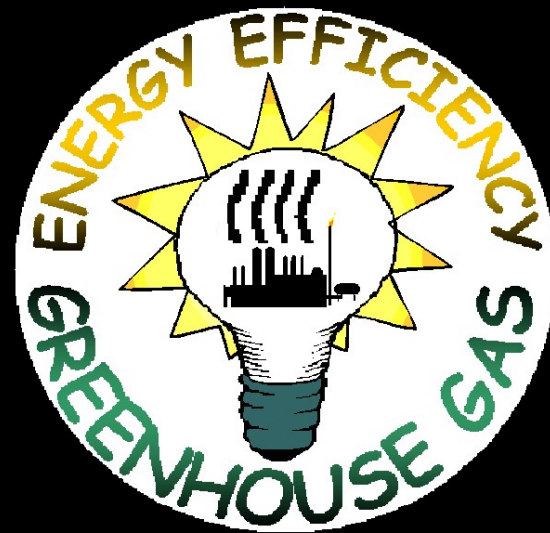




BP Canada Energy Company Energy Efficiency & Greenhouse Gas Reduction Program

Bryan Forsyth
June 2003





Outline



- BP Corporate Core Values
- BP Canada Energy Efficiency Program
- Success Stories to date
- Plans for the Future



BP Core Values



- "BP's Goals are simply stated... ..
No damage to the environment!"

Quote from BP plc Environmental Policy



BP Core Values

- In 2000 BP committed internally to reduce CO₂ Equivalent emissions 10% below 1990 levels by 2010.
- We corporately achieved that goal at the end of 2001, 8 years ahead of schedule.
 - 14 millions Tonnes CO₂e below 1998 levels
 - Met target at no net economic cost; actually made money: around US\$ 600 million
- For 2003 new corporate goal was set:
 - Maintain CO₂ Equivalent emissions at 2002 levels while continuing corporate growth.
 - Improve energy efficiency 15% from 2000 baseline by 2010



BP Canada Energy Efficiency Program



- Innovative approach relying on front line operations staff to generate, evaluate and implement ideas for energy reduction projects.
- Small Central Calgary Group for Co-ordination, Technical support, and Tracking of data.
- Core Group or Network that is responsible for promoting Energy Efficiency; Sharing of best practices; and coordinating efforts at operations, development and corporate Level



BP Canada Energy Efficiency Program



- **Field Team**
 - Identify potential Energy Efficiency Projects for their operations & implement those they can without assistance
 - Identify resources needed to complete other projects

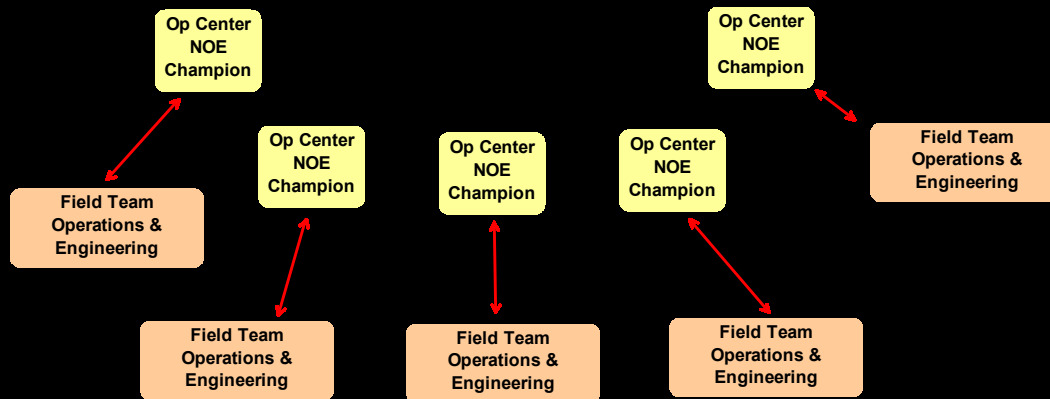
**Field Team
Operations &
Engineering**



BP Canada Energy Efficiency Program

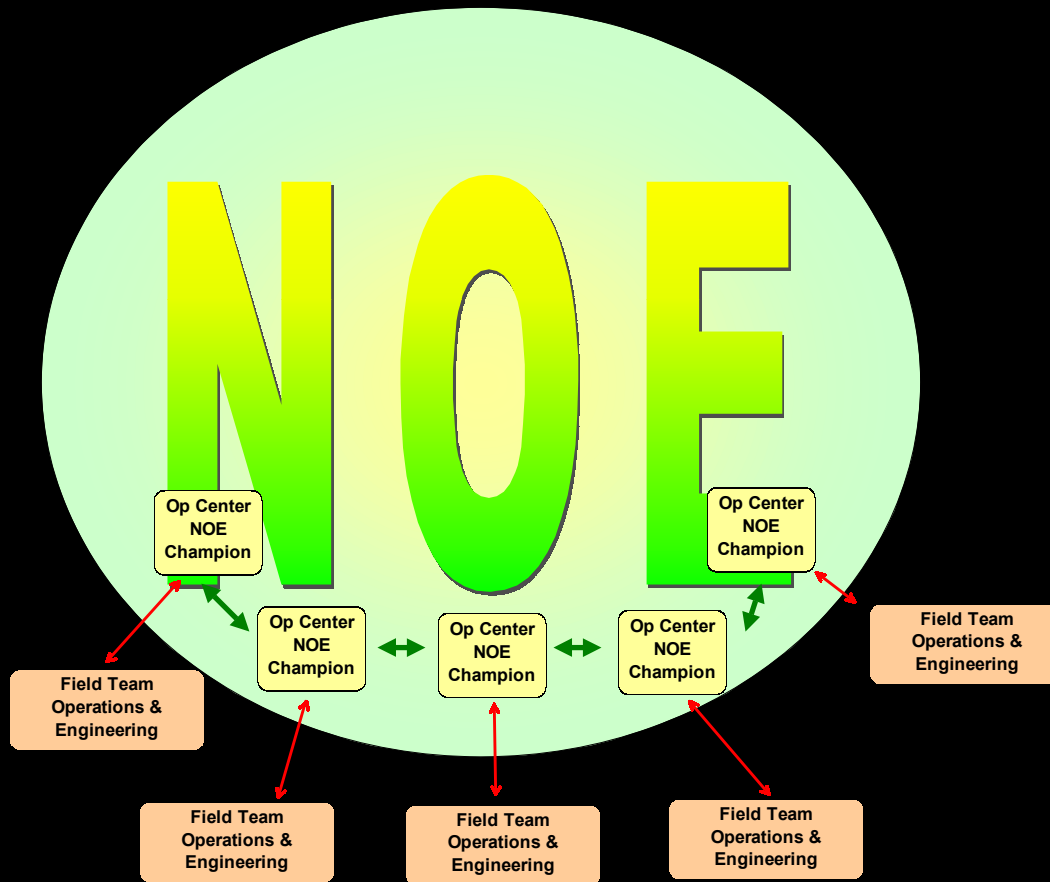


- **Op Center NOE Champions**
 - Promote Energy Efficiency and GHG reduction projects within the Field Teams
 - Track project status and results within Field Teams & report to Calgary





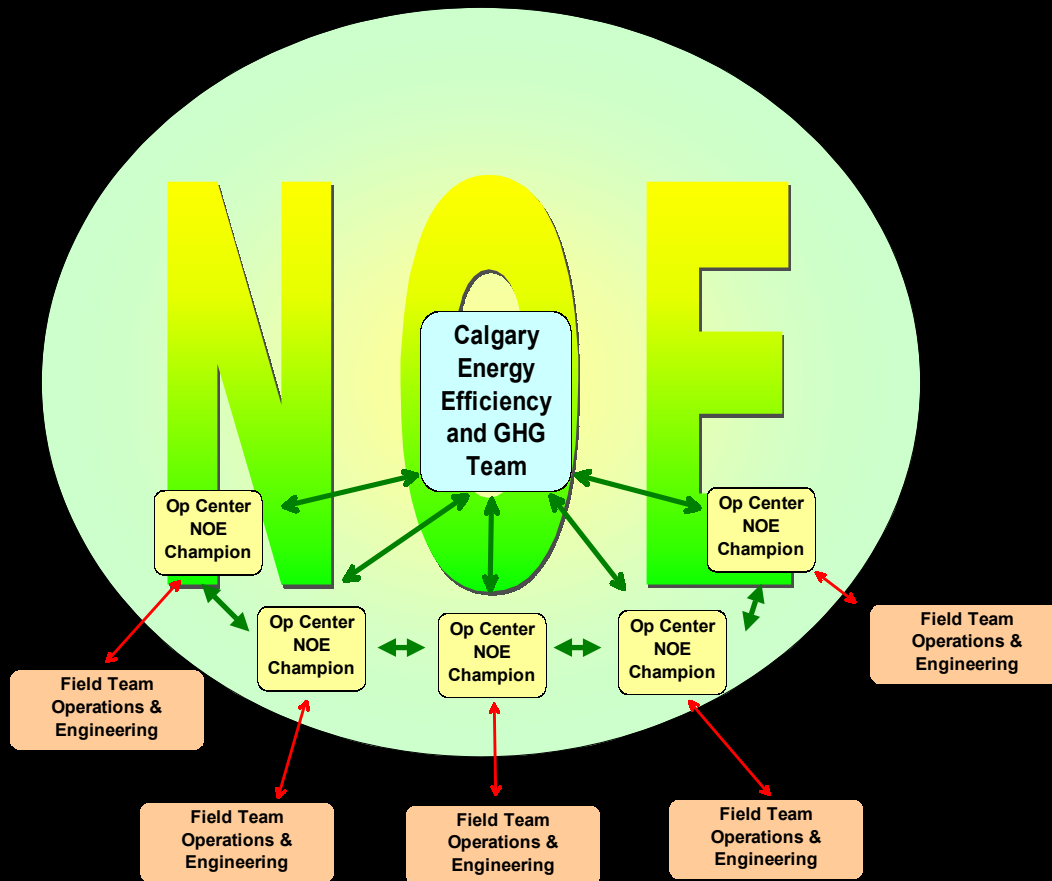
BP Canada Energy Efficiency Program



- Op Center NOE Champions
 - Provide link between Op centers to share best practices
 - Provide Link to Central Energy Efficiency Group
 - Participate in NOE discussions



BP Canada Energy Efficiency Program



- **Calgary Team**

- Provide Technical, & communications support For Canada
- Collect Track results for Canada
- Maintain Website, databases & other Tools



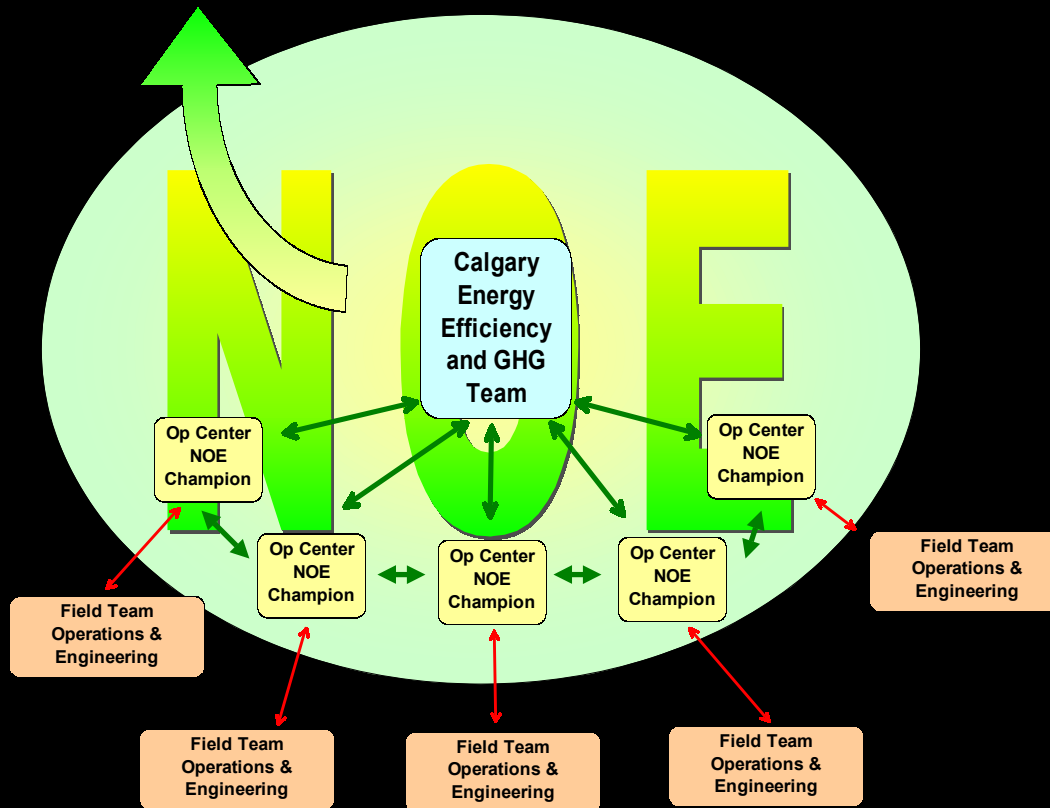
BP Canada Energy Efficiency Program



Industry Task Forces and Interest Groups. (CAPP, PTAC, CIPEC. Etc.)

BP International Upstream Technology Group (Technical Experts)

Other BP Business Units



• Calgary Team

- Provide technical link to Other BP businesses, Technical Specialists
- Provide Link to Industry and technical groups also working with Energy Efficiency and GHG reductions



BP Canada Energy Efficiency Program



- **Calgary Team**

- Ensure participation in NOE and Energy Efficiency from corporate & HSE management, & the Calgary Development and engineering teams & that discussion of Issues takes place

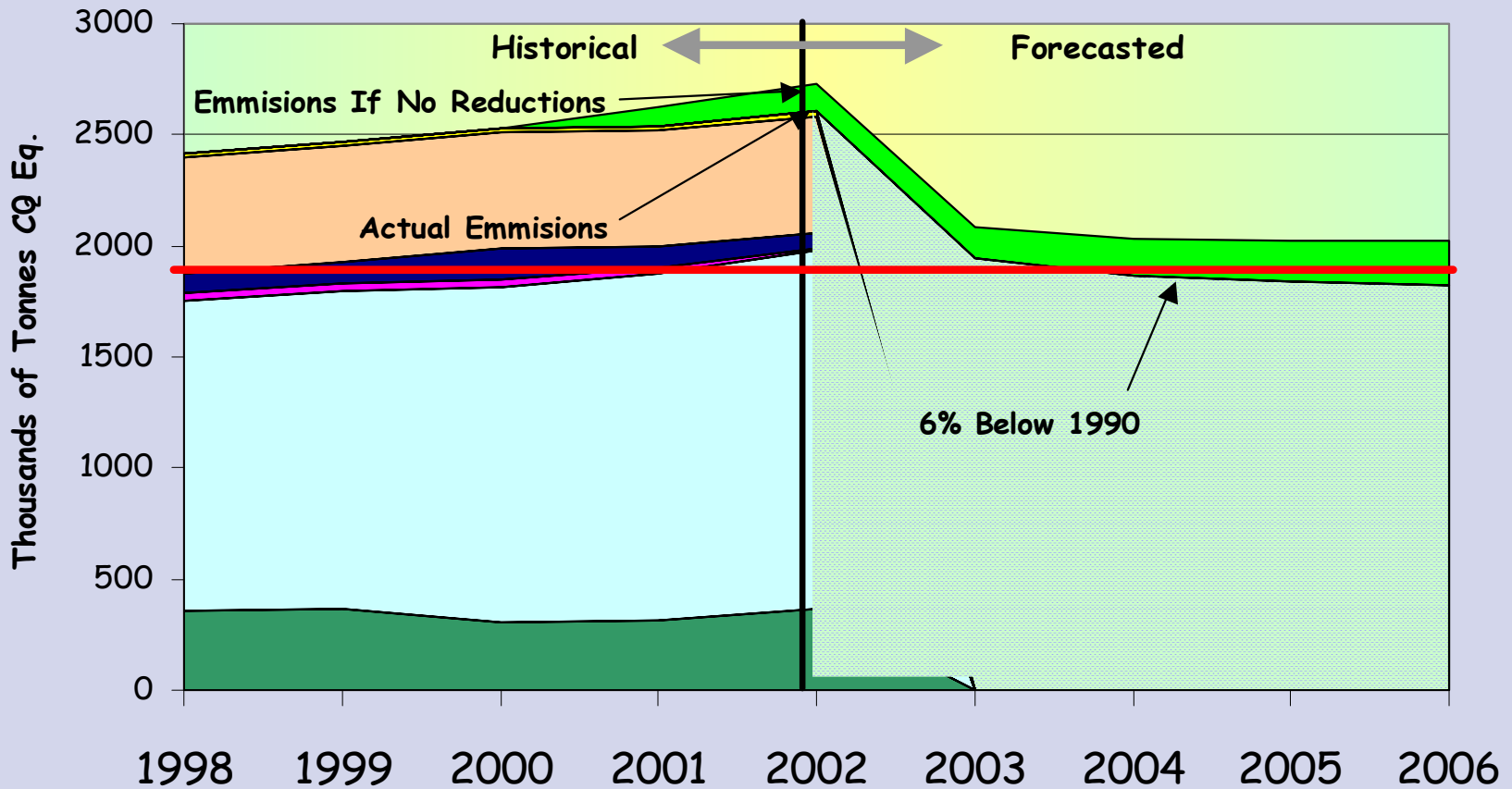


GHG Reduction Results To Date

- Started program to reduce Emissions in 2000
- 302 GHG Reduction Projects completed
- estimated cost over 5 Million over 3 years
- combined NVP of all projects is over \$17 Million
- 29,557 E3M3 of Fuel Gas consumption Reduced
- 5,342 E3M3 of Vented Gas Prevented
- 46,968 E3M3 Gas Shrinkage Recovered
- 132,041 Tons CO₂ Equivalent of Greenhouse Gasses Reduced



GHG Reduction Results



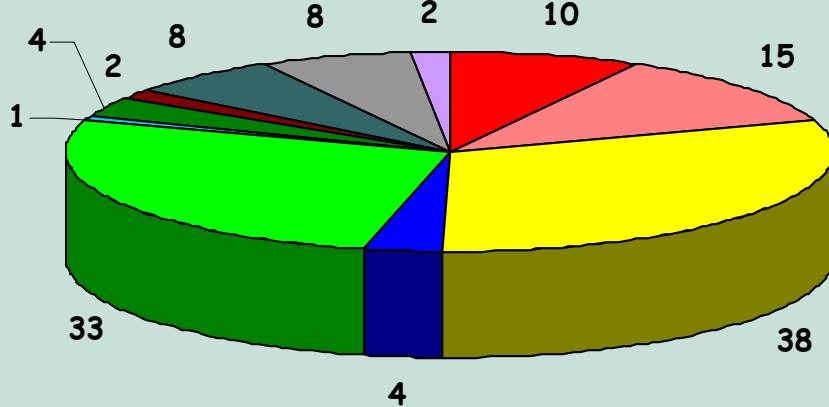
Electricity (indirect) Fuel Gas Diesel Flared Gas Methane NMHC Estimated Reduced



2002 GHG Reduction Results

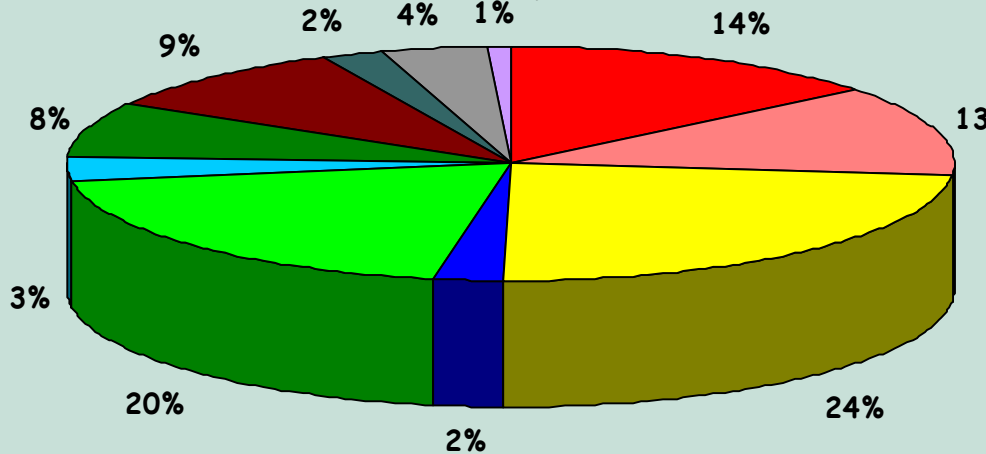


126 Projects Completed In 2002



- Fuel Reduction Compression
- Fuel Reduction Other
- Pnumatic Pumps
- Fuel Efficiency Other
- Control Loop
- Fuel Efficiency Compression
- Flare Reduction
- Instrument Air
- Dehy
- Vent Reduction
- Vent to Flare

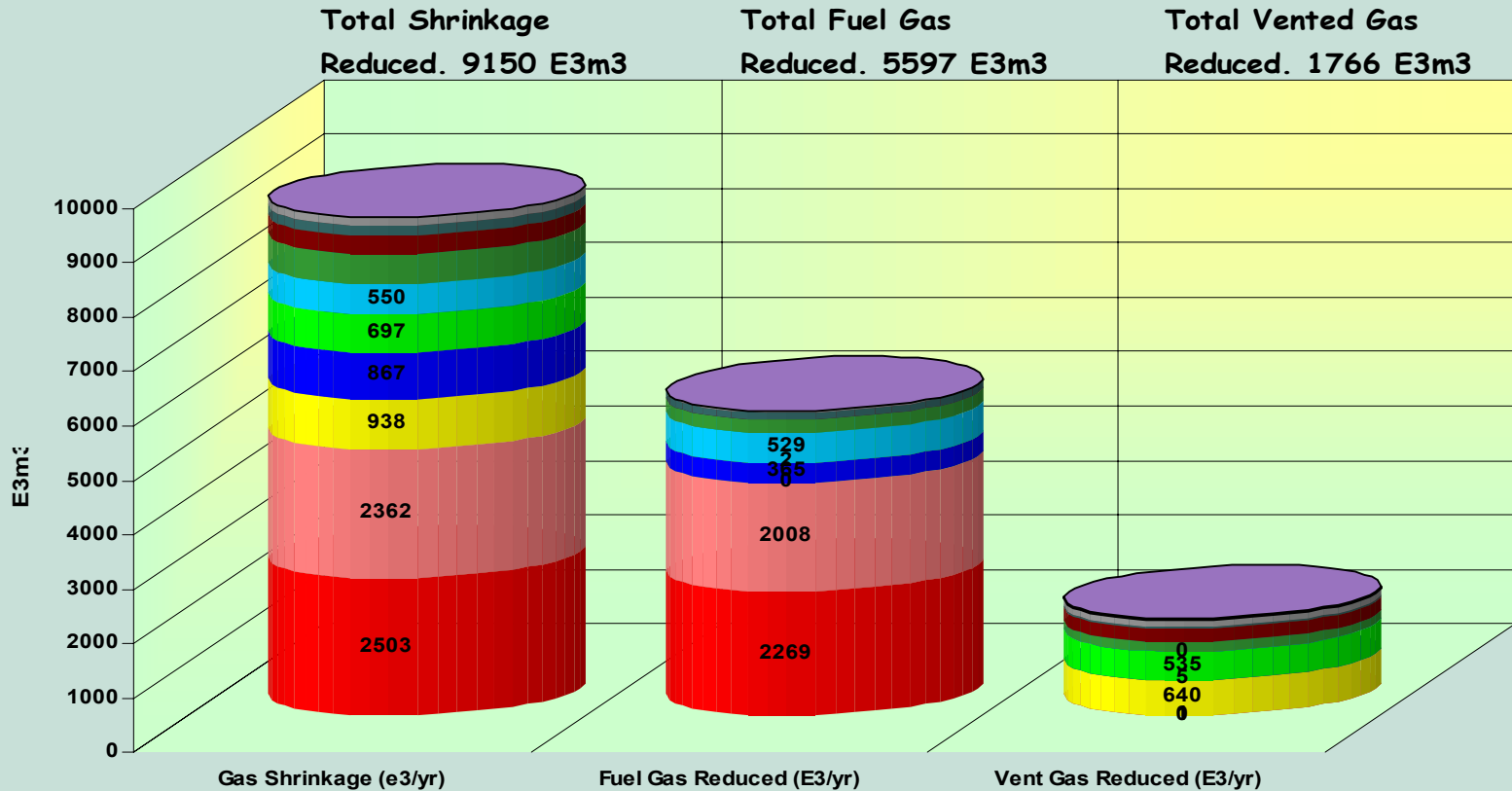
Reduced 34,529 Tonnes Equivalent of CO₂ in 2002



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2002 GHG Reduction Results



- Fuel Reduction Compression
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A Few Key Success Stories

- RemVue.
 - Computerized Engine Control system that maximizes the efficiency of Gas Drivers.
 - Basically turns rich burn engine into Lean Burn engine
 - Reduced Fuel Gas consumption by 12,000 e3m3/yr



A Few Key Success Stories

- Well Test Flaring

- Worked to minimize emissions from well tests by looking for alternate methods of obtaining well test data, recovering the natural gas from the well test into a gathering system, or by minimizing the duration of the well test.
- Reduced well test flaring from 3% of total emissions in 1998 to 0.6% of total emissions in 2001.



A Few Key Success Stories

- Pneumatic Pumps
 - Elimination of 10,500 Tonnes CO_2e/yr of vented gas from Pneumatic pumps.
 - Optimization of chemical pump injection rates to reflect current process conditions.
 - Upgrade of older pumps to newer "low Bleed Pumps"
 - Switching gas driven pumps to electrical driven where practical



A Few Key Success Stories

- Instrumentation

- Elimination of 10,000 Tonnes $CO_2e/yr.$, from Instrumentation venting fuel gas into the atmosphere.

- Remove of unnecessary instrumentation and control valuing
- Replacement of older instruments with newer "low bleed" models



Looking to 2003 and beyond

- Change in focus for 2003 from CO₂e Emissions to energy efficiency, (energy consumed/Unit production)
 - Brings us in line with BP Global, CIPEC targets
 - Will directly impact operating expenses in a positive way by targeting directly our energy consumption
 - Will allow us to include electrical consumption reductions
 - emission reductions will continue to accrue co-incidentally with the energy improvements



Achieving the Targets

- Electrical Consumption Focus Group
- New Technologies
 - Thermogreen, Waste Heat Recovery, Dehydration Technology, Blair-Air
- Leak Detection and Repair (LDAR) Program
 - Targets Fugitive emissions
- Energy Audits
 - Successful Audit completed at West Pembina
 - May be other opportunities on a smaller scale at other facilities



Question & Answer