



COMPRESSED AIR SYSTEMS EFFICIENCY PROGRAMME

The Electricity Commission has a responsibility to promote and facilitate the efficient use of electricity. It does this through funding programmes that assist in overcoming market failures or barriers to cost-effective electricity efficiency investment.

The Commission's Compressed Air Systems (CAS) Best Practice Programme, which aims to improve the electricity efficiency of industrial compressed air systems, is one such initiative.

Potential Savings

New Zealand and overseas studies indicate to the Commission that there is realistic potential to achieve electricity savings of around 185 GWh per annum, and at least 37,000 tonnes of reduced CO₂ emissions.

A recent study conducted with Fonterra (Te Rapa) reinforced that the savings can be made very cost-effectively. In that study electricity savings of 24% were achieved from short payback period actions undertaken to manage air leaks and inappropriate air use, and a further 8% through slightly longer payback improvements to compressor controls.

Components of the Compressed Air Systems Programme

The Commission's compressed air programme has a number of components, namely:

- Funding of CAS audits for larger New Zealand industry sites -these being undertaken by initially by individuals selected for their specialist CAS skills and eventually by auditors accredited under a CAS auditor accreditation scheme;
- Establishing the CAS auditor accreditation scheme to assist the development and maintenance of a pool of CAS auditors capable of performing the CAS audits according to the systematic methodology developed by the Commission in conjunction with industry;
- Developing and promoting 'do-it-yourself' CAS efficiency techniques to small- to medium- sized industrial entities; and
- Developing an industry partnership to promote and take long-term ownership of compressed air systems best practice in New Zealand industry, and sustain the efficiency gains achieved by the Commission's initiative.

The compressed air systems auditing funded by the Commission involve a two-stage audit process to identify inefficiencies and recommend cost-effective remedial actions.

The CAS audit structure

The two stages of the CAS audit process are:

- A 'Walk-thru CAS assessment' to identify and estimate the value of CAS efficiency opportunities on the site; and
- An 'In-depth CAS audit', once a walk-thru assessment has identified substantial efficiency-related opportunities.

Both stages of the audit process are fully funded by the Commission, when undertaken by approved CAS auditors.

No commitment is required for any CAS user to have a site 'Walk-through CAS assessment'. And if only limited CAS efficiency opportunities are identified from the 'walk-thru', the audit process will be complete with a brief outline of any relevant recommendations.

If substantial CAS efficiencies are identified from the 'walk-thru', an 'In-depth CAS audit' (to more clearly specify the value and costs/benefits of the walk-through findings) will likely be the key recommendation.

Prior to funding an in-depth CAS audit, the Commission and the participating CAS user will enter into an agreement covering the processes for dealing with the recommendations from the audit. In essence, the agreement will contain the criteria used to determine which of the (cost-effective) recommendations from the audit are committed to by the participant as a CAS improvements action plan.

The benchmark for what the Commission considers as an appropriate measure of cost-effectiveness is a two year simple payback of the cost of the improvement.

The CAS auditor accreditation scheme

At this stage of the CAS programme, the Commission is working with a small number of experienced compressed air systems technical consultants to provide the CAS assessments and audits.

However, the Commission has recently signed agreements with the University of Waikato (UoW) and the Energy Management Association of New Zealand (EMANZ) to provide the services required to establish and administer the CAS auditor accreditation scheme.

The University will provide a compressed air education course as the 'academic' pre-requisite to accreditation. EMANZ will provide the administrative services associated with auditors' initial applications for accreditation and subsequent applications of renewal/continuation of CAS auditor accreditation.

UoW will commence enrolment shortly for the first such course – commencing mid-July 2008..

Prior to having auditors accredited under the accreditation scheme, the Commission's CAS auditing guidelines and reporting standards will continue to provide a suitable auditing framework for the 15 CAS auditors that have been approved to conduct audits during the current pilot phase.

The value from participating in the programme

The CAS programme represents a low-risk opportunity to reduce operating costs and contribute positively to reducing CO₂ emissions (through reduced electricity generation).

The programme provides access to specialists in compressed air systems, armed with an audit methodology focused on systems efficiency rather than equipment sales. You will receive sound advice and an action plan of cost-effective improvements to address the CAS inefficiencies identified.

The Commission will fund the audits and, until an action plan is agreed following an in-depth audit, there is no financial commitment required of participating CAS users.

At this time, the CAS audits are being offered to sites with over 150 kW operating compressor capacity. It will be extended to cover sites with over 75 kW of installed CAS capacity once a pool of accredited CAS auditors is established.

A later and final step in the roll-out of the programme will involve providing information to smaller CAS users on a form of 'do-it-yourself' basis.

What to do to participate

If your company's air compressor capacity is in the order of 150 kW or more and you would like to participate in the programme, please contact one of the approved CAS auditors near you ([Link to CAS Auditor contact details](#)).

The CAS auditor selected can directly make arrangements with you for an initial Walk-thru CAS Assessment of your compressed air system. The recommendations from that will include whether or not an In-depth CAS Audit should be initiated.

It might be that you are contemplating a broader review or audit of the energy efficiency of your business. The Commission is willing to fund a Walk-thru CAS Assessment as a component of a more extensive energy audit supported by EECA, and if that is the approach you prefer please make that known to your EECA account manager.

The listed CAS auditors are contracted to the Commission to undertake CAS audits according to the Commission's methodology. While they are not yet be accredited CAS auditors, their credentials are such that each will be accredited once the scheme is operational. However, if you wish independent advice on the merits of a particular listed CAS auditor, Mike Allen the Programme Technical Adviser (see the [CAS Auditor contact details](#) for Mike's contact details) may assist in that regard.

The potential for electricity efficiency savings through the Commission's CAS programme is substantial. Your support and participation is encouraged, and the Commission looks forward to working with you to make a significant contribution to New Zealand's energy future.