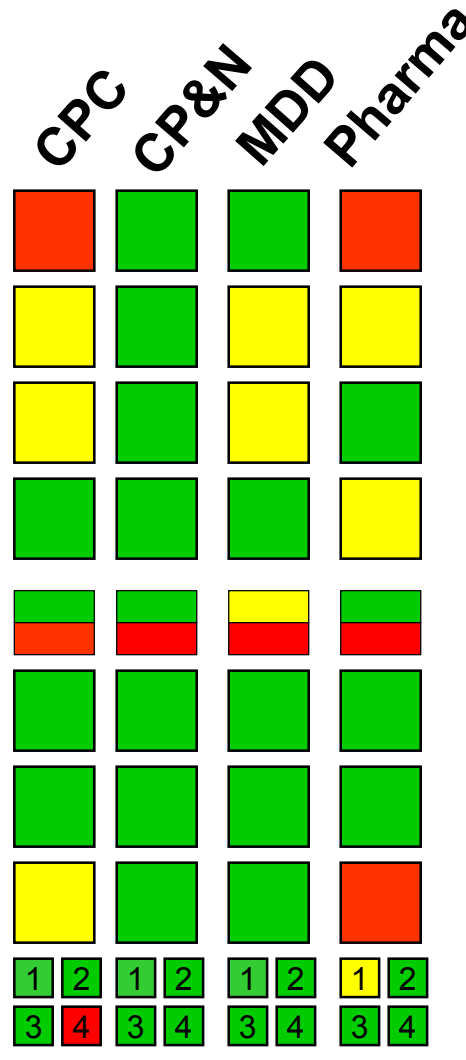
Energy Use

Water Use

Raw Material Use

Packaging Use

Waste Reduction (NPO)



### 2002 Target

- 20% reduction vs. 2001
- 100% ISO Certified
- 100% Review
- 100% Outreach Plan  
100% High Exposure
- 65% Best Practices  
5.6% reduction in CO<sub>2</sub>
- 4% Avoidance
- 2% Avoidance
- 4% Avoidance
- 1: 4% Avoidance  
2&3: 2% Avoidance  
4: 4% Improvement

- 1) Non-Hazardous
- 2) Hazardous
- 3) Toxic
- 4) Waste Mgmt. Methods

Legend: ■ On-target ■ Caution ■ Needs attention ■ Not applicable

# CO<sub>2</sub> Reduction Pathway (Stationary Sources)

- Energy efficiency improvements
- Cogeneration: On-site generation of electricity & recovery of waste heat for 80+% efficiencies
- On-site renewables (solar, wind) – no CO<sub>2</sub> emissions
- Purchase electricity generated from renewables
- Carbon trading & sequestration



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# CO<sub>2</sub> Reduction Pathway (cont.)

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- Excel spreadsheets with instructions
- Customized for all 200+ companies
- Populated from project database and industry standards
- Tool to develop Management Action Plan



## CO<sub>2</sub> REDUCTION PATHWAY

COMPANY: Biosense Webster USA

LOCATION: Irwindale, CA

2005: 4% Reduction 299,496 lbs CO<sub>2</sub>

	Estimated Project Cost*	Estimated Electricity Savings*	Estimated Project Savings*	Projects	TOTAL COST	ELECTRICAL SAVINGS (or output)	TOTAL COST SAVINGS	Average Payback	Emissions Reduction	% of required portfolio
	[US\$]	[kWh]	[US\$]	[#]	[US\$]	[kWh]	[US\$]		[lbs CO <sub>2</sub> ]	
<b>ENERGY EFFICIENCY</b>					<b>CAPITAL</b>	<b>SAVINGS</b>				
Stage 1: Green Lights	\$7,508	44,262	\$6,228	0	\$0	0	\$0	0.0	0	0%
Stage 2: Building Tune-Up	\$12,227	76,267	\$10,731	1	\$12,227	76,267	\$10,731	1.1	48,254	16%
Stage 3: Other Load Reductions	\$14,586	68,095	\$9,581	0	\$0	0	\$0	0.0	0	0%
Stage 4/4+: Fans/Pumps Motor Challenge	\$7,508	37,452	\$5,270	1	\$7,508	37,452	\$5,270	1.4	23,696	8%
Stage 5: HVAC Plant	\$27,885	105,548	\$14,851	1	\$27,885	105,548	\$14,851	1.9	66,780	22%
Stage 6: Management Practices	\$1,287	48,654	\$6,846	0	\$0	0	\$0	0.0	0	0%
Stage 7: Recommissioning	\$3,861	20,429	\$2,874	1	\$3,861	20,429	\$2,874	1.3	12,925	4%
Stage 8: New/Additional Technologies	\$6,864	34,048	\$4,791	0	\$0	0	\$0	0.0	0	0%
Stage 9: Manufacturing Equipment	\$8,580	40,857	\$5,749	1	\$8,580	40,857	\$5,749	1.5	25,850	9%
<b>SUBTOTAL</b>	<b>\$90,305</b>	<b>475,611</b>	<b>\$66,922</b>	<b>5</b>	<b>\$60,060</b>	<b>280,552</b>	<b>\$39,476</b>	<b>1.52</b>	<b>177,505</b>	<b>59%</b>
<b>ON SITE GENERATION</b>					<b>KW</b>	<b>CAPITAL</b>	<b>OUTPUT</b>			
Stage 10: Cogeneration**	\$0	---	\$0	0	\$0	0	\$0	0.0	0	0%
Stage 10: Renewable Energy	\$269,500	---	\$27,086	77	\$269,500	192,500	\$27,086	9.9	121,795	41%
<b>SUBTOTAL</b>	<b>\$269,500</b>		<b>\$27,086</b>	<b>77</b>	<b>\$269,500</b>		<b>\$27,086</b>		<b>121,795</b>	<b>41%</b>
<b>EXTERNAL PROCUREMENT</b>					<b>ANNUAL</b>	<b>OUTPUT</b>				
Green Power Purchasing***	---	---	---	---	\$0	0	---	---		0%
Carbon Sequestration	---	---	---	---	TBD	---	---	---		0%
Carbon Emissions Credit Trading	---	---	---	---	TBD	---	---	---		0%
<b>SUBTOTAL</b>					<b>\$0</b>				<b>0</b>	<b>0%</b>
<b>SUMMARY</b>					<b>Capital Expenditure</b>	<b>280,552</b>	<b>\$66,562</b>	<b>5.0</b>	<b>299,300</b>	<b>100%</b>
					<b>Incremental Annual Expenditure</b>	<b>\$0</b>				
<b>GAP</b>									<b>-196</b>	<b>0%</b>

\* Project Cost and Savings are estimates based on all worldwide project summaries in the J&J Energy Tracking System (ETS).

\*\* Cogeneration estimates assume 35% electrical efficiency and 40% thermal efficiency.

\*\*\* With the purchase of "Green Power", only CO<sub>2</sub> emissions are avoided. There are no associated energy savings.



## CO<sub>2</sub> REDUCTION PATHWAY

COMPANY: McNeil Consumer & Spec Pharm

LOCATION: Ft. Washington, PA

2005: 4% Reduction 17,218,749 lbs CO<sub>2</sub>

	Estimated Project Cost*	Estimated Electricity Savings*	Estimated Project Savings*	Projects	TOTAL COST	ELECTRICAL SAVINGS (or output)	TOTAL COST SAVINGS	Average Payback	Emissions Reduction	% of required portfolio
	[US\$]	[kWh]	[US\$]	[#]	[US\$]	[kWh]	[US\$]		[lbs CO <sub>2</sub> ]	
<b>ENERGY EFFICIENCY</b>					<b>CAPITAL</b>	<b>SAVINGS</b>				
Stage 1: Green Lights	\$35,000	206,349	\$15,487	0	\$0	0	\$0	0.0	0	0%
Stage 2: Building Tune-Up	\$57,000	355,556	\$26,686	0	\$0	0	\$0	0.0	0	0%
Stage 3: Other Load Reductions	\$68,000	317,460	\$23,826	0	\$0	0	\$0	0.0	0	0%
Stage 4/4+: Fans/Pumps Motor Challenge	\$35,000	174,603	\$13,104	0	\$0	0	\$0	0.0	0	0%
Stage 5: HVAC Plant	\$130,000	492,063	\$36,931	0	\$0	0	\$0	0.0	0	0%
Stage 6: Management Practices	\$6,000	226,825	\$17,024	1	\$6,000	226,825	\$17,024	0.4	279,925	2%
Stage 7: Recommissioning	\$18,000	95,238	\$7,148	0	\$0	0	\$0	0.0	0	0%
Stage 8: New/Additional Technologies	\$32,000	158,730	\$11,913	2	\$64,000	317,460	\$23,826	2.7	391,778	2%
Stage 9: Manufacturing Equipment	\$40,000	190,476	\$14,296	4	\$160,000	761,905	\$57,183	2.8	940,267	5%
<b>SUBTOTAL</b>	<b>\$421,000</b>	<b>2,217,302</b>	<b>\$166,415</b>	<b>7</b>	<b>\$230,000</b>	<b>1,306,190</b>	<b>\$98,033</b>	<b>2.35</b>	<b>1,611,970</b>	<b>9%</b>
<b>ON SITE GENERATION</b>					<b>kW</b>	<b>CAPITAL</b>	<b>OUTPUT</b>			
Stage 10: Cogeneration**	\$2,400,000	---	\$464,102	2400	\$2,400,000	19,200,000	\$464,102	5.2	10,254,720	60%
Stage 10: Renewable Energy	\$0	---	\$0	0	\$0	0	\$0	0.0	0	0%
<b>SUBTOTAL</b>	<b>\$2,400,000</b>		<b>\$464,102</b>	<b>2400</b>	<b>\$2,400,000</b>		<b>\$464,102</b>		<b>10,254,720</b>	<b>60%</b>
<b>EXTERNAL PROCUREMENT</b>					<b>ANNUAL</b>	<b>OUTPUT</b>				
Green Power Purchasing***	---	---	---	---	\$64,642	4,309,482	---	---	5,318,332	31%
Carbon Sequestration	---	---	---	---	TBD	---	---	---		0%
Carbon Emissions Credit Trading	---	---	---	---	TBD	---	---	---		0%
<b>SUBTOTAL</b>					<b>\$64,642</b>				<b>5,318,332</b>	<b>31%</b>
<b>SUMMARY</b>					<b>Capital Expenditure</b>	<b>1,306,190</b>	<b>\$562,135</b>	<b>4.7</b>	<b>17,185,022</b>	<b>100%</b>
					<b>Incremental Annual Expenditure</b>					
									<b>\$64,642</b>	
<b>GAP</b>									<b>-33,728</b>	<b>0%</b>

\* Project Cost and Savings are estimates based on all worldwide project summaries in the J&J Energy Tracking System (ETS).

\*\* Cogeneration estimates assume 35% electrical efficiency and 40% thermal efficiency.

\*\*\* With the purchase of "Green Power", only CO<sub>2</sub> emissions are avoided. There are no associated energy savings.

## CO<sub>2</sub> REDUCTION PATHWAY

COMPANY: Janssen, Belgium

LOCATION: All Locations Combined

2005: 4% Reduction 14,567,838 kg CO<sub>2</sub>

	Estimated Project Cost*	Estimated Electricity Savings*	Estimated Project Savings*	Projects	TOTAL COST	ELECTRICAL SAVINGS (or output)	TOTAL COST SAVINGS	Average Payback	Emissions Reduction	% of required portfolio	
	[US\$]	[kWh]	[US\$]	[#]	[US\$]	[kWh]	[US\$]		[kg CO <sub>2</sub> ]		
<b>ENERGY EFFICIENCY</b>					<b>CAPITAL</b>	<b>SAVINGS</b>					
Stage 1: Green Lights	\$35,000	206,349	\$9,008	0	\$0	0	\$0	0.0	0	0%	
Stage 2: Building Tune-Up	\$57,000	355,556	\$15,522	0	\$0	0	\$0	0.0	0	0%	
Stage 3: Other Load Reductions	\$68,000	317,460	\$13,859	0	\$0	0	\$0	0.0	0	0%	
Stage 4/4+: Fans/Pumps Motor Challenge	\$35,000	174,603	\$7,622	2	\$70,000	349,206	\$15,245	4.6	94,014	1%	
Stage 5: HVAC Plant	\$130,000	492,063	\$21,481	2	\$260,000	984,127	\$42,962	6.1	264,949	2%	
Stage 6: Management Practices	\$6,000	226,825	\$9,902	0	\$0	0	\$0	0.0	0	0%	
Stage 7: Recommissioning	\$18,000	95,238	\$4,158	5	\$90,000	476,190	\$20,788	4.3	128,201	1%	
Stage 8: New/Additional Technologies	\$32,000	158,730	\$6,929	5	\$160,000	793,651	\$34,647	4.6	213,668	1%	
Stage 9: Manufacturing Equipment	\$40,000	190,476	\$8,315	2	\$80,000	380,952	\$16,630	4.8	102,561	1%	
<b>SUBTOTAL</b>	<b>\$421,000</b>	<b>2,217,302</b>	<b>\$96,796</b>	<b>16</b>	<b>\$660,000</b>	<b>2,984,127</b>	<b>\$130,272</b>	<b>5.07</b>	<b>803,393</b>	<b>6%</b>	
<b>ON SITE GENERATION</b>					<b>kw</b>	<b>CAPITAL</b>	<b>OUTPUT</b>				
Stage 10: Cogeneration**	\$0	---	\$0	0	\$0	0	\$0	0.0	0	0%	
Stage 10: Renewable Energy	\$4,350,000	---	\$436,549	4000	\$4,350,000	10,000,000	\$436,549	10.0	2,692,220	18%	
<b>SUBTOTAL</b>	<b>\$4,350,000</b>		<b>\$436,549</b>	<b>4000</b>	<b>\$4,350,000</b>		<b>\$436,549</b>		<b>2,692,220</b>	<b>18%</b>	
<b>EXTERNAL PROCUREMENT</b>					<b>ANNUAL</b>	<b>OUTPUT</b>					
Green Power Purchasing***	---	---	---	---	\$278,581	18,572,034	---	---	5,000,000	34%	
Carbon Sequestration	---	---	---	---	TBD	---	---	---	---	0%	
Carbon Emissions Credit Trading	---	---	---	---	\$244,000	---	---	---	6,100,000	42%	
<b>SUBTOTAL</b>					<b>\$522,581</b>				<b>11,100,000</b>	<b>76%</b>	
<b>SUMMARY</b>					<b>Capital Expenditure</b>	<b>\$5,010,000</b>	<b>2,984,127</b>	<b>\$566,821</b>	<b>8.8</b>	<b>14,595,613</b>	<b>100%</b>
					<b>Incremental Annual Expenditure</b>	<b>\$522,581</b>					
<b>GAP</b>									<b>27,774</b>	<b>0%</b>	

\* Project Cost and Savings are estimates based on all worldwide project summaries in the J&J Energy Tracking System (ETS).

\*\* Cogeneration estimates assume 35% electrical efficiency and 40% thermal efficiency.

\*\*\* With the purchase of "Green Power", only CO<sub>2</sub> emissions are avoided. There are no associated energy savings.

## CO<sub>2</sub> REDUCTION PATHWAY

COMPANY: Janssen China

LOCATION: Xian Shaanxi, China

2005: 4% Reduction 660,809 kg CO<sub>2</sub>

	Estimated Project Cost*	Estimated Electricity Savings*	Estimated Project Savings*	Projects	TOTAL COST	ELECTRICAL SAVINGS (or output)	TOTAL COST SAVINGS	Average Payback	Emissions Reduction	% of required portfolio
	[US\$]	[kWh]	[US\$]	[#]	[US\$]	[kWh]	[US\$]		[kg CO <sub>2</sub> ]	
<b>ENERGY EFFICIENCY</b>					<b>CAPITAL</b>	<b>SAVINGS</b>				
Stage 1: Green Lights	\$35,000	206,349	\$10,940	1	\$35,000	206,349	\$10,940	3.2	159,260	24%
Stage 2: Building Tune-Up	\$57,000	355,556	\$18,851	0	\$0	0	\$0	0.0	0	0%
Stage 3: Other Load Reductions	\$68,000	317,460	\$16,831	0	\$0	0	\$0	0.0	0	0%
Stage 4/4+: Fans/Pumps Motor Challenge	\$35,000	174,603	\$9,257	0	\$0	0	\$0	0.0	0	0%
Stage 5: HVAC Plant	\$130,000	492,063	\$26,089	1	\$130,000	492,063	\$26,089	5.0	379,775	57%
Stage 6: Management Practices	\$6,000	226,825	\$12,026	0	\$0	0	\$0	0.0	0	0%
Stage 7: Recommissioning	\$18,000	95,238	\$5,049	0	\$0	0	\$0	0.0	0	0%
Stage 8: New/Additional Technologies	\$32,000	158,730	\$8,416	2	\$64,000	317,460	\$16,831	3.8	245,016	37%
Stage 9: Manufacturing Equipment	\$40,000	190,476	\$10,099	0	\$0	0	\$0	0.0	0	0%
<b>SUBTOTAL</b>	<b>\$421,000</b>	<b>2,217,302</b>	<b>\$117,559</b>	<b>4</b>	<b>\$229,000</b>	<b>1,015,873</b>	<b>\$53,861</b>	<b>4.25</b>	<b>784,051</b>	<b>119%</b>
<b>ON SITE GENERATION</b>					<b>KW</b>	<b>CAPITAL</b>	<b>OUTPUT</b>			
Stage 10: Cogeneration**	\$0	---	\$0	0	\$0	0	\$0	0.0	0	0%
Stage 10: Renewable Energy	\$0	---	\$0	0	\$0	0	\$0	0.0	0	0%
<b>SUBTOTAL</b>	<b>\$0</b>		<b>\$0</b>	<b>0</b>	<b>\$0</b>		<b>\$0</b>		<b>0</b>	<b>0%</b>
<b>EXTERNAL PROCUREMENT</b>					<b>ANNUAL</b>	<b>OUTPUT</b>				
Green Power Purchasing***	---	---	---	---	\$0	0	---	---		0%
Carbon Sequestration	---	---	---	---	TBD	---	---	---		0%
Carbon Emissions Credit Trading	---	---	---	---	TBD	---	---	---		0%
<b>SUBTOTAL</b>					<b>\$0</b>				<b>0</b>	<b>0%</b>
<b>SUMMARY</b>					<b>Capital Expenditure</b>	<b>1,015,873</b>	<b>\$53,861</b>	<b>4.3</b>	<b>784,051</b>	<b>119%</b>
					<b>Incremental Annual Expenditure</b>	<b>\$0</b>				
<b>GAP</b>									<b>123,242</b>	<b>19%</b>

\* Project Cost and Savings are estimates based on all worldwide project summaries in the J&J Energy Tracking System (ETS).

\*\* Cogeneration estimates assume 35% electrical efficiency and 40% thermal efficiency.

\*\*\* With the purchase of "Green Power", only CO<sub>2</sub> emissions are avoided. There are no associated energy savings.

# Additional Efforts

- Developed Enhanced New Facility Design Criteria in March 2003
  - **LEED energy criteria**
  - **State of the art energy efficient equipment & systems**
  - **Renewables (on-site & purchased)**
  - **CO<sub>2</sub> reduction plan**
- Coordinated Green Power Purchasing
  - 15% in Texas & NJ
  - 10-100% in Netherlands
  - Possible green tag purchase through GPMDG





JANSSEN USA TITUSVILLE, NJ

500 kW

# CO<sub>2</sub> Reduction Plan (Mobile Sources)

- Improved mileage for gasoline fueled vehicles
- No SUVs
- Ethanol blend in the Midwest: 85/15
- Hybrids: Toyota Prius pilot planned for November 2003 in California
- Fuel cell vehicles





**BUSINESS AS  
USUAL WILL  
NOT GET IT  
DONE**