

Greenhouse gas abatement

Supporting the technical and economical aspects of feasibility and implementation for abatement actions

The Australian government's forthcoming Clean Energy Future Plan (carbon tax) will require organisations to purchase permits for the emission of greenhouse gases. The cost of permits will provide a price signal to guide business investment on abatement options.

Challenges

For large emitters, permit costs could be several hundred million dollars per year, with the main challenges being:

- an uncertain regulatory framework with the carbon tax planned to commence in July 2012
- abatement projects can take several years from concept, evaluation, design, costing, obtaining board approval, through to construction and implementation
- the critical need to understand how the carbon tax will affect profitability and competitive advantage.

Solutions

hrl: has expert services to assist clients in identifying, analysing and implementing greenhouse gas abatement options including:

- an independent review – technical and economical – of abatement options
- facilitating abatement workshops to identify and rank abatement opportunities
- developing a marginal abatement cost (MAC) curve – of cost versus abatement – to guide investment decisions
- assessing current plant performance versus design to identify performance deterioration and improvement potential
- developing controllable losses methodology by evaluating commercial – or developing tailor-made – packages
- monitoring plant component performance including boilers, turbines, condensers, air heaters and feedwater heating
- implementing abatement projects
- reviewing carbon capture and storage options.



Organisations face challenges in identifying, analysing and implementing greenhouse gas abatement options.

Benefits

hrl: expertise in greenhouse gas abatement provides client benefits that include:

- Process optimisation to improve process performance via:
 - improved control and maintenance
 - upgraded instrumentation and control
 - optimised boiler performance.
- Plant refurbishment to return plant performance to design levels.
- Conventional plant redesign to upgrade or modernise existing technologies to improve performance through:
 - improved heat recovery such as by installing additional boiler surface area
 - turbine upgrades
 - boiler improvements
 - auxiliary energy saving measures.
- Alternate technologies
 - integration with existing process to dramatically reduce greenhouse gas emissions, through:
 - fuel switching, including use of renewable fuels
 - coal/fuel drying
 - post combustion carbon capture and storage (CCS)
 - oxy-fuel combustion with CCS
 - solar or geothermal thermal feed water preheating
 - integrated gasification combined cycle (IGCC).

hrl: uses state-of-the-art process modeling packages, including ASPEN (process simulation), STEAMPRO (performance of conventional steam plant), GTPRO (performance of gas turbine plant) and Fluent (computational fluid dynamics).

hrl: works extensively for energy-intensive industries including power generation, minerals processing, aluminium, cement and paper.

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The company's NATA Accredited Laboratories number is 561.

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