

Towards a revision of
AS/NZS3598:2000 Energy Audits

DISCUSSION PAPER



National Framework
for Energy Efficiency



APRIL 2011

Towards a revision of AS/NZS3598:2000 Energy Audits

A discussion paper

April 2011

This paper was prepared by Energetics Pty Ltd, Rare Consulting Pty Limited and the University of New South Wales for the Department of Resources, Energy and Tourism on behalf of the National Framework for Energy Efficiency.

A Steering Group contributed to the development of the paper. Steering Group member organisations include:

Department of Resources, Energy and Tourism
ACT Planning and Land Authority
Australian Industry Group
Consult Australia
Department of Climate Change and Energy Efficiency (Commonwealth)
Energy Efficiency and Conservation Authority (New Zealand)
Energy Efficiency Council
Energy Management Association of New Zealand
Energy Users Association of Australia
Office of Climate Change, Department of Environment and Resource Management (QLD)
Office of Environment and Heritage (NSW)
Property Council of Australia
Sustainability Victoria

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1 About this paper

The Australian Department of Resources, Energy and Tourism (RET) is undertaking a review of the current edition of the Australian/New Zealand Standard for Energy Audits (AS/NZS3598:2000) on behalf of the Ministerial Council on Energy under the umbrella of the National Framework on Energy Efficiency (NLEE). This work follows a review of AS/NZS3598:2000 completed for the Energy Efficiency and Conservation Agency of New Zealand (EECA) in June 2010.

The current review is being overseen by a Steering Group comprising government and industry representatives from Australia and New Zealand, and is intended to provide the Ministerial Council on Energy with advice in relation to:

- the guiding rationale for revision of the current edition of AS/NZS3598:2000;
- the nature and scope of the proposed revisions; and
- key timing and implementation considerations.

The first stage of the review involves consultation with the energy efficiency community (i.e. energy users, legislators and energy auditors) in Australia and New Zealand to canvass stakeholder views on the need for a revision of the current standard and the key issues that should be accommodated in any future revision.

Recognising that many of the key issues relating to the conduct of energy audits are subject to a degree of debate among stakeholders, this paper is designed to canvass stakeholder views in relation to a number of core considerations, including the:

- adequacy of the current standard in supporting the contemporary energy efficiency agenda and business needs of companies in Australia and New Zealand;
- likely future relevance of the standard given recent developments in energy efficiency legislation and related international standards;
- principal objectives that should be addressed by AS/NZS3598:2000;
- proposed scope and structure of any revised standard; and
- intended target audience for the standard.

As just the first step in the consultation process, this paper is not intended to provide the reader with a definitive listing of the issues that will need to be addressed by any future redrafting of AS/NZS3598:2000. Rather, it is intended to highlight some of the key issues that will likely need to be addressed by the review, and provide a mechanism for capturing stakeholder opinion on these issues.

Accordingly, this paper poses a series of strategic questions for stakeholders in the energy efficiency community. The answers to these questions will be used to assess the need for, and proposed scope of, any future review of AS/NZS3598:2000. These questions are posed throughout this discussion paper and are also collected together in Appendix A.

It is worth noting that the issues discussed in this paper are intended to specifically address the role of the standard in improving energy performance. All other issues relating to the management of energy performance in Australia and New Zealand are considered to be outside the scope of this paper.

A more detailed discussion of the issues canvassed in this paper can be found in the accompanying Background Paper.

2 How to Respond

The Microsoft Word version of the discussion paper has been designed to enable stakeholders to provide comment within the document. There is an expandable free text field – indicated with a box definer – at the end of each section. This is designed to allow respondents to provide constructive suggestions in response to the questions. It is not expected that stakeholders will respond to every question. Alternatively, stakeholders are welcome to make submissions in a separate document.

Please email submissions to energyauditstandard@ret.gov.au by **Tuesday 31st May 2011**. The email should include full postal address and contact details.

Important: Please indicate clearly if you want your submission to be treated as confidential (that is, not to be made public) or anonymous (that is, the content can be made public but the author is not to be disclosed).

Confidentiality statement: All submissions will be treated as public documents, unless the author of the submission clearly indicates the contrary by marking all or part of the submission as 'confidential'. Public submissions may be published in full on the website, including any personal information of authors and/or other third parties contained in the submission. If your submission contains the personal information of a third party, please indicate in the email of your submission if they have not consented to the publication of their information.

Public consultation forums

During the consultation period, a number of public consultation forums will also be held where interested parties can provide feedback. Dates and locations for those forums are as follows:

Sydney – 2nd May 2011, Holiday Inn Darling Harbour, 68 Harbour Street, Sydney

Melbourne – 3rd May, Ether Conference Centre, 195 Swanston St, Melbourne

Wellington – 5th May, EECA Office, Level 8, Vector House, 44 The Terrace, Wellington

Brisbane – 9th May, Holiday Inn Brisbane, 159 Roma Street, Brisbane

Perth – 10th May, Mercure Perth, 10 Irwin Street, Perth

Australian consultation sessions will commence at 10am and run for approximately two hours.

New Zealand is running a consultation session in the morning for energy auditors commencing at 9am and an afternoon forum for clients of energy audits starting at 1pm.

Should you wish to register for the Australian forums, obtain further information about the nature of the consultation process, or require clarification of any element of this paper, please contact:

Belinda Fraser
Skills and Information Projects
Energy and Environment Division
Department of Energy Resources and Tourism
Australian Government, Canberra

tel: +61-2 6276 1904

email: energyauditstandard@ret.gov.au

Registrations for the New Zealand forums can be emailed to admin@emanz.org.nz .

3 Situational context

The current edition of AS/NZS3598 was prepared by the Joint Standards Australia / Standards New Zealand Committee EN1 and formally issued in 2000. The principal objectives of AS/NZS3598:2000 were:

- provision of assistance to energy users on the nature and scope of energy audits (and the level of energy audit that was likely to be most appropriate for their needs);
- provision of guidance to energy users seeking to commission energy audits, including provision of a uniform framework for preparing and comparing energy audit proposals;
- promoting best practice among energy auditors;
- supporting the establishment of energy management programs; and
- contributing to an overall improvement in the quality of existing energy and other management systems.

In the decade following the release of AS/NZS3598:2000, the energy efficiency agenda has undergone significant development in both Australia and New Zealand. The scale of this development is perhaps best demonstrated by the numerous government programs, legislation, rating tools and related standards that have emerged in recent years which focus on different elements of the energy management process, including:

- initiatives focused on improving Energy Management Systems i.e. ISO50001;
- reporting and rating schemes focused on baseline energy use i.e. National Greenhouse and Energy Reporting (NGER), the National Australian Built Environment Rating System (NABERS);
- energy audit programs supporting the identification and evaluation of opportunities i.e. EECA Energy Audit Grants (NZ), NSW Energy Saving Action Plans, Victorian Energy and Resource Efficiency Plans;
- assessment frameworks which combine management system and audit elements to identify, evaluate and make decisions on the implementation of opportunities i.e. Energy Efficiency Opportunities (EEO) program;
- energy performance contracting models which assist implementation through a service provider guaranteeing certain energy savings; and
- a range of Protocols, Standards & Guidance Materials to support the above activities.

Within this business context, energy audits are the vital step to enable organisations to systematically identify and evaluate potential opportunities to improve their energy performance. An energy audit provides the detailed analysis required to make decisions within an energy management system. It involves the use of internal or external expertise in establishing energy baselines, understanding where energy is used within the business,

identifying opportunities, and evaluating and reporting on those opportunities to business decision makers in terms of energy savings potential and cost effectiveness.

In October 2008, the Council of Australian Governments (COAG) agreed to develop a National Strategy on Energy Efficiency (NSEE) to accelerate national energy efficiency efforts and streamline roles and responsibilities across all levels of government. A key message of the NSEE was that the transition to a low-carbon future will likely require significant enhancement in the knowledge and development of skills within the energy efficiency community.

Specific elements of the strategy designed to address this issue included:

- rationalisation of existing energy audit and assessment processes to deliver nationally consistent approaches to energy auditing (and skill requirements);
- a review of the adequacy of current training and accreditation practices for training in energy auditing; and
- a review of AS/NZS3598:2000.

In reviewing AS/NZS3598:2000, consideration needs to be given to the role of the Audit Standard in today's business context and how it can assist energy users and auditors in the audit process to improve energy performance, address key business needs, clarify roles and responsibilities and improve identified skills deficiencies.

The above discussion gives rise to two key questions, namely:

- What are the key deficiencies that have emerged in relation to AS/NZS3598:2000 given the developments in the energy efficiency agenda and business needs of companies that have occurred in the past decade?
- To what extent (if any) do, or should, the elements of the current standard complement other standards, guidelines and programs?

Further information on the issues discussed in this section is provided in the following sections of the Background Paper:

- 2. Situational Context,
- 2.1 The role of energy auditing,
- 2.2 Barriers to implementation of energy performance improvements,
- 2.3 Alignment of AS/NZS3598 with New Zealand energy efficiency programs,
- 2.4 Alignment of AS/NZS3598 with government programs in Australia,
- 2.5 Alignment with sectoral audit processes: Commercial Buildings, Industrial facilities, Transport, Mining,
- 2.6 Current strengths and weaknesses of AS/NZS3598

Stakeholder questions – Rationale for the review

1. What are the key deficiencies of AS/NZS3598:2000 that have emerged over the past decade?
2. To what extent (if any) do, or should, the elements of the current standard complement other standards, guidelines and programs?

4 Purpose of the standard

The abstract of AS/NZS3598:2000 describes the purpose of the existing standard as follows:

Setting out the requirements for commissioning and conducting energy audits, and identifying opportunities for cost effective investments, to improve efficiency and effectiveness in the use of energy.

Given the developments described in the previous section, the continued relevance of the original objective could be called into question. Conversely, it could be argued that despite the significant developments in energy auditing over the past decade, the quality and consistency of energy auditing requires substantial improvement, and points to the fact that the original objective remains relevant today.

Given the developments and changes in the energy efficiency arena that have occurred in Australia and New Zealand since 2000, the Steering Group believes that there may be a need to amend the original objective of AS/NZS3598:2000 to (a) place greater emphasis on energy audit practices and auditor skills, and (b) accommodate the differing nature of requirements of energy audits in different industry sectors. A draft objective currently being considered by the Steering Group is as follows:

To standardise best practice for energy audits and assessments in Australia and New Zealand across a range of circumstances, including varying type and scale of facilities and range of detail.

Further information on the issues discussed in this section is provided in the following section of the Background Paper:

- 3. Objectives of new standard

Stakeholder questions – Objective

3. What do you believe should be the principal objective (or set of objectives) of the standard?
4. To what extent should the standard focus on improving the skills and practice of energy auditors?
5. To what extent should the standard outline requirements of auditor training and address accreditation programs?
6. Are there any weaknesses in the current standard that are hindering the effective identification and evaluation of opportunities to improve energy performance?

5 Scope of consideration

A key consideration in any future revision of the current standard relates to the intended scope of the standard. The scope will essentially dictate elements of the structure of the standard (Section 6) and set boundaries around the intended target audience.

In considering the question of scope it is necessary to consider several elements.

- What role should the standard play in the current business context?
- How does the current standard interface with the upcoming energy management system standard ISO50001, other relevant standards, regulated assessment frameworks (i.e. EEO) and industry guidelines which have been produced since 2000?
- What areas of the energy audit process should the future standard focus on to provide more guidance or improve skills in particular areas of data collection and analysis, opportunity identification, opportunity evaluation, and the construction of business cases for evaluated opportunities.
- Should the scope also include 'operational improvement opportunities' that often cut across systems?

Secondly, what sectors should any future revision seek to accommodate (i.e. manufacturing, commercial building, mining and transport)? The nature of energy consumption within each of these sectors varies, potentially giving rise to significant differences in the business needs of each sector and variations in the methodologies employed for energy audits. This variation in business need and audit and assessment approaches may in turn give rise to different skills requirements for energy auditors operating in different industry sectors and raises a broader question concerning the practicality of trying to advance a single standard to accommodate a range of different industry sectors.

Other considerations relating to the potential scope of the current standard include:

- **Measurement & Verification.** M&V is a part of energy management and an important aspect of energy audits where the goal is to provide accurate recommendations on cost effective opportunities, and verify outcomes to management. It also provides the basis for energy performance contracting models. To what extent should measurement and verification procedures be included in the scope of the standard?
- **Design.** Major opportunities exist to achieve energy performance gains at the design stage. Should the standard include guidance on energy efficient design of plant and equipment?

Further information on the issues discussed in this section is provided in the following sections of the Background Paper:

- 4. Scope of the new standard,
- 4.1 The interface of AS/NZS3598 to an energy management system standard,
- 4.2 Measurement and verification,

- 4.3 Energy Efficient Design,
- 4.4 Water and Waste,

Stakeholder questions – Scope

7. What areas of the energy audit process should the standard specifically address?
8. How should the standard link with other relevant standards and/or frameworks?
9. Should the standard address energy used in transport applications and materials movement (e.g. in mining, in port facilities, etc.)?
10. Should the standard incorporate guidance on measurement and verification? Why?
11. Should the standard incorporate guidance on performance contracting? Why?
12. Should the standard incorporate guidance on energy efficient design? Why?

6 Target audience

The nature of the intended target audience is also a core consideration in assessing the adequacy or otherwise of the current standard to meet the needs of the energy efficiency community in Australia and New Zealand. A clear consensus on the nature of the target audience provides a pointer to the specific needs of the reader and hence the required content of the energy audit standard.

The abstract of the existing standard stated that AS/NZS3598:2000 was primarily intended for use by energy users, but would also be of assistance to energy auditors and provide a useful reference document for anyone interested in the field of energy management best practice. As a consequence of this majority focus on energy users, the original standard was developed to set out the minimum requirements for the commissioning and conduct of energy audits to identify energy efficiency improvement opportunities.

Developments in the energy efficiency agenda over the past decade have resulted in the creation of an increased diversity of stakeholders in the energy efficiency agenda. A critical evolution in the understanding of energy auditing since 2000 is the recognition of the complexities around 'who' is conducting the audit. AS/NZS3598 follows a paradigm of an external energy auditor being commissioned by an energy user to conduct an audit. More recent standards and guidance documents recognise an approach to auditing based on teams of members with appropriate knowledge and skills. The teams can be internal or external to the energy using business (or a combination).

Accordingly, there may be a case for adjusting the target audience for the standard to reflect a more sophisticated approach to energy auditing. The standard might explicitly refer to the role and responsibility of energy managers for instance. Similarly the needs of this expanded group of stakeholders are likely to be more diverse than identified in the original standard, suggesting a need to expand the current focus of the standard to include skills criteria of audit personnel, and guidance on training and accreditation of energy auditors.

The nature of the target audience for the original standard suggests that the drafting team did not perceive a need to distinguish between large energy users and small energy users. While this approach was no doubt valid in 2000 when the concept of an energy audit was relatively new, this assumption needs to be revisited.

There are significant differences between large and small businesses in terms of scale and complexity of energy use. This suggests that a revised standard should recognise those differences. Similarly, the current three level audit system contained in the existing standard could be modified to accommodate the needs and information requirements of different sized energy users.

The table below is an example of how the level system could be amended. More discussion appears in the Background Paper, Appendix C in Section 5.3.

Level	Comment	Outcomes	Possible Accuracy	Business need addressed	Example of use
0	Sometimes known as a scoping study, this would be a desktop study designed to understand energy use of a large multisite organisation and prioritise those sites for further investigation / auditing.	Simple KPI analysis Potential magnitude of savings Overall energy baseline	n/a	Understanding of an organisation's total energy use. Prioritised list of which sites to focus on.	Large multisite organisation to identify the site or sites that should receive initial attention in any corporate wide energy study.
1	Same as the current level 1 audit but no individual savings opportunities identified. Estimate of whole of site savings only. It may involve a site visit where benchmarks aren't available. The aim is to provide an estimate of savings available from undertaking a level 2 energy audit.	Energy end-use model Energy baseline Potential savings against known benchmarks. No energy savings opportunities identified.	n/a	Understanding of energy use Data for budgeting purposes Potential savings and benefits from undertaking a level 2 energy audit. Certainty as to whether to invest in a level 2 energy audit.	A site wants to improve its energy performance, and wants an understanding of current energy use and an estimate of savings potential.
1a	The current level 2 audit is not cost effective for small energy users. The aim of this level of audit would be to provide a cost-effective alternative for small energy users.	Understanding of total energy use. List of energy savings opportunities recommended for implementation.	+/-30%	Understanding of organisation's total energy use. Identify cost-effective energy savings opportunities.	Smaller organisations wishing to know what they can do to save money through energy efficiency for whom level 2 audits are not cost effective.
2	Much the same as the current standard.	Energy end-use model Detailed energy baseline Screened opportunities List of potential opportunities with rough costings	+/-30%	Identification, evaluation and implementation of low cost easy wins. Certainty as to whether to begin detailed assessment of costlier opportunities	An energy user wants to identify opportunities with good potential. The Level 2 audit builds on the outcomes of the earlier Level 1 audit.
2a	Design audit: Review of the project brief, and the plans throughout the design process to ensure energy efficiency is optimised in the final plans and specifications.	Energy end use model. Plans and specifications incorporate cost-effective energy efficiency features.	+/-20%	Ensure all cost-effective energy efficient opportunities are incorporated into the new build / facility.	New building or production facility.
3	Much the same as the current standard.	Assessed opportunities Energy-mass balance	+/-20%	More detailed analysis of opportunities identified through a level 2 energy audit complete with more accurate costs and savings.	Organizations seeking more detail and verification of savings and costs of screened opportunities. Sometimes known as an "investment grade" audit.
4	Much the same as a level 3 energy audit but with far more developed business cases for the opportunities identified. The business cases identified would align with the client organisation's terminology and decision making processes complete with client IRR's or NPV etc.	Detailed business cases prepared in conjunction with the client to ensure the best possible likelihood of being approved for implementation.	+/-10%	An investment grade audit with detailed business cases to guide decisions on major energy savings measures.	A large site has identified a range of opportunities that exceed site management's expenditure threshold and want detailed business cases for the Board.

A further consideration relates to the degree to which the standard should provide guidance to both the providers of energy audits, providers of training programs for energy auditors, and legislators. The inclusion of these groups will have a direct bearing on the adequacy (or otherwise) of the existing standard to meet the energy audit needs of the energy efficiency community.

Finally, the development of ISO50001 relating to energy management systems (EnMS) suggests that there may be a need to distinguish between the needs of energy users with a fully established EnMS, those that have commenced work on an EnMS, and those that have made no progress towards the development of an EnMS.

Further information on the issues discussed in this section is provided in the following sections of the Background Paper:

- 4.1 The interface of AS/NZS3598 to an energy management system standard,
- 5.3 Audit levels

Stakeholder questions – Target audience

13. What group or groups (i.e. energy users, energy managers, energy audit providers, training bodies, government agencies) should comprise the target audience for the standard?
14. Please explain what part/s of the target audience that you represent. What are your specific information requirements on energy auditing?
15. Do you believe that it is necessary to make a distinction between the needs of large energy users, medium energy users, and small energy users? Why?
16. Can the needs of different sized energy users be accommodated by a single standard or is it necessary to find a mechanism for meeting the different needs of small and large businesses. Do you think modifying the level system provides a potential solution?
17. What do you consider to be the most appropriate basis for differentiating between the size of different energy users (i.e. employee numbers, annual turnover, annual energy use)?
18. What is your opinion on the need for ensuring that the standard takes due account of energy users with a partial or fully implemented EnMS?

7 Structure

The outcome of any revision of AS/NZS3598:2000 will be heavily influenced by the approach taken in respect of two structural considerations.

Single standard or a suite of standards

The first consideration is whether it is both practical and desirable to develop a single standard for energy audits that seeks to advance a 'generic' set of practices that can be applied by an auditor irrespective of the industry sector in which they are operating.

This approach compares with an alternative approach that is developed around the presumption that application of a generic approach is likely to be too shallow for some industry sectors, instead requiring the development of:

- an umbrella standard that outlines the high level principles and practices that should be applied (including training and skills requirements); and
- a set of supporting standards that outline sector-specific or technology specific requirements that take due account of the specific challenges within each sector or energy using technology. For instance: manufacturing, commercial buildings, mining and transport or steam systems, HVAC, materials movement – and numerous others.

Alternatively, the umbrella standard might reference existing standards and guidelines as a means of stipulating sector-specific requirements of energy audits.

Outcomes driven or process driven standards

The second consideration is whether the guidance to be provided in any revision of the standard should be outcomes driven or process driven. Outcome driven standards define the outcomes that must be delivered for the audit or assessment, but allow users to develop their own techniques for the delivery of the energy audits, and allow for the development and sharing of best practice. These standards do not, however, provide any guidance to the providers of energy audits and energy users.

A process driven standard, on the other hand, would detail the procedures that must be followed in respect of the conduct of an energy audit. They have the benefit of ensuring the delivery of compliant outcomes (assuming that the process in the standard is followed) and focusing on the improvement of a core set of auditing skills. However, process driven standards do not allow for the evolution of the methodology outside of the revision of the standard and can constrain innovation in the field.

The answer to the question of outcomes-driven versus process-driven is also likely to be influenced by the structure of the guidance to be provided in any revised standard. In the case where an umbrella standard is developed (providing general principles and requirements) there may be a case for a hybrid approach incorporating complementary standards providing sector specific guidance.

Further, the above observation highlights the question as to whether the standard should adopt a technology focus (i.e. provide direction on the energy auditing of specific items of plant and equipment) or a sector focus (i.e. outlining requirements for the conduct of energy audits in different industry sectors).

Appendix B presents some further information on potential options, and how the elements of each option may interact.

Further information on the issues discussed in this section is provided in the following sections of the Background Paper:

- 5 The Design of the standard,
- 5.1 Outcomes or process driven,
- 5.2 A generic standard or a suite of standards,
- 5.3 Audit levels

Stakeholder questions – Structure

19. Do you see value in retaining a generic audit standard –as opposed to developing a suite of standards comprising an umbrella standard and sector specific standards?
20. What is your opinion on the need for an outcomes driven standard versus a process driven standard? Some of the options presented in Appendix B adopt both process and outcomes elements. What are your opinions of those options?
21. What are the benefits of adopting an industry sector focus to guidance on energy audits – as opposed to the adoption of a technology focus? Can you nominate any existing standards/guidelines that could potentially be used to provide sector/technology specific guidance?

8 Other considerations

A number of additional strategic considerations are considered pertinent to the framing of any future revision of the current standard.

The first consideration relates to the need (or otherwise) for clarity of the term energy audit. The terms “energy audit” and “energy assessment” have tended to be used loosely and interchangeably. The term “energy audit” is frequently used incorrectly to describe procedures which are not in fact audits. The key point of differentiation between an audit and other types of investigation is not that audits rely on the systematic collection and objective verification of evidence, but that this evidence is compared against *an agreed set of audit criteria*.

This consideration is further complicated by the term ‘energy review’ which is contained in the draft ISO50001 which defines an energy review as:

determination of the organization’s energy performance based on data and other information leading to identification of opportunities for improvement

Notwithstanding the employment of the term “audit” in the current Australian/New Zealand Standard, and its widespread use in Australia and internationally, “energy audits” in practice more closely reflect the definition of “assessment” given in ISO14015 than the definition of “audit” from ISO19011.

The second consideration relates to the need (or otherwise) for the standard to include guidance for training providers in respect of the design, operation and accreditation of training programs. The present state of energy assessment and auditing training lacks an integrated set of clear objectives and delivery models covering all sectors and technologies. Currently, energy auditor training is offered by a range of industry associations, registered training providers and individual energy/environmental services providers (not necessarily training providers). In most cases there is little consistency between curricula, minimal acknowledgment of the existing standard, and with few exceptions, scant opportunity for peer review and formal accreditation of courses.

Certification of auditors is similarly dispersed across a number of industry associations. The New Zealand Energy Management Association runs a successful accreditation scheme endorsed by the New Zealand Energy Efficiency and Conservation Authority (EECA) Energy Audit Grants scheme. In Australia, certification is provided by the Australian Institute of Refrigeration, Air-conditioning and Heating. There is also a requirement for formal accreditation to be a NABERS assessor. However energy auditing requires a quite different range of competencies than NABERS. The only other national scheme appears to be the registration process for the very specific category of “Greenhouse and Energy Auditors” under the *National Greenhouse and Energy Reporting (Auditor Registration) Instrument 2009*.

The third and final consideration relates to the priority areas for attention under any revision of the current standard. In the event that a decision is taken to progress the review on the

basis of developing an umbrella standard and a suite of related sector-specific standards, the magnitude of this work will require the review team to assign scarce resources based on the priorities of the energy auditing community in Australia and New Zealand.

Further information on the issues discussed in this section is provided in the following sections of the Background Paper:

- 6. Definition Audit versus Assessment versus Review,
- 7. Support for accreditation and training,
- 8. Implementation & Priorities

Stakeholder questions – Other considerations

22. Should the standard refer to energy audits, energy assessments or energy reviews? Why?
23. What are the specific requirements of the energy efficiency community in respect of guidance on training content and accreditation?
24. What do you believe should be the priority areas for the standard?

Appendix A - Stakeholder questions

Rationale for the review

1. What are the key gaps/deficiencies that have emerged in relation to AS/NZS3598:2000 over the past decade?
2. To what extent (if any) do, or should, the elements of the current standard complement other standards, guidelines and programs?

Objective

3. What do you believe should be the principal objective (or set of objectives) of the standard?
4. To what extent should the standard focus on improving the skills and practice of energy auditors?
5. To what extent should the standard outline requirements of auditor training and address accreditation programs?
6. Are there any weaknesses in the current standard that are hindering the effective identification and evaluation of opportunities to improve energy performance?

Scope

7. What areas of the energy audit process should the standard specifically address?
8. How should the standard link with other relevant standards and/or frameworks?
9. Should the standard address energy used in transport applications and materials movement (e.g. in mining, in port facilities, etc.)?
10. Should the standard incorporate guidance on measurement and verification? Why?
11. Should the standard incorporate guidance on performance contracting? Why?
12. Should the standard incorporate guidance on energy efficient design? Why?

Target audience

13. What group or groups (i.e. energy users, energy managers, energy audit providers, training bodies, government agencies) should comprise the target audience for any future revision of the current standard?
14. Please explain what part/s of the target audience that you represent. What are your specific information requirements on energy auditing?
15. Do you believe that it is necessary to make a distinction between the needs of large energy users, medium energy users, and small energy users? Why?
16. Can the needs of different sized energy users be accommodated by a single standard or is it necessary to find a mechanism for meeting the different needs of small and large businesses. Do you think modifying the level system provides a potential solution?
17. What do you consider to be the most appropriate basis for differentiating between the size of different energy users (i.e. employee numbers, annual turnover, annual energy use)?

18. What is your opinion on the need for ensuring that any revision of the standard takes due account of energy users with a partial or fully implemented EnMS?

Structure

19. Do you see value in retaining a generic audit standard – as opposed to developing a suite of standards comprising an umbrella standard and sector specific standards?
20. What is your opinion on the development of an outcomes driven standard versus a process driven standard? Some of the options presented in Appendix B adopt both process and outcomes elements. What are your opinions of those options?
21. What are the benefits of adopting an industry sector focus to guidance on energy audits – as opposed to the adoption of a technology focus? Can you nominate any existing standards/guidelines that could potentially be used to provide sector/technology specific guidance?

Other considerations

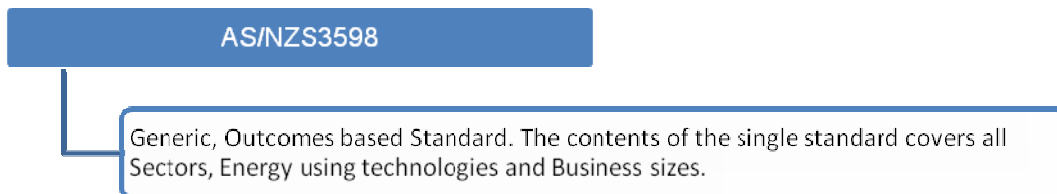
22. Should the standard refer to energy audits, energy assessments or energy reviews? Why?
23. What are the specific requirements of the energy efficiency community in respect of guidance on training content and accreditation?
24. What do you believe should be the priority areas for the standard?

Appendix B - Illustrative options for the structure of the standard

Examples demonstrating various options for the structure of the standard are illustrated below. Each example is followed by a list of some advantages and disadvantages of the option.

1) SIMPLE OUTCOMES MODEL

An outcomes driven generic standard



Advantages:

- Relatively easy to develop and maintain
- Allows for innovation of audit processes
- Not impacted by changes in technologies

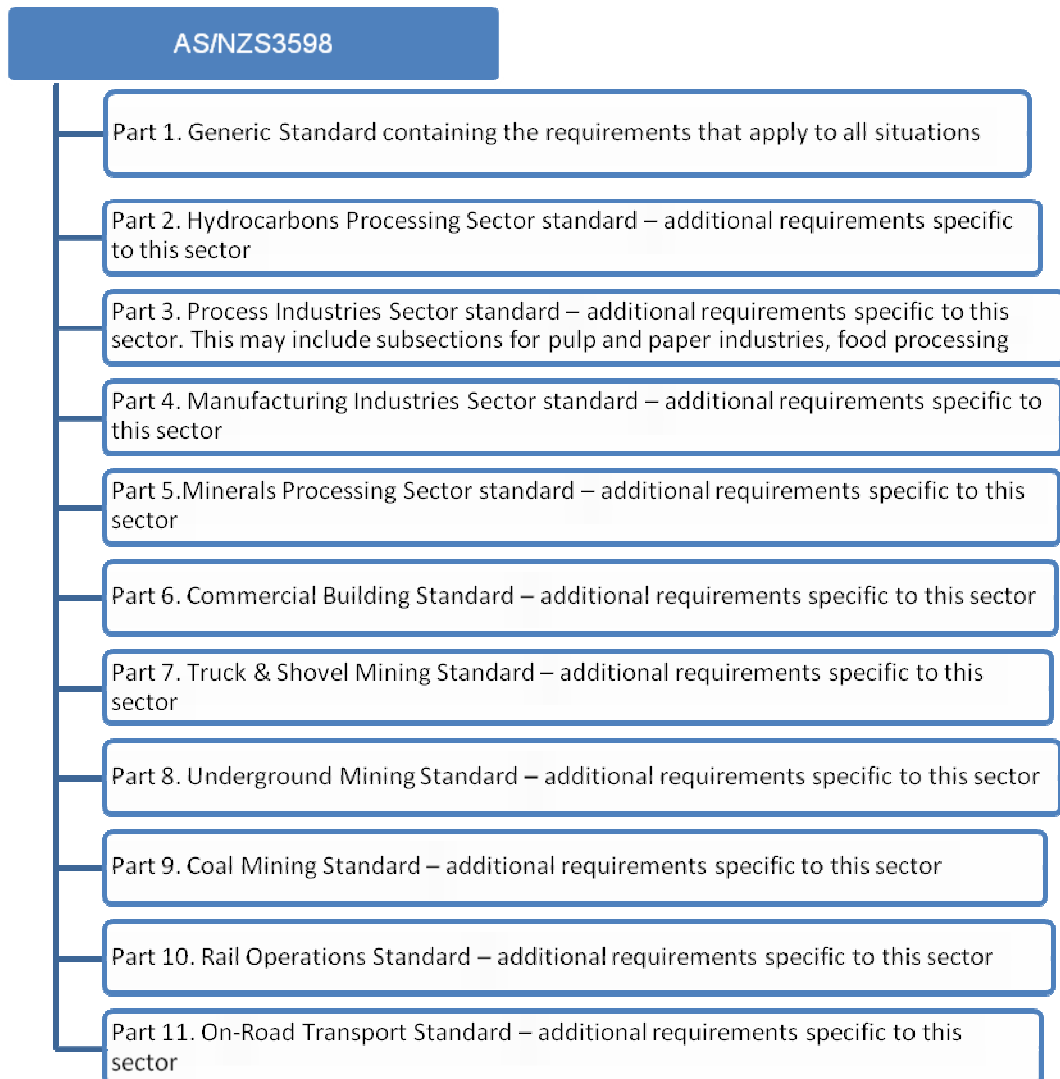
Disadvantages:

- Provides very limited guidance to users on best practice audit processes and methodologies

Note: AS/NZS3589:2000 fits into this model.

2) SECTOR SPECIFIC OUTCOMES MODEL

An outcomes driven generic standard + sector specific standards



Advantages:

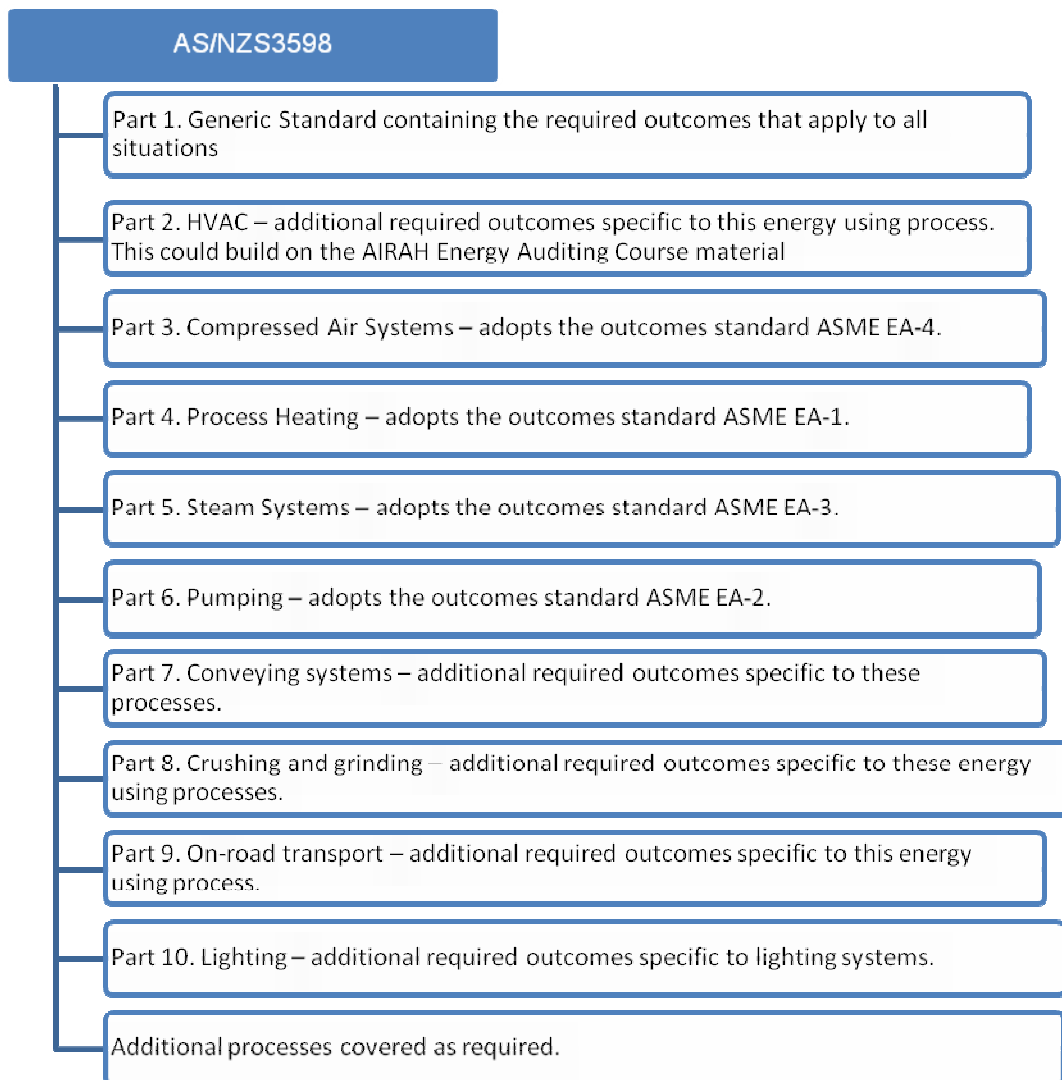
- Allows for innovation of audit processes
- Potentially provides good coverage of key sectors
- Allows for ownership of stakeholders in the various sectors

Disadvantages:

- Patchy coverage while parts for key sectors are developed
- May never cover some sectors
- Risk of duplication and inconsistency as each sector separately addresses the technologies in their sector
- Outcomes focus means limited guidance on the audit process

3) TECHNOLOGY SPECIFIC OUTCOMES MODEL

An outcomes driven generic standard + technology specific standards



Advantages:

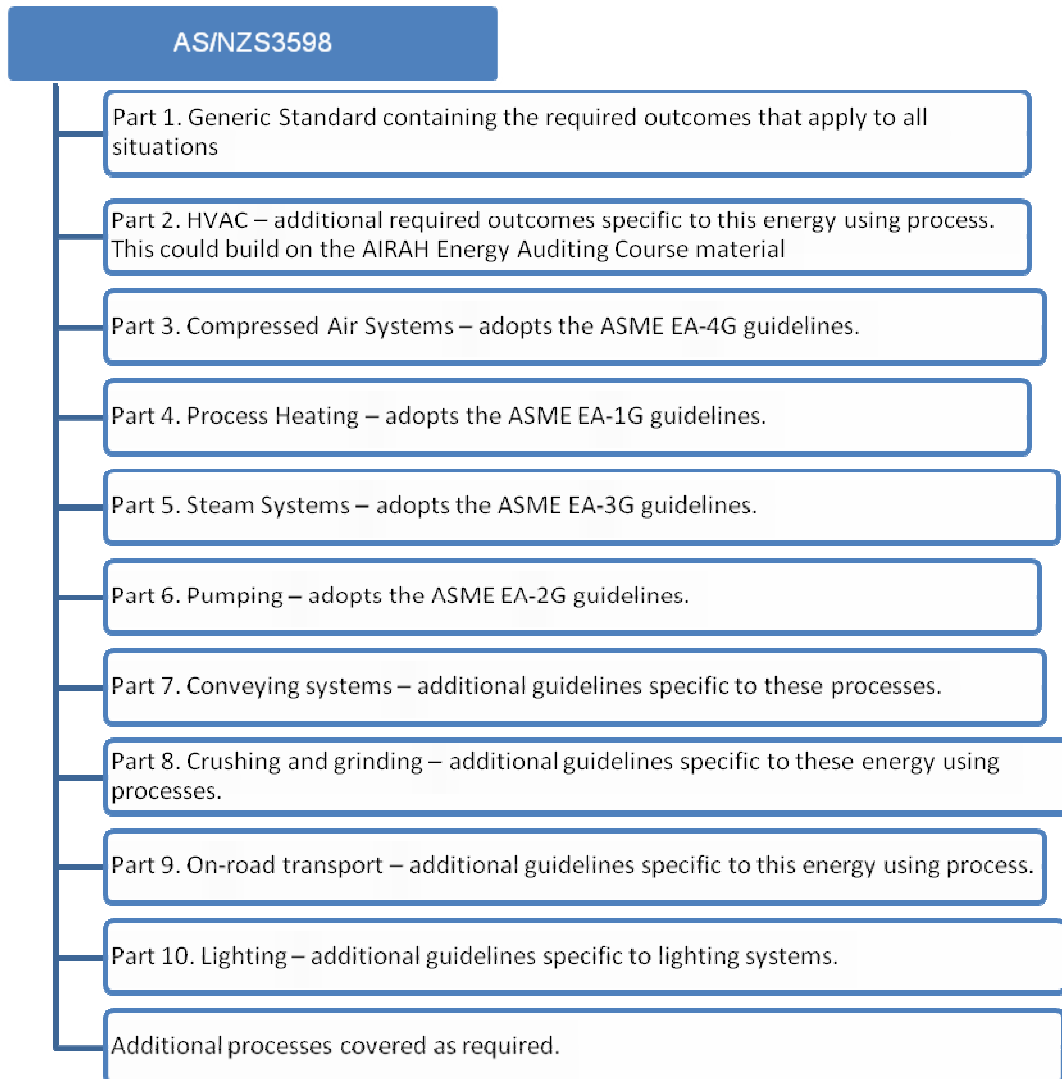
- Allows for innovation of audit processes
- Provides good coverage of key technologies
- Allows for standards development and ownership by industry stakeholders in the various sectors

Disadvantages:

- May never cover some technologies
- Will not provide complete coverage of sectors as not all technologies will be covered
- Outcomes focus means limited guidance on the audit process

4) GENERIC OUTCOMES STANDARD + OUTCOMES/PROCESS GUIDELINES MODEL

An outcomes driven generic standard + technology specific guidelines on outcomes **and** process



Advantages:

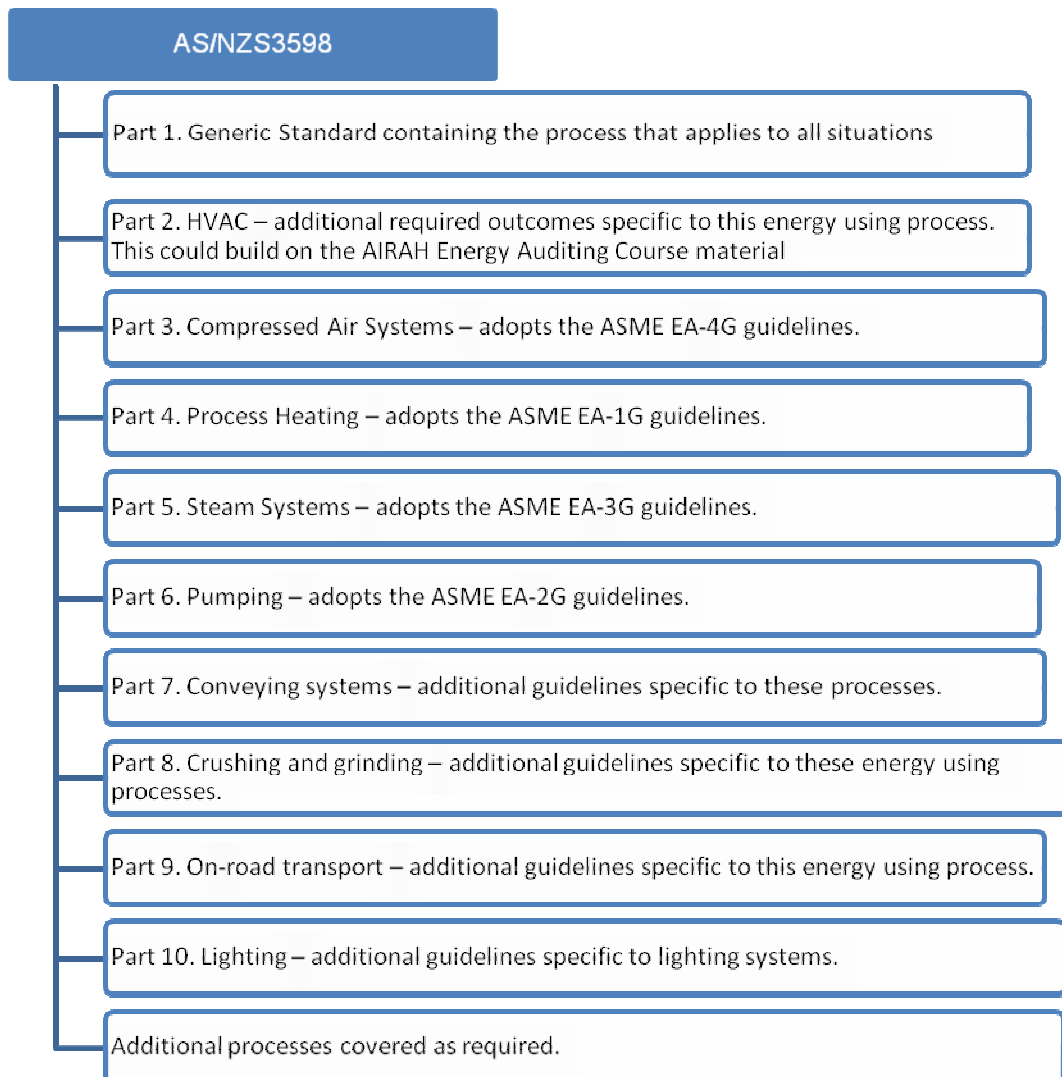
- Allows for innovation of audit processes
- Provides good coverage of key technologies
- Allows for standards development and ownership by industry stakeholders in the various sectors
- Will provide guidance for the review of key technologies

Disadvantages:

- Will not provide complete coverage of sectors as not all technologies will be covered
- May never cover some technologies

5) GENERIC PROCESS STANDARD + GUIDELINES OUTCOMES/ PROCESS MODEL

A process driven generic standard + technology specific guidelines on process and outcomes



Advantages:

- Provides good guidance for users on the audit process
- Provides good coverage of key technologies
- Provides more information on necessary practices and methodologies, therefore supporting skills development
- Allows for standards development and ownership by industry stakeholders in the various sectors

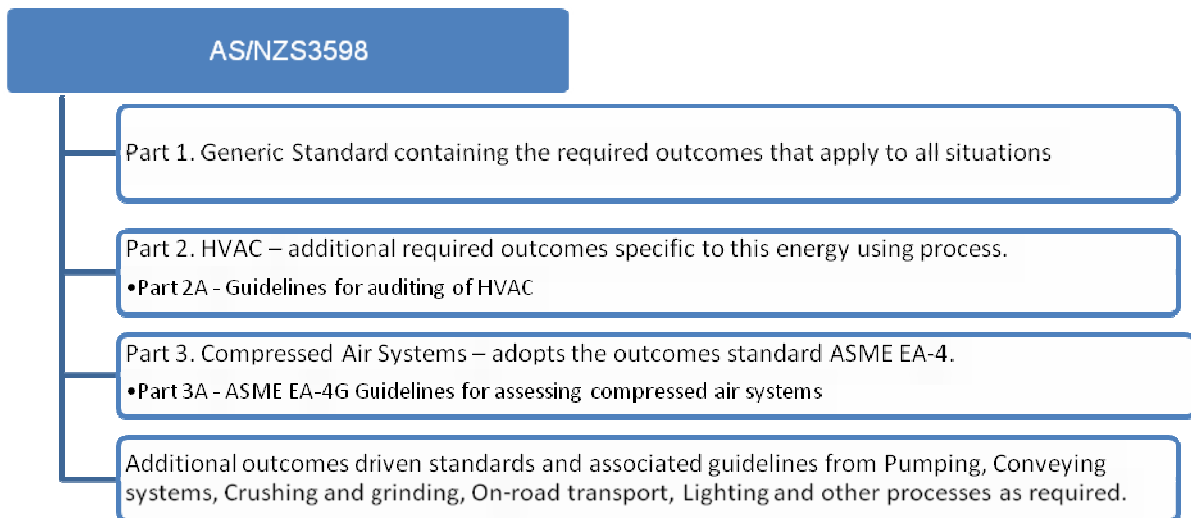
Disadvantages:

- Will not provide complete coverage of sectors as not all technologies will be covered

- May never cover some technologies
- Does not allow for innovation in the basic audit process

6) OUTCOME MULTIPLE STANDARDS + GUIDELINES OUTCOMES MODEL

An outcomes driven generic standard + technology specific outcomes driven standards backed by guidelines



Advantages:

- Allows for innovation of audit processes
- Provides good coverage of key technologies
- Allows for standards development and ownership by industry stakeholders in the various sectors
- Provides guidance to users

Disadvantages:

- Will not provide complete coverage of sectors as not all technologies will be covered
- Outcomes focus means limited guidance on the audit process
- May never cover some technologies
- Large number of documents