

Quantifiable Environmental Results

Following are examples of customer projects where NORPAC used products and services resulting in significant environmental impact.

References for Calculations:

- For car CO₂ output: <http://www.carpages.co.uk/co2/>
- Calculations were performed using molar methods, and assumed a car average CO₂ output of 150g/km x 20,000 kms/year.

If you have any questions about these QER's or would like to explore options within your own operation, contact:

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Lime Kiln Optimization at Domtar Inc. in Kamloops, B.C.



Site: Kamloops Cellulose
Kamloops, B.C.



Scope:

- Detailed engineering design
- Equipment procurement
- DeltaV Advanced Control hardware and software
- Startup and training services
- Lime Kiln APC Applications

Challenge:

- The lime kiln is a major consumer of energy (fossil fuel) and is difficult to optimize because of the process dynamics

Solution:

- Lime Kiln Advanced Control (DeltaV MPC) Optimization project completed in Fall 2006

Environmental Impact:

- Minimum 10% Reduction in natural gas usage
- GHG emission reduction of ~ 4,000 tonnes of CO₂ / year
- Equivalent to 1,400 cars removed from our highways!



SmartProcess® Header Optimization at Canfor Northwood in Prince George, B.C.



Site: Canfor Northwood,
Prince George, B.C.



Scope:

- Initial process study
- Detailed engineering design
- DeltaV configuration
- Startup and training services
- SmartProcess® Header optimization
- On-going Support

Challenge:

- Stabilize steam header systems to manage upsets more effectively, while maximizing the electrical generation on the steam turbines

Solution:

- SmartProcess® Header advanced control optimization

Environmental Impact:

- Increased electrical generation of “green” power by 7.6 GWh/year, thereby reducing the amount of purchased power required
- Equivalent to powering ~ 675 households/year



SmartProcess® Lime Kiln at Canfor in Prince George, B.C.



Site: Northwood Pulp Mill
Prince George, B.C.



Scope:

- Detailed engineering design
- Equipment procurement
- Controls configuration
- Installation services
- Control and rack room re-construction
- Startup and training services
- SmartProcess® Lime optimization

Challenge:

- The lime kiln is a major consumer of energy (fossil fuel) and is difficult to optimize because of the process dynamics

Solution:

Lime Kiln Advanced Control (DeltaV MPC)
Optimization

Environmental Impact:

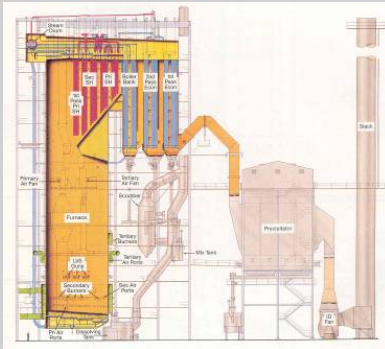
- Minimum 15% Reduction in natural gas usage.
- GHG emission reduction of ~ 7,100 tonnes of CO₂ / year.
- Equivalent to 2,400 cars removed from our highways!



SmartProcess® Boiler Optimization at Northern B.C. Pulp and Paper mill



Site: Northern B.C. Pulp and Paper mill



Scope:

- Initial process study
- Detailed engineering design
- DCS configuration
- Startup and training services
- SmartProcess® Boiler optimization
- On-going Support

Challenge:

- Improve boiler performance by maximizing biomass combustion, reducing natural gas usage while staying within emission limits

Solution:

- SmartProcess® Boiler advanced control optimization

Environmental Impact:

- Increased combustion of wood waste to make “green” energy
- Reduced natural gas usage by ~16%
- GHG emission reduction of ~ 1,000 tonnes of CO₂ / year
- Equivalent to 350 cars removed from our highways!

