



Tertiary Education Commission
Te Amorangi Mātauranga Matua

Audit Approach

**for Tertiary Education Organisations Participating in
the Performance-Based Research Fund**

Quality Evaluation 2012

REVISED JUNE 2012

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1 Introduction

1.1 2012 Quality Evaluation audit approach

The Tertiary Education Commission Te Amorangi Mātauranga Matua (TEC) has developed an audit approach to assist participating tertiary education organisations (TEOs) to prepare for the 2012 Performance-Based Research Fund (PBRF) Quality Evaluation. This audit approach is designed to provide assurance to the TEC that staff meet the PBRF staff participation criteria (i.e. PBRF-eligible and non-eligible staff have been correctly classified) and to provide assurance on the integrity of Nominated Research Outputs (NROs) and Other Research Outputs (OROs).

This document sets out the audit approach for the PBRF 2012 Quality Evaluation process.

This audit approach is designed to be robust, complete, transparent and equitable to both the TEC and TEOs. In addition, this audit approach involves a review of processes adopted by TEOs and validation to determine their effectiveness.

We encourage the TEOs to use the techniques described in this document to assess their own internal processes for determining which staff meet the PBRF staff participation criteria and that data relating to NROs and OROs submitted to the TEC are complete and valid.

This audit approach seeks to encourage TEOs to develop robust and rigorous processes for applying the PBRF Guidelines. The audit approach will assist both those TEOs participating for the first time and TEOs that participated in the 2006 Quality Evaluation. The audit approach seeks to ensure all TEOs are operating within both the letter and the spirit of the PBRF guiding principles and the Quality Evaluation 2012 guidelines.

For the 2012 Quality Evaluation audit, all eight universities will be visited. Other TEOs will be visited according to the audit team's risk assessment. The risk assessment will be based on the results of the PBRF Audit Questionnaire.

1.2 Background Information

Performance in the PBRF will determine the allocation of approximately \$1.6 billion of funding for the six years starting 2012. The majority (60%) of this funding is allocated through the Quality Evaluation.

The TEC implemented the first Quality Evaluation in 2003 as part of the introduction of the PBRF to the New Zealand tertiary education sector.

The 2006 partial PBRF Quality Evaluation was redesigned to incorporate feedback received from the tertiary education sector and TEC's experience gained from the 2003 Quality Evaluation.

In 2012, the Quality Evaluation will be conducted for the third time. The audit approach has again been updated to reflect feedback and lessons from the 2006 audit and to meet the requirements of TEOs and the TEC.

1.3 Performance-Based Research Fund

The aims of the PBRF are to:

- increase the average quality of research
- ensure that research continues to support degree and postgraduate teaching
- ensure that funding is available for postgraduate students and researchers
- improve the quality of public information on research outputs
- prevent undue concentration of funding that would undermine research support for all degrees or prevent access to the system by new researchers, and
- underpin the existing research strength in the tertiary education sector.

The PBRF funding formula is based on three measurements with the following weightings:

- Quality Evaluation – 60% weighting
- Postgraduate Research Degree Completions – 25% weighting, and
- External Research Income – 15% weighting.

The Evidence Portfolio (EP) forms the basis of the Quality Evaluation measure and comprises three components with the following weightings:

- Research Outputs (NROs and OROs) – 70% weighting
- Peer Esteem – 15% weighting, and
- Contribution to the Research Environment – 15% weighting.

1.4 Changes to the audit approach (June 2012)

On 15 May 2012, the TEC announced changes to the PBRF 2012 Quality Evaluation reporting framework. The following sections of the audit approach document have been updated in this revision to the audit approach.

Section	Nature of change
<p>Section 2 – Detailed audit approach <i>Phase 2: Step 1: Assess the application of the staff participation criteria</i></p>	<p>The changes to the reporting framework mean that the audit will focus exclusively on staff submitting EPs, rather than the previous focus on both staff eligible and ineligible to participate in the Quality Evaluation.</p>
<p><i>Appendix A: Additional detail – staff participation audit approach</i></p>	<p>This section has been updated to provide additional detail on the sampling approach and to clarify the revised audit procedures that will be completed.</p>
<p><i>Appendix B - Additional detail – research output audit approach</i></p>	<p>This section has been updated to include more detail on the expected sampling approach for ROs. The change to this section is unrelated to the change to the reporting framework.</p>

2 Audit objectives

The objectives of the audit are to:

- provide assurance to the TEC that TEOs are applying the guidelines in a transparent, fair, and consistent way that adheres to both the letter and spirit of the guidelines
- determine that TEOs have adequate systems and controls in place for:
 - ensuring their preparedness for the 2012 Quality Evaluation round
 - determining the eligibility of staff, and
 - submitting EPs
- provide assurance to the TEC that the NRO and ORO components of the EP (Quality Evaluation process), and staff eligibility data submitted by TEOs are complete and accurate.

An overview of the audit process is set out in *Section 4 – Overview of audit approach* and further details are provided in '*Appendix A – Additional detail – staff eligibility audit approach*' and '*Appendix B – Additional detail - Research output audit approach*'.

The audit methodology outlined in this document does not include providing assurance over the following processes:

- Peer Esteem (Quality Evaluation process)
- Contribution to the Research Environment (Quality Evaluation process)
- Research Degree Completion (PBRF funding formulae measure)
- External Research Income (PBRF funding formulae measure), and
- Panel Review and Moderation processes.

Assurance over these processes is provided separately through the TEC's internal audit processes. The peer esteem and contribution to the research environment components of a small sample of EPs may be evaluated by the TEC, further advice on this will be provided on this by the TEC at a later date.

3 Key Auditing Principles

3.1 Guiding principles of the PBRF

The key auditing principles in developing this audit approach are to ensure it is robust, transparent and equitable to all TEOs subject to audit. This aligns with the ten guiding principles of the PBRF. We set out six of these which are particularly relevant to this methodology below:

- *Respect for academic traditions* – the PBRF should operate in a manner that is consistent with academic freedom and institutional autonomy
- *Consistency* – evaluations of quality made through the PBRF should be consistent across the different subject areas and in the calibration of quality ratings against international standards of excellence
- *Continuity* – changes to the PBRF process should only be made where they can bring demonstrable improvements that outweigh the cost of implementing them
- *Credibility* – the methodology, format and processes employed in the PBRF must be credible to those being assessed
- *Efficiency* – administrative and compliance costs should be kept to the minimum consistent with a robust and credible process, and
- *Transparency* – decisions and decision-making processes must be explained openly, except where there is a need to preserve confidentiality and privacy.

The TEC understands concerns relating to the efficiency of the audit approach. This approach strikes an appropriate balance between compliance costs and the necessary level of assurance over this important process.

3.2 PBRF Quality Evaluation Auditors

Following a tender process, KPMG has been appointed as the PBRF auditors for the 2012 Quality Evaluation¹.

To ensure the reputation of the sector is maintained it is essential that the both the letter and the spirit of the guidelines are upheld, the auditors will use a combination of the following three auditing techniques:

- process assurance – providing assurance as to the adequacy and effectiveness of the systems and controls TEOs have in place for the 2012 Quality Evaluation
- substantive testing – reviewing NRO and ORO components of the EPs and staff eligibility data on a sample basis, and
- analytical review – for example; comparing actual eligible staff with expected eligible staff as estimated in the auditor's model.

¹ KPMG was also appointed as the PBRF auditors for the 2006 Quality Evaluation.

3.3 Equity and staff participation

The TEC is aware anecdotally that some TEOs may be using strategies to reduce the number of eligible staff, or may be seeking to include researchers that are not attached to a TEO. As outlined above, the TEC expects TEOs to act within the letter and spirit of the PBRF guidelines and the auditors will be examining for evidence of TEOs using these types of strategies during the PBRF Quality Evaluation.

Strategies that are possibly being used and have been brought to the TEC's attention include:

- TEOs employing 'professional practitioners' under contract
- TEOs placing staff not involved in research "under supervision" when they designing, teaching and assessing degree courses.
- large shifts in subject area designation in the final stages of the PBRF process, and
- new employment contracts for less than a year with revised job titles and responsibilities.

3.4 PBRF Quality Evaluation Audit Team

There are six PBRF work streams, one of which is audit. For the 2012 Quality Evaluation, the TEC has appointed David Sinkins as Audit Workstream Leader. The Audit Workstream Leader's key focus will be to manage the audit of TEO processes, NROs, OROs and Staff Eligibility. In addition, he will be responsible for ensuring the auditors are trained in the audit approach and have an understanding of the PBRF environment. The Audit Workstream Leader will manage the communication process with the TEOs in conjunction with representatives from the TEC.

The Audit Workstream Leader's contact details are listed below:

David Sinkins

0800 727 301

Tertiary Education Commission

PO Box 27 048 Wellington 6141

david.sinkins@tec.govt.nz

4 Overview of audit approach

4.1 Introduction to audit approach

This section provides an overview of the audit approach the TEC intends to implement to meet the key objectives of the audit approach. The objectives of each phase are as follows:

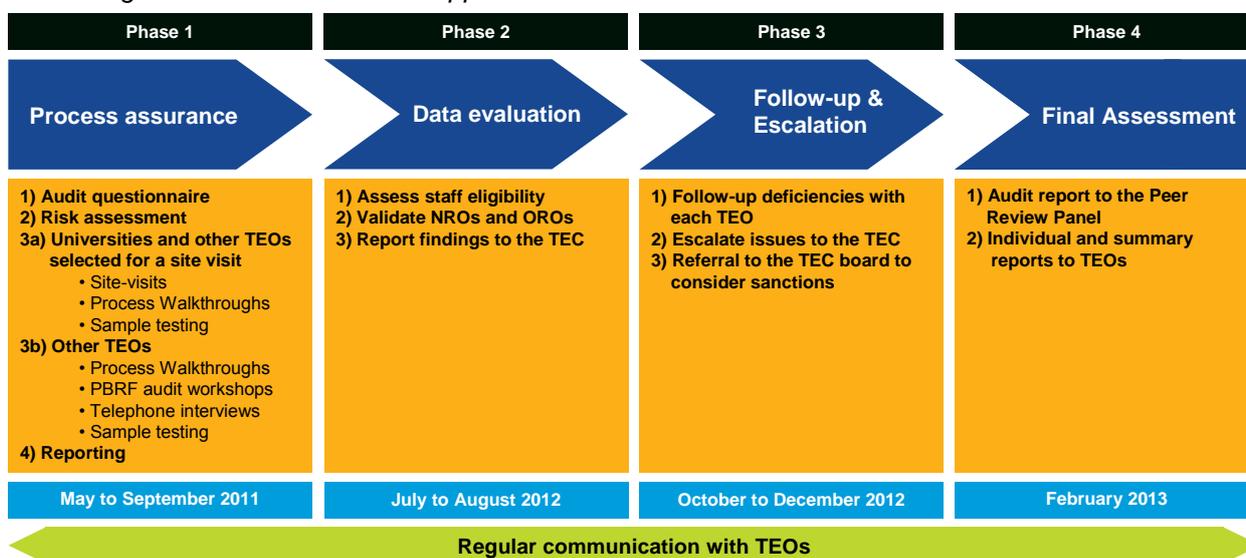
Phase 1: Process Assurance - To provide assurance to the TEC that TEOs have adequate systems and controls in place to ensure their preparedness for the 2012 Quality Evaluation, including systems and controls for determining the eligibility of staff and for submitting correct and accurate EPs. This phase will commence with an audit questionnaire to be sent to all TEOs, followed by site-visits to these and other selected TEOs. The audit team will hold telephone interviews with TEOs not selected for a site visit.

Phase 2: Data Evaluation - To provide assurance to the TEC and PBRF Peer Review Panels that staff eligibility data submitted by TEOs and the NRO and ORO components of EPs are complete and accurate.

Phase 3: Follow-up - To review findings and discrepancies identified and assess whether these require escalation to the TEC Executive Team or Board.

Phase 4: Final Assessment - To report to the TEC to provide assurance to the PBRF Peer Review Panels on the accuracy and integrity of TEO application of staff eligibility criteria and the validity of the EPs research outputs.

Diagram 1: Overview of audit approach



Source: TEC

4.2 Detailed audit approach

Phase 1: Process assurance

Phase 1 of the process assurance approach seeks to assess, evaluate and build an understanding of the maturity of each TEOs internal processes systems and controls and their level of preparedness for the Quality Evaluation. We anticipate that this phase will take place between June and September 2011.

This will involve four key audit steps:

Step 1: Audit questionnaire

A questionnaire is to be completed by all PBRF-participating TEOs. The questionnaire will focus on providing information to the auditors on matters such as the total population of staff, the number of eligible and ineligible staff at each TEO, and the TEO structure.

The questionnaire places particular emphasis on the maturity of the TEOs' internal quality control processes for ensuring decisions about staff eligibility, and NROs and OROs included in EPs, meet the PBRF criteria. The audit team will follow up with TEOs on questionnaires that are not returned, as this forms an integral part of the audit process.

Step 2: Risk assessment

The audit team will analyse the results of the questionnaires and select which Institutes of Technology and Polytechnics (ITPs), Wānanga and Private Training Establishments (PTEs) to visit. This will involve undertaking a risk assessment of TEOs based upon the results of the questionnaire. This risk assessment will influence the level of audit work required for each TEO and whether the audit team will visit each TEO or audit the TEO remotely (desktop-review).

Based on the participation rate and likely distribution of funds, all eight universities will be visited.

Step 3: Preliminary site visits and desktop-review

This step varies depending on the TEOs involved. For some TEOs it involves a site visit, whereas for others a desktop-review and telephone interview will be conducted.

3A: Universities and TEOs selected for a site visit

Site visits will take place between June and August 2011.² All eight universities and selected other TEOs as identified through Steps 1 and 2 will be visited.

These visits will review in detail internal processes at each TEO. Site visits will cover the following three areas:

- general information
- staff eligibility, and
- research outputs.

A more detailed description of the audit work to be undertaken for each of these three areas is given on the following page.

² We will engage with TEOs as to when is the most appropriate time to conduct these visits.

General information

- meet appropriate TEO personnel, for example:
 - PBRF Manager (or equivalent)
 - TEO's Internal Auditor
 - Vice-Chancellor responsible for Research (or equivalent)
 - Human Resources Manager
- understand the structure of each TEO, and
- confirm information provided in the audit questionnaire.

Staff eligibility

- understand and 'walk through' processes for determining staff eligibility and ineligibility for inclusion in the PBRF Quality Evaluation, including:
 - criteria relating to new and emerging researchers
 - substantiveness and strengthened substantiveness tests
 - staff participation criteria for overseas staff
 - assessment of supervision of staff
 - assessing whether staff have a 'primary role' in teaching, and
 - assigning staff to the correct panels.
- understanding TEO policies and processes relating to:
 - assessing employment period and history (in particular for transferring staff)
 - employment contracts and the various types in use by each TEO
 - sub-contracted staff, and
 - Chief Executive Officer/Vice-Chancellor declaration sign-off.
- testing an attribute-based sample of eligible and non-eligible staff at each TEO.

Research outputs

- assess quality assurance processes for submitting EPs (both submitting EPs internally within TEOs and for submission to the TEC)
- determine staff contributions to research outputs
- processes for identifying, validating, and recording research outputs (both NROs and OROs), and
- test an attribute-based sample of EPs and verifying a sub-sample of NROs and OROs.

Testing will ensure that at least one EP is tested for each of the 12 peer review panels and one EP for each participating TEO.

3B: Other TEOs (Workshop and desktop-review)

The audit team will facilitate two PBRF audit workshops (one in Auckland the other Wellington). The primary audience of these workshops will be the other TEOs not subject to a site visit in Phase 1, however all interested parties are welcome to attend. These workshops will be held in September 2011 and will cover:

- what the TEO needs to do to be prepared for the audit
- the TEC's expectations, i.e. the PBRF guiding principles and guidelines, and
- key dates for the PBRF audit.

It is expected that most ITPs, Wānanga and PTEs will be audited remotely but some site visits will be made where deemed necessary. The remotely completed desktop-review will involve completion of the audit questionnaire and a telephone interview to further understand the TEO's processes for the PBRF Quality Evaluation. At this stage the audit team will also test a sample of up to five EPs from each desktop-reviewed TEO. The telephone interview will cover similar content to the site visits of universities and selected other TEOs described in Step 3A, above.

Step 4: Reporting

The audit workstream leader will prepare a report to the TEOs, the TEC and the PBRF steering group on each TEO's preparedness for the 2012 Quality Evaluation and the auditor's opinion as to the adequacy of the TEOs' processes

The results of the process assurance phase at the TEOs will determine the sample size applied to the staff eligibility and research outputs testing in Phase 2: Data Evaluation.

Phase 2: Data Evaluation

Phase 2 of the PBRF audit process will involve validation of the information provided by TEOs in two steps. We anticipate that this phase will take place between July and September 2012.

Step 1: Assess staff participation

Assessment of PBRF staff participation will occur initially through the assessment and evaluation of information obtained from the process assurance phase. This step will include substantive testing of the application of the staff participation criteria for staff submitting EPs on a sample basis and the use of analytical review auditing techniques to assess compliance with the PBRF guidelines.

Timing of this part of the review process will begin after the close-off date for the resubmission of census and EP information (20 July 2012).

Refer to '*Appendix A – Additional detail – staff participation audit approach*' for further information on this step.

Step 2: Validation of Nominated Research Outputs (NROs) and Other Research Outputs (OROs)

The data integrity of the RO component of the EP, in particular the NRO, forms the most important aspect of the evaluation process due to its significant weighting of 70%.

The objective of this audit process is to provide assurance to the TEC that the NROs and OROs are complete and accurate based on a robust sampling methodology. The size of the sample at each TEO will be influenced by the results of Phase 1: Process assurance.

The validation of NROs and OROs will involve:

- assessing the completeness of EP data submitted, and
- remotely assessing research outputs.

The auditors will sample proportionally more NROs than OROs due to their significance and weighting during the evaluation process by the Peer Review Panels.

Refer to '*Appendix B – Additional detail - Research output audit approach*' for further information on this step.

Phase 3: Follow up and Escalation

In cases where the auditor identifies discrepancies resulting from the misapplication of the PBRF guidelines, we have adopted the following escalation approach:

- 1) follow-up with the TEO to address NRO, ORO and Staff Eligibility discrepancies. As part of the site visit, we will identify a key contact at each TEO where we would address the discrepancy first. If discrepancies are identified, the affected TEOs may be selected for a follow-up site visit. This site visit will focus on identifying the cause of discrepancies and understanding the impact of these discrepancies on that TEOs PBRF information
- 2) an escalation progress report will be issued to the TEC. This report will summarise the issues to the TEC. The TEC is to use the report to analyse trends and to monitor TEO response time, and
- 3) referral to the TEC Board to consider applying sanctions resulting from escalated issues as set out in the PBRF Guidelines.

We anticipate that this phase will take place between July and December 2012.

Phase 4: Final Assessment

The final phase in the audit approach is a report to the Peer Review Panel on the outcomes of the audit. The report will include recommended improvements to the PBRF process, which should be implemented in time for the 2018 Quality Evaluation Audit process.

Feedback to TEOs will occur at site visits as applicable. The TEC will report back to TEOs on an individual basis and through an overall summary report.

We anticipate this phase occurring in February 2013.

5 Audit protocols

5.1 Tools and templates

The audit team will use a range of tools and templates to collect the information to ensure auditors apply a consistent approach. Tools and templates may include:

Table 1: Audit tools and templates

Template	Description
Audit Checklist and File Structure Template (including electronic records)	A checklist to ensure each step of the process has been completed for each TEO (as appropriate).
Questionnaire for TEOs	A series of questions designed to assist the auditors to understand the process related to the PBRF Quality Evaluation in place at each TEO.
Work programmes for: <ul style="list-style-type: none"> • Site visits • Desktop-reviews • Staff Eligibility • Research Outputs 	Work programmes form the detailed approach for the audits. They outline what audit steps will be performed at each TEO.
Staff Eligibility templates: <ul style="list-style-type: none"> • Selecting sample template • Performing tests • Reconciliation template • Discrepancies template 	Templates designed to assist with: <ul style="list-style-type: none"> • selecting the sample • performing tests to ensure consistency with the audit approach, and • performing the reconciliation.
Research Outputs templates: <ul style="list-style-type: none"> • Selecting sample template • Performing tests • Discrepancies template 	Templates designed to assist with: <ul style="list-style-type: none"> • selecting the sample, and • performing tests to ensure consistency with the audit approach.
Reporting template to TEC / TEOs	Reporting to the TEC and TEOs on audit findings and discrepancies.

Source: TEC

5.2 Communication

Communication is a vital tool in ensuring the success of this audit. Therefore, the TEC will keep the TEOs PBRF coordinator briefed during the audit approach process through the TEC website and TEC NoW updates. The TEC envisage communication including:

- initial notification to TEOs of key audit dates
- distribution of questionnaire to all TEOs
- follow up on questionnaires
- follow up on missing data
- further information relating to staff eligibility and research outputs
- site visits, and

- reporting.

5.3 Availability of Research Outputs

For the 2012 Quality Evaluation, the majority of ROs (including NROs and OROs) will be available electronically through the PBRF IT system. However, as outlined in the PBRF Guidelines, the TEC may request any non-electronic ROs for verification purposes and any NRO for assessment purposes. TEOs are required to provide suitable information within 10 working days of any request.

5.4 Complaints regarding TEO activities

The TEC has established a telephone number, 0800 727 301 to enable anyone with concerns about any TEOs' practices in applying the Guidelines to raise these in a confidential way. The auditors will evaluate and determine whether the complaint warrants investigation and follow the escalation processes set out in Appendices A and B as appropriate.

The 0800 telephone number will be available between 8:30am and 5pm, Monday to Friday.

5.5 Complaints regarding the Auditors

Complaints regarding the activities / behaviours of an auditor should be made in **writing** to the PBRF Project Manager.

The relevant contact details are:

Amber Flynn

PBRF Project Manager

Tertiary Investment and Monitoring Directorate - Implementation Design

Tertiary Education Commission

PO Box 27-048

Wellington 6141

Email to: pbrfinfo@tec.govt.nz

5.6 TEO audit contact

Each TEO is required to nominate a contact person with whom the Auditors will be responsible for maintaining day-to-day communication. This contact person will also be responsible for addressing NRO, ORO, and Staff Eligibility issues. Issues that the TEC auditors are unable to resolve will be escalated to the TEC's Audit Workstream Leader.

Appendix A: Additional detail – staff participation audit approach – updated

Staff Participation Audit process

Key risk:

The changes to the PBRF reporting framework in May 2012 have changed the risks associated with staff participation and accordingly, the focus of the audit approach.

The key risk associated with the PBRF process relates to staff who submit EPs not meeting the staff participation criteria, resulting in an overstatement of the number of staff submitting EPs. This may be intentional or unintentional. Staff participation may be incorrectly assessed due to the incorrect application of the PBRF Guidelines, in particular, this may include:

- Inclusion of staff who are likely to receive a quality score that do not meet the staff participation criteria i.e. staff who are based overseas and do not meet the overseas-based staff test, or staff employed by non-TEOs, or
- Incorrect classification staff as new and emerging, or
- Incorrect calculation of FTE level.

Auditing of staff participation data after the PBRF census resubmission period has closed (20 July to September 2012)

For the 2012 PBRF Quality Evaluation the audit team will review the application of the staff participation criteria for a sample of all staff.

The focus for this phase of the audit approach is on confirming that staff that are submitting EPs meet the staff participation criteria. The table below includes the number of staff likely to submit EPs in the 2012 Quality Evaluation. This is based on the number of staff reported as meeting the PBRF staff participation criteria³ reduced to reflect the proportion of these staff likely to submit an EP⁴.

Estimated number of staff submitting EPs	Expected sample size
7,067	1,429

The expected sample size is based on 20% of staff submitting EPs being audited. We expect the actual number of staff audited to be slightly higher as the subject area panels are likely to request that the application of the staff participation criteria be reviewed for specific staff. This sample size is greater than the 676 PBRF eligible staff audited in 2006.

³ Obtained from a request issued to TEOs in February 2012.

⁴ Based on the estimated percentage of staff meeting the PBRF staff participation criteria that will submit EPs (derived from the Audit Questionnaire issued in May 2011).

Sample selection

The audit team will obtain from the PBRF IT System (QE12) the census file submitted by each TEO. From these files, a sample will be selected. The sample will be targeted to ensure appropriate coverage of:

- all TEOs
- all panels and subject areas, and
- a range of FTE levels.

Auditing undertaken during the 2012 Quality Evaluation will be similar to the auditing undertaken during the preparedness audits completed in 2011. Specifically, this will consider whether each staff member submitting an EP has been correctly assessed against the staff participation criteria set out in the PBRF Guidelines.

Additional auditing

In addition to the auditing described above, the PBRF audit team will undertake the following:

- **New and emerging staff:** Investigate staff classified as new and emerging who were recorded on the PBRF census in 2006 and review of documentation supporting the staff member's first academic date of appointment,
- **Preparedness data-match:** Check census data against the staff lists provided during the preparedness phase of the audit approach and investigating changes,
- **Preparedness findings:** Review findings identified during the preparedness phase to confirm all findings were addressed,
- **Short contracts:** Review staff with contracts commencing and/or expiring on or around the census date,
- **Primary panel:** Compare the PBRF 'primary panel' of a sample of staff against their degree level course teaching or area of research for consistency,
- **Panel requests:** Respond to requests from peer review panels for the PBRF audit team to review the assessment against the staff participation criteria for staff where they have concerns, and
- **Additional auditing:** Undertake other procedures determined by the audit team to be relevant to achieving the audit objectives based on information provided by TEOs.

Staff eligibility follow-up and escalation process

As part of Phase 2: Data evaluation the audit team will identify any staff eligibility related discrepancies requiring further explanation. This follow up phase will involve two key steps:

Step 1: The audit team attempt to resolve any discrepancies through direct communication with the TEO. Discrepancies may result from:

- submission of an evidence portfolio for a staff member but the staff member is not listed as part of the PBRF Census (Staffing Return) data
- FTE status discrepancies
- employment history discrepancies, and
- non-reconciling items due to duplicate staff or lack of unique identification numbers.

Step 2: If the audit team is not satisfied with the response and/or documentation received from the TEO, the audit workstream Leader will determine whether to:

- expand the TEOs sample of eligible staff and/or
- perform a further site visit to the TEO and/or
- report the issue to TEC, and/or
- escalate the issue to the TEC Executive Team or Board.

Appendix B: Additional detail – research output audit approach – updated

Research output audit process

This aspect of the audit approach involves assessing the integrity and validity of the research outputs (ROs) to ensure that information relating to ROs is accurate and reliable prior to evaluation by the peer review panels.

The key risks associated with ROs include:

- ROs submitted fall outside the assessment period,
- ROs incorrectly recorded as Quality Assured when they are not, and
- Incorrect authorship, i.e. the staff listed did not contribute to one or more of the listed outputs and/or co-authors / co-producers have not been acknowledged.

Process assurance (May to December 2011)

Process assurance auditing techniques included the review of a sample of verified ROs to confirm that the outputs exist and that all citations are recorded completely and accurately

Auditing of RO data after the PBRF census resubmission period has closed (20 July to September 2012)

As set out in *Appendix A – Additional detail staff participation audit approach* the TEC estimates that 7,067 EPs will be submitted. Using 2006 Quality Evaluation data to develop an expected number of Nominated Research Outputs (NROs) and Other Research Outputs (OROs) per EP, the TEC estimates 27,930 NROs and 112,910 OROs will be submitted.

Given these estimates, the PBRF audit team intend to test one RO from 50% of EPs submitted (3,534 EPs). Consistent with the scoring of EPs, proportionately more NROs than OROs will be audited, with the estimated split to be 80:20. These sample sizes are greater than the 915 NROs and 722 OROs audited in 2006.

Sample selection

The audit team will obtain from QE12 a list of all EPs submitted. For each EP a single NRO or ORO will be selected for testing in accordance with the sampling approach above. The sample will be targeted to ensure appropriate coverage of:

- all TEOs, and
- all panels and subject areas.

The sampling plan specifies that one output will be audited in each EP. However, if the audit team identify errors in an output, testing will be expanded to include other outputs within the same EP. If an error is identified in a NRO, all other NROs within that EP will be audited.

Auditing will assess whether:

- the RO exists,
- the RO was produced during the assessment period,
- the RO was produced by the stated researcher and not someone else,

- the role of the author(s) in the output is stated correctly (e.g. the researcher claims authorship of a book when the input was editorial in nature),
- evidence is available to support that the output is Quality Assured (if claimed),
- the type of RO is correctly recorded (e.g. a conference contribution is not recorded as a journal article), and
- any other information provided in the citation is correct.

Additional auditing

In addition to the testing described above, the audit team will undertake the following:

- **Panel requests:** Respond to requests from peer review panels for the audit team to review the accuracy and existence of ROs where they have concerns,
- **Preparedness findings:** Review findings identified during the preparedness phase of the audit approach to confirm all findings were addressed, and
- **Additional auditing:** Undertake other procedures determined by the audit team to be relevant to achieving the audit objectives based on information provided by TEOs.

Research output follow-up and escalation process

As part of Phase 2: Data evaluation the audit team will identify any research output related discrepancies requiring further explanation. This Follow-up Phase will involve 2 key steps:

Step 1: Resolution of any discrepancies through direct communication with the TEO. Discrepancies identified will require assessment in accordance with the type of discrepancies identified to determine the level of discrepancy: Fundamental, Serious or Minor

Table 2: Research output escalation criteria

Fundamental	Fundamental errors are those that render research outputs ineligible (and thus the output is discounted from the assessment process)
	<ul style="list-style-type: none"> • The output was produced (i.e. published, performed, exhibited, etc) and readily available in the public domain outside the assessment period for the 2012 Quality Evaluation • The output was not authored by the person who submitted the relevant EP
	<ul style="list-style-type: none"> • There was no evidence to confirm the output's existence
Serious	Serious errors are those that materially affect a panel assessors judgement on the quality of research outputs
	<ul style="list-style-type: none"> • Claims that an edited book was an authored book
	<ul style="list-style-type: none"> • Failure to include the names of co-authors, thus implying that the research output was sole-authored
	<ul style="list-style-type: none"> • Claims that a conference contribution was a journal article (or a book chapter)
	<ul style="list-style-type: none"> • Significant location errors that might affect an assessor's perception of a research output (e.g. the wrong publisher)
	<ul style="list-style-type: none"> • Title errors that might affect an assessors perception of a research output
	<ul style="list-style-type: none"> • Claims that an output had significantly more (or fewer) pages (i.e. 30% plus or minus) than was actually the case
Minor	Discrepancies that show a lack of attention to detail and will not affect the assessment of the EP
	<ul style="list-style-type: none"> • Simple errors such as typographical mistakes i.e. wrongly recorded volume number, page numbers, and spelling title mistakes

Source: TEC

Step 2: If the response and/or documentation received from the TEO does not adequately address or explain the discrepancy, the Workstream Leader will determine, along with the number of types of discrepancies, whether to:

- expand the TEO's sample of ROs for the TEO/individual and/or
- perform a further site visit to the TEO and/or
- report the issue to TEC, and/or
- escalate the issue to the TEC Executive Team or Board.

Appendix C: IT system to support the PBRF Quality Evaluation

The TEC has commissioned the development of an IT system to support the 2012 Quality Evaluation. The IT system will support the audit of the Quality Evaluation in three ways:

- provide the population from which the auditors will select samples for testing staff eligibility and EP data
- provide electronic sources for many NROs and OROs submitted for evaluation, and
- use system based controls to validate data submitted as part of the Quality Evaluation. These controls are listed below.

The IT system controls will validate:

Census data

- Census data against the National Student index, and
- Confirm Census data has been loaded from every TEO.

EP data

- that the EP contains the minimum required information
- EP data against the NSI using name, date of birth
- EP data against the census
- that at least one NRO has been submitted for each EP
- that each EP contains no more than 4 NROs and no more than 30 OROs, PE and CRE
- that EPs have been submitted and processed from every participating TEO, and
- that if an EP includes an NRO that links to a file in the TEC file store, the IT system checks that a file exists.