

# Incorporating the Cost of Carbon in Investment Decisions

Climate Leaders Partner Meeting

January 18-19, 2006

## **World's Most Comprehensive and Broadly Based Health Care Company**

- **Founded in 1886**
- **110,000 employees worldwide**
- **200 decentralized companies in 57 countries**
- **Serving 175 markets**
- **\$47.3 billion sales in 2004**

## Medical Devices & Diagnostics Group



## Medicines and Nutritional Group



## Consumer & Personal Care Group



# Cost of Carbon in Investment Decisions

- Presented from a company's perspective.
- What are our drivers? What is our strategy?
- What kind of projects do we do? How are they funded?
- What are the alternatives to capital investments?
- What is the right mix moving forward?



# Our driver...



## CLIMATE FRIENDLY ENERGY POLICY

### POLICY

As indicated in our Next Generation Goals, adopted in 2000, it is the responsibility of each Company/Business Unit to meet our greenhouse gas reduction goal of a 4% reduction by 2005 and a 7% reduction by 2010, in absolute terms with 1990 as a base year.

The pathways for a climate friendly energy policy include five elements:


- Energy efficiency improvements in all of our operations
- Cogeneration: on-site generation of electricity and recovery of the waste heat for overall efficiencies of 80+%
- On-site renewable energy that produces no CO<sub>2</sub> emissions
- Renewable electricity purchases
- Carbon trading and sequestration

The Johnson & Johnson businesses worldwide will adopt this climate friendly energy policy to reduce our operating costs, meet our emerging legal and societal obligations and improve the environment for all of us and future generations.



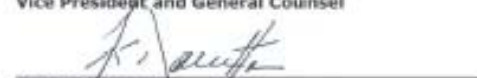
Dennis Conavan  
Executive Director, Worldwide Energy Management

Approved:



R.C. Deyo  
Vice President and General Counsel

Approved:



Robert Barretta  
Vice Chairman and Chief Financial Officer  
Chairman, Worldwide Environmental Steering Committee

# Climate Friendly Energy Policy 2003

Achieve a 7% absolute reduction in Green House Gas (CO<sub>2</sub>) emissions from facilities worldwide by 2010, compared to a base year of 1990

## Strategy - CO<sub>2</sub> Reduction Pathway

Energy Efficiency – Best Practices	15-30% IRR
On-site cogeneration	15-20% IRR
On-site renewables: solar, wind	10-15% IRR
Green power purchases	Expense
Carbon trading/REC's	Expense

Neutrogena - Los Angeles, CA

546 kW





Janssen Pharmaceutica – Titusville, NJ 500 kW



# J&J Consumer Products, Skillman, NJ 500kW PowerTracker





## J&J Consumer Products, Skillman, NJ 500kW (Under Construction)

- Approximately 3 acres
- 20 year performance guarantee
- Capital: \$1.4 million, after rebate of \$1.9 million
- IRR – 12.2%
- 260 ton CO<sub>2</sub> reduction per year

# ALZA Landfill Gas

Mountain View, CA  
3 x 1 MW Generators





## ALZA Landfill Gas Mountain View, California

- Methane from closed landfill , 2.5 km of pipe
- Three 1-megawatt generators; could power 1,500 homes
- Recover waste heat for domestic hot water and HVAC
- Capital: \$5.7 million, after \$3 million rebate
- IRR – 15%
- 7,000 ton CO<sub>2</sub> reduction per year

MICROTURBINES  
Los Angeles, CA  
120 KW



FUEL CELL  
New Brunswick, NJ  
200KW



COGENERATION  
La Jolla, CA  
2.2 MW



# Solar Thermal System J&J China, Shanghai





# Wind Turbines

## Ethicon, Scotland



- BP “Swift” Micro-wind Turbine
- 1<sup>st</sup> On-site wind installation for J&J
- 4,000 kWh per year, 6 tonnes CO<sub>2</sub>



# Group Finance

## CO<sub>2</sub> Capital Funding Process

August 2004

- \$100 million over three years
- Good financial returns: 10-15%+
- Meaningful CO<sub>2</sub> reduction

Funding is for existing facilities - New construction is to include CO<sub>2</sub> reduction technology as part of project.



## CO<sub>2</sub> Reduction Project Summary

Company	J&J China
Operating Group	Consumer & Personal Care
Address	3285 Dong Chuan Road, Minhang
City	Shanghai
State	
Country	China

Project Type	CHP: Combined Heat & Power
Description	Installing one set of 1160KW lean burn gas genset to produce power & steam / hot water and combination
Start Date	January, 2005
Completion Date	October, 2005
Project Life [years]	10

		2005	2006	2007	2008	2009	2010	Total (2005-2010)
Appropriation Capital	[US\$]	\$1,045,247	\$261,312	\$0	\$0	\$0	\$0	\$1,306,559
Appropriation Expense	[US\$]	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$60,000
Total Project Cost	[US\$]	\$1,055,247	\$271,312	\$10,000	\$10,000	\$10,000	\$10,000	\$1,366,559
CO <sub>2</sub> Reduction	[tons CO <sub>2</sub> ]	3,323	3,323	3,323	3,323	3,323	3,323	19,938
Capital Cost/CO <sub>2</sub> Reduction	[US\$ / tons CO <sub>2</sub> ]	\$314.55	\$78.64	\$0.00	\$0.00	\$0.00	\$0.00	\$65.53
Internal Rate of Return (IRR)								25.0%

		2005	2006	2007	2008	2009	2010	Total (2005-2010)
Electricity Usage Savings	[kWh]	5,696,640	5,696,640	5,696,640	5,696,640	5,696,640	5,696,640	34,179,840
Fuel Oil Usage Savings	[liters]	560,625	560,625	560,625	560,625	560,625	560,625	3,363,750
Fuel Type								Light Oil
Nature Gas Usage (M3)		1,574,304	1,574,304	1,574,304	1,574,304	1,574,304	1,574,304	9,445,824
Fuel Type								Natural Gas

		2005	2006	2007	2008	2009	2010	Total (2005-2010)
Electricity Unit Cost	[US\$ per kWh]	\$0.099	\$0.099	\$0.099	\$0.099	\$0.099	\$0.099	\$0.099
Fuel Oil Unit Cost	[US\$ per unit]	\$0.367	\$0.367	\$0.367	\$0.367	\$0.367	\$0.367	\$0.367
Nature Gas Unit Cost	[US\$ per unit]	\$0.266	\$0.266	\$0.266	\$0.266	\$0.266	\$0.266	\$0.266
Electricity Cost Savings	[US\$]	\$563,967	\$563,967	\$563,967	\$563,967	\$563,967	\$563,967	\$3,383,804
Fuel Oil Cost Savings	[US\$]	\$205,833	\$205,833	\$205,833	\$205,833	\$205,833	\$205,833	\$1,235,001
Nature Gas Cost Savings	[US\$]	\$418,293	\$418,293	\$418,293	\$418,293	\$418,293	\$418,293	\$2,509,755
Total Energy Cost Savings	[US\$]	\$351,508	\$351,508	\$351,508	\$351,508	\$351,508	\$351,508	\$2,109,050

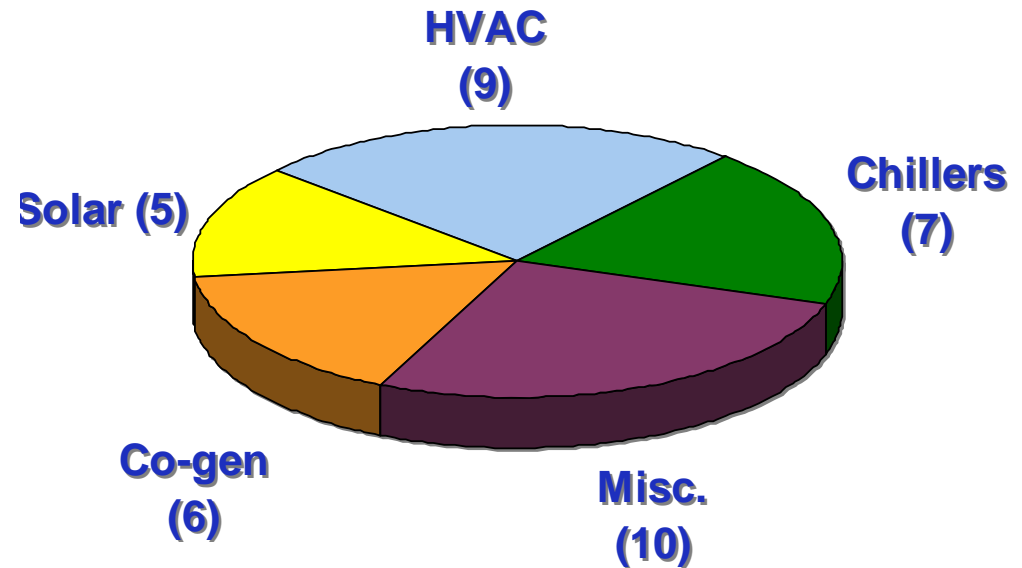
### Comments

- 1) Total project capital cost US\$1,306,559 Not included appropriation expense US\$10,000 per year.
- 2) 25% IRR is calculated from engineering point of view at moment, J&J local management will have Finance analysis and submit approved IRR soon. Z.X. Fang



## CO<sub>2</sub> Reduction Projects

- 37 Projects approved for funding
- \$64.4 Million US Total
- 71,000 Tonnes CO<sub>2</sub>
- Average IRR: 17%
- \$900 capital/ton CO<sub>2</sub>/yr





How else can we meet our  
CO<sub>2</sub> reduction goal?

Green power and REC's

## Green Power and Tags - U.S. / P.R. 2004

- New Jersey, New York, Texas, California -  
15% Green Power  
23,000 tons CO<sub>2</sub>
- REC Purchases - Approx. 200,000 mWH  
170,000 tons CO<sub>2</sub>



## Top 25 Partners

1. U.S. Air Force
2. U.S. Environmental Protection Agency
3. Johnson & Johnson
4. U.S. Department of Energy
5. The World Bank
6. Safeway, Inc.
7. U.S. General Services Administration / Region 2

•241,000 mWH  
•24% Of Total Electricity in US



## Green Power and Tags - Europe

Janssen, France	100%	
All J&J sites, Holland	100%	
Alza, Ireland	100%	
Janssen, Italy	100%	
Lifescan, UK	100%	
Janssen, Belgium	100%	
Total Europe	43%	65,200 Tons CO <sub>2</sub> /yr



To meet CO<sub>2</sub> reduction goal,  
should I do projects or buy  
REC's?

## Projects or REC's ?

Projects: Based on our 37 projects, we need to spend about \$900 in capital to yield an annual CO<sub>2</sub> reduction of one metric ton.

## Projects or REC's ?

REC's: (in voluntary market)  
Cost us about \$2 per metric  
ton of CO<sub>2</sub> offset per year.

## Projects or REC's ?

Project: One-time cost of \$900/ton

REC: Ongoing cost of \$2/year/ton

**Winner**



# Projects or REC's ?

But there are some disadvantages of REC's

- Ongoing cost
- Price volatility
- Do not get anything tangible (hard to explain)
- Not reducing your on-site emissions

# Projects or REC's ?

Projects offer:

- Good financial returns
- Reduction of site emissions
- Employee and community good will
- Reduce need for REC's – This is a legitimate cost avoidance, that can improve the IRR.

# Projects or REC's ?

Contribution to goal:

Green power and REC's (2004)	258,000 tons
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Projects (\$100 million)	111,000 tons
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## Projects or REC's ?

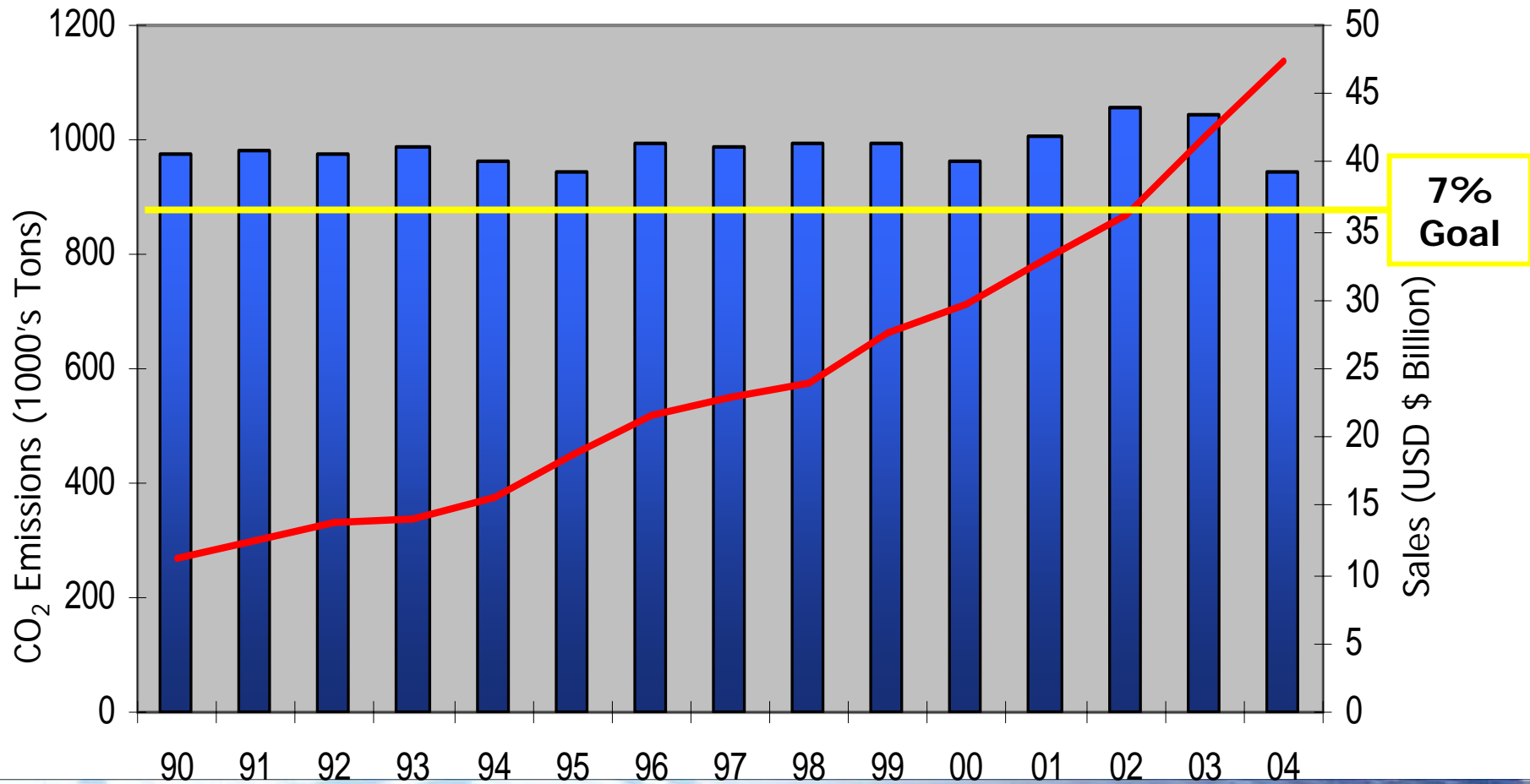
Our strategy: Do both

- Continue to do on-site projects; include the value of CO<sub>2</sub> reduction in IRR.
- Pursue long-term green power purchases
- Maintain or reduce REC purchases



# CO<sub>2</sub> Emissions vs. Sales

1990 → 2004 ACTUAL: -3.1%



Thank you

Questions or comments?