

# Meeting Climate Leaders GHG Reduction Goals at SC Johnson



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**Climate Leaders Partners – May 2005**



# SC Johnson





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# Develop a GHG Baseline

- **do a GHG baseline for all US facilities for Climate Leaders**





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# GHG Protocol Initiative

Standards, Guidelines and  
Calculation Tools for Corporate  
GHG Accounting & Reporting



World Business Council for  
Sustainable Development



World Resources Institute



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# SC Johnson Climate Leaders Goals

2000 is the baseline

Includes all US facilities owned or leased

## **Indexed – to production**

- Achieve a 23% reduction in GHG emissions as a ratio to production by 2005

## **Absolute Reduction**

- Achieve an 8% absolute reduction in GHG emissions by 2005



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## **Use GHG baseline to target areas for GHG reductions**

- **Waxdale represents over 33% of the US GHG emissions baseline**

### **RESULT**

**The Waxdale facility is where GHG activities should be targeted for both goals.**



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# **Make Renewable/Green Energy**

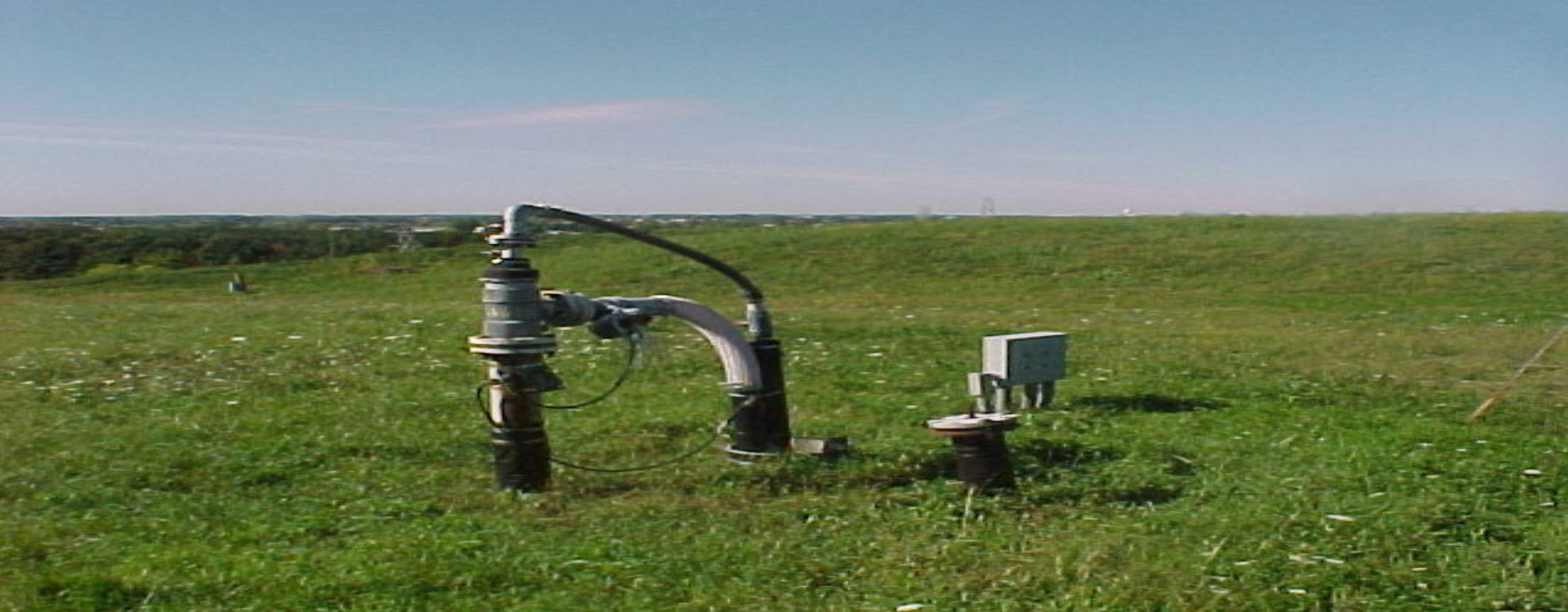
**Use landfill gas to make electricity and steam at  
Waxdale**

- Install turbine to make 3,200 kW of electricity**
- Recover waste heat from exhaust to make 19,000 lb/hr of plant steam at 150 psi**

**Reduce Waxdale's fossil fuel use by 50%**

**Reduce Waxdale's GHG emissions by 47%**

**Reduce SC Johnson - USA GHG emissions by 23%**



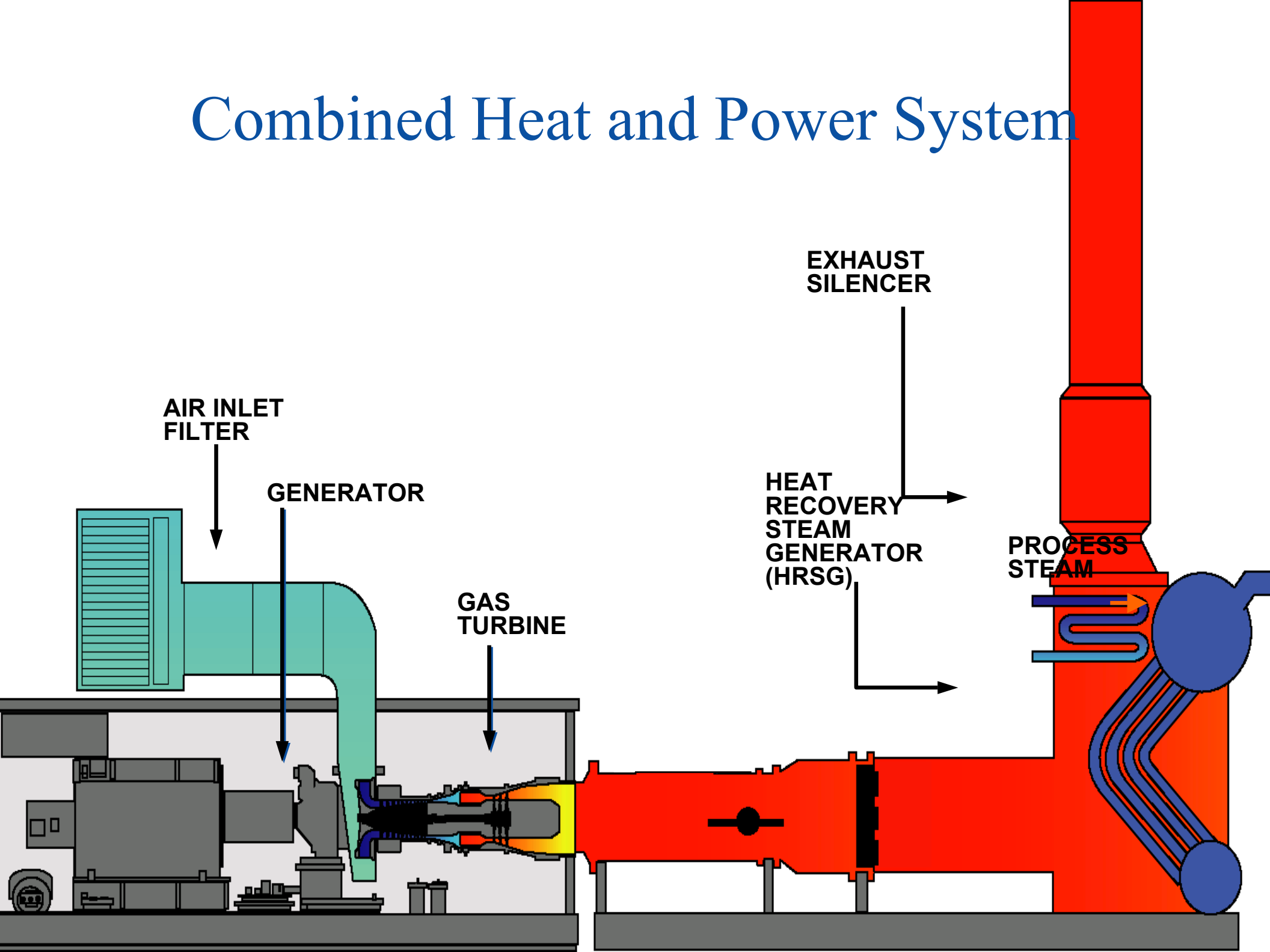


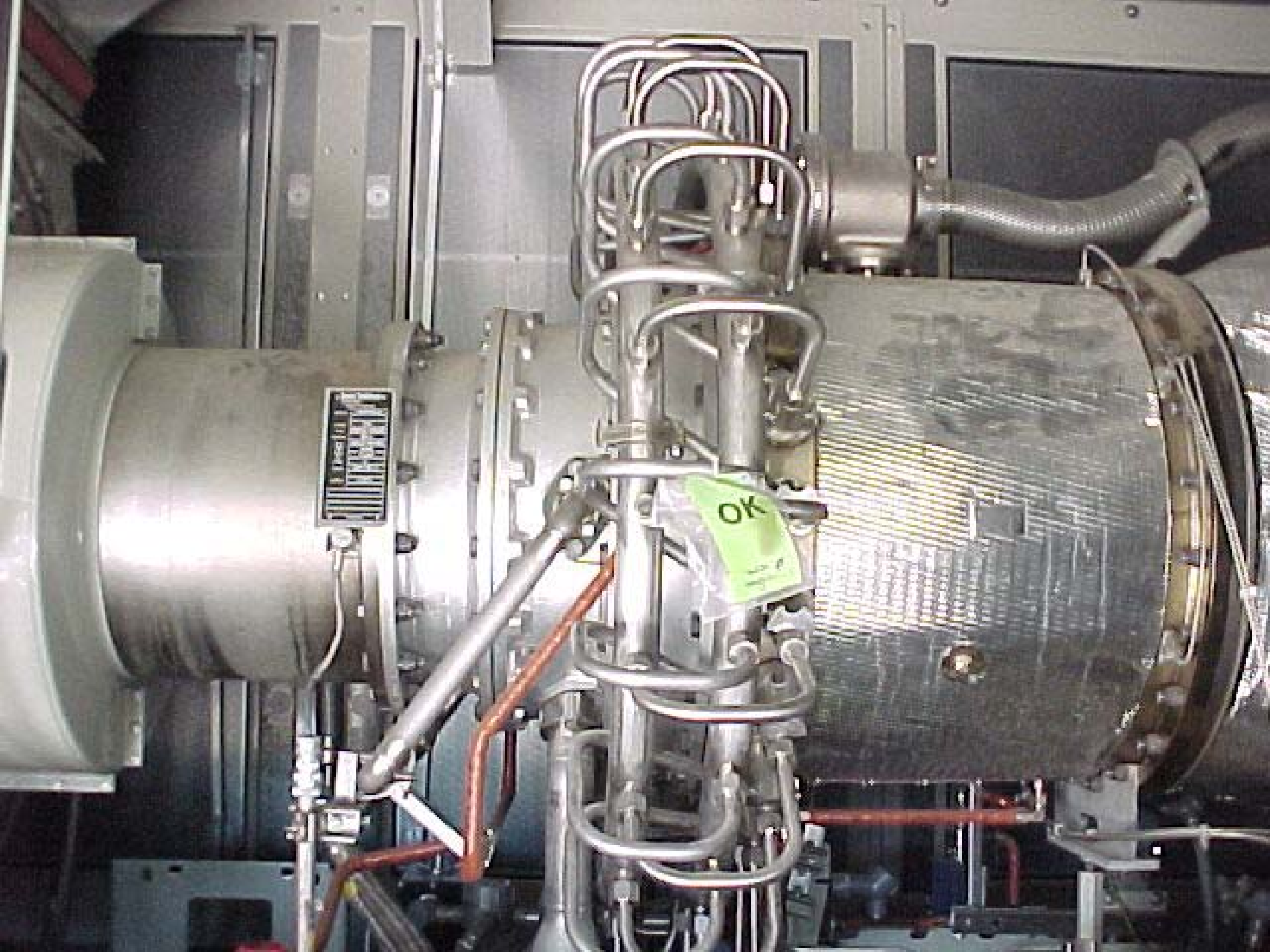






# Combined Heat and Power System







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## **LFG/Turbine Co-Generation Project Schedule**

### **TURBINE CO-GENERATION SYSTEM**

<b>ENVIRONMENTAL PERMITS -</b>	<b>Oct 15 – March 1</b>
<b>PRELIMINARY DESIGN -</b> Place order for Turbine	<b>Nov 1 – Feb 1</b> Dec 16
<b>FINAL DESIGN &amp; PLANNING -</b>	<b>Feb 1 – April 25</b>
<b>GROUNDBREAKING CEREMONY -</b> Company officials, employees and Government dignitaries	<b>April 25, 2003</b>
<b>PROJECT IMPLEMENTATION -</b>	<b>April 26 – Dec 1</b>
<b>Project Completion – system on line</b>	<b>Nov 1</b>







Sat Jul 5 12:00:11 2003



Wed Jul 23 12:00:00 2003





Thu Nov 6 12:00:01 2003





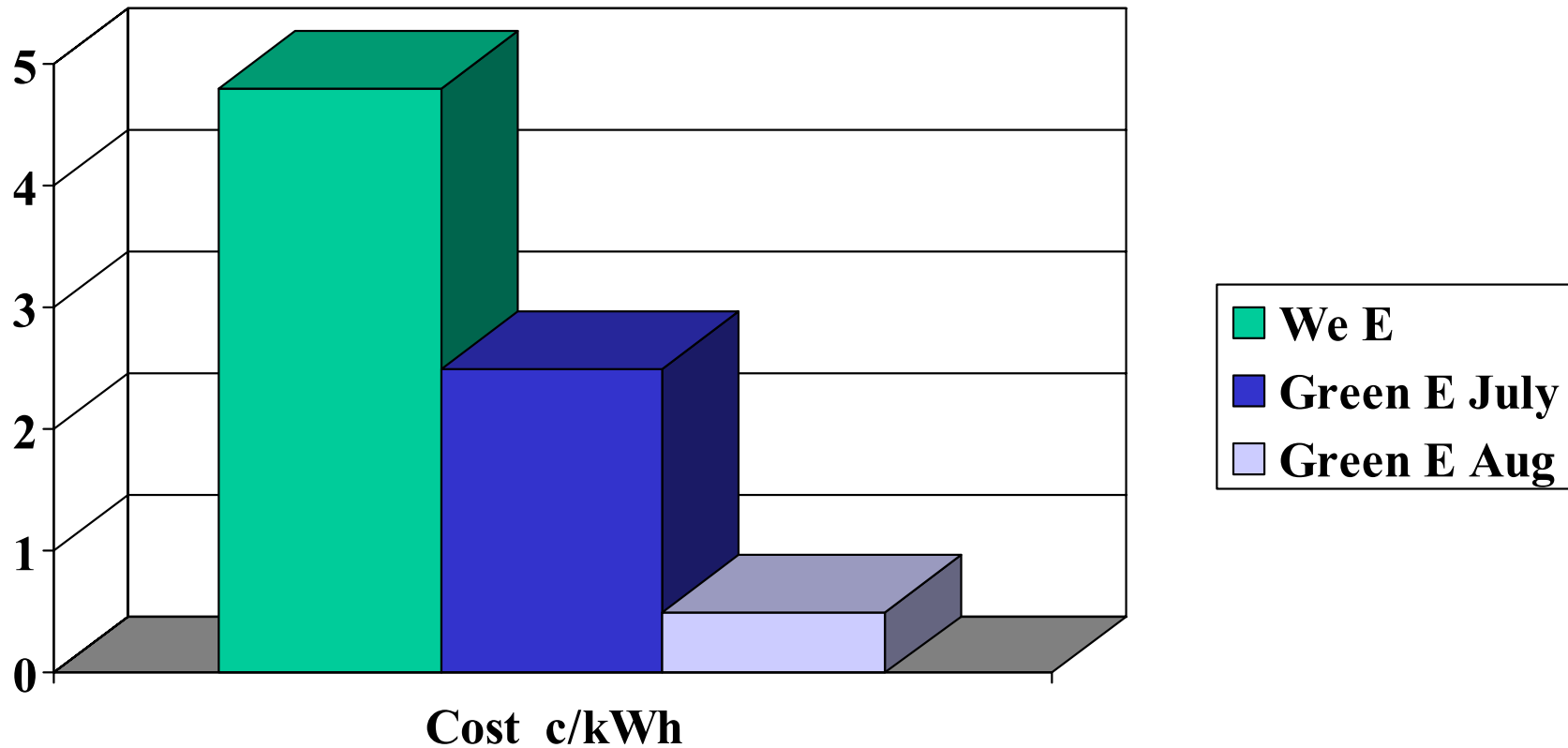






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# Green Energy – Electricity Costs







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## Climate Leaders Goal - Results to Date

<u>Year</u>	<u>Normalized</u>	<u>Absolute</u>
2001	5.7%	0.4%
2002	8.6%	- 1.5%
2003	11.7%	1.8%
2004	20.3%	4.8%
Goal		
2005	23%	8.0%



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## **Issues to Manage Operations**

- LFG service – BTU, flow volume, continuity
- Equipment commissioning – long range project
- Internal SCJ needs for O&M and service interruption
- HRSG – an Anchor on start up



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## **Issues to Manage**

### **Waste Heat Usage**

#### **Complete Integration of HRSG steam generation with plant boiler production**

- Coordinate output with overall steam demand
- HRSG Fixed steam output – no ability to follow the demand
- Output varies with ambient temperature
- Output varies with LFG – BTU supply



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# Issues to Manage

## Production - normalized

- Production Growth – Higher than estimated over five years
- New Products with a higher energy use profile
  - Energy use per unit produced
  - Product weight

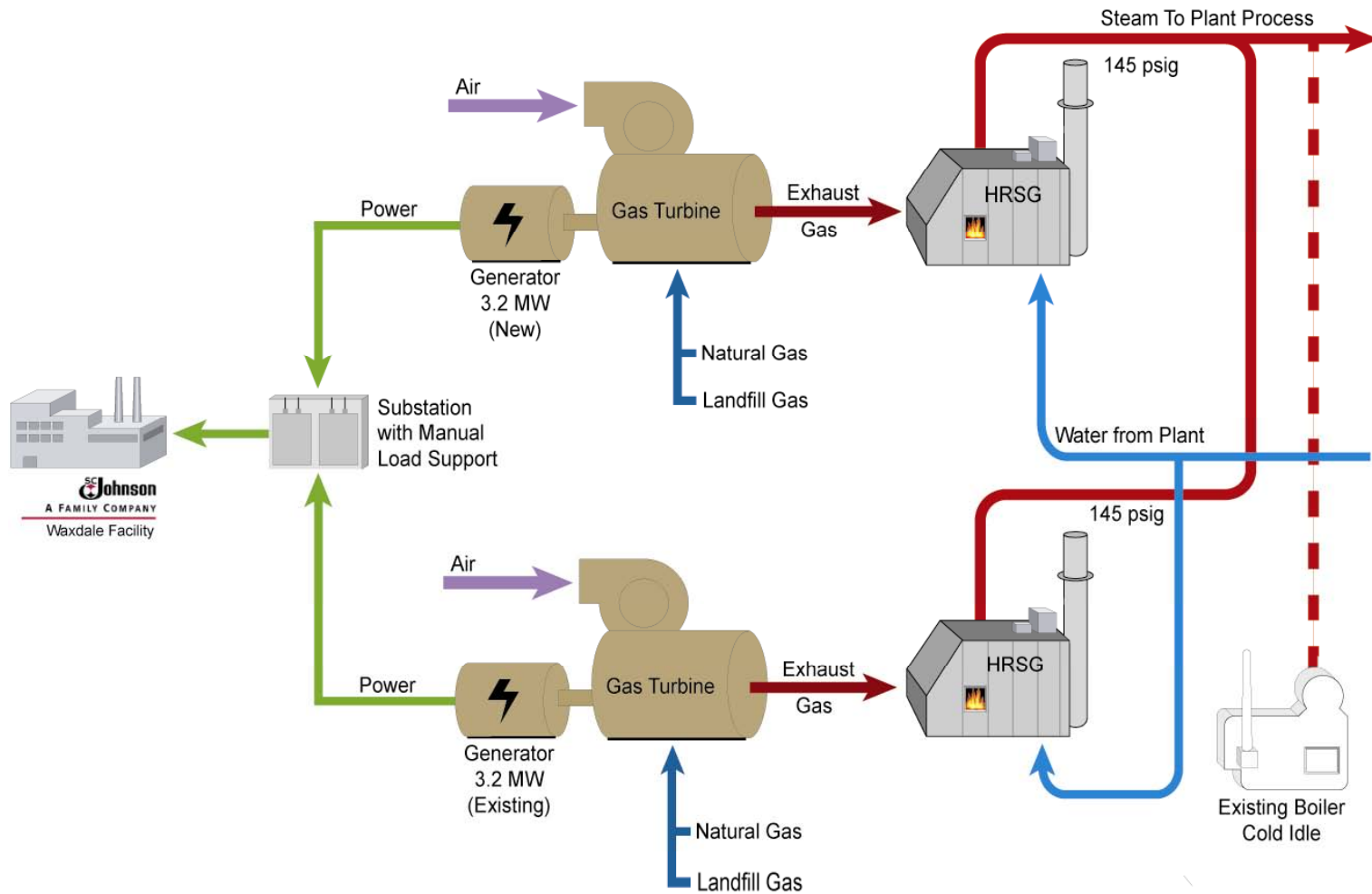


# Northern

A Distributed Energy  
Systems Company

## NEW ON-SITE ENERGY GENERATION

Base Load Power  
with WE backup





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## **Clean Energy Project**

- **Fuel - natural gas + 15% LFG**
- **Make 3,200 MW of electricity**
- **Make 19,000 lb/hr of 150psi steam**
- **Reduce GHG emissions by 20,000 T/yr**
- **16.3%ROI**



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# **Clean Energy Project**

**Combined with the Green energy Project:**

- **Produces Waxdale's Average base load of electricity**
- **Produces over 50% of Waxdale's Steam**
  - **Idle one 40 year boiler + limited use of another**
- **Total GHG reduction of 52,000 Tons/yr**



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## Clean Energy Project Schedule

- **ENVIRONMENTAL PERMITS -** **May – August 04**
- **PRELIMINARY DESIGN -** **May – August 04**
- **PROCURE MAJOR EQUIPMENT** **May 04**
- **CONSTRUCTION STARTS** **September 04**
- **TURBINE SET IN PLACE** **December 04**
- **COMMISSIONING** **July 05**
- **PROJECT ON-LINE** **Sept 1, 2005**



Thu Nov 6 12:00:01 2003



Thu Oct 21 12:00:00 2004



Thu Nov 25 13:50:00 2004



Tue Dec 21 08:36:00 2004



Thu Apr 21 14:49:00 2005



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