California ISO

PwC Report on the 2015 Market Controls Audit

December 17-18, 2015

pwc

Agenda

Background

Results of Market Controls Audit

Scope of Report

Looking Forward

Closing Thoughts

Background

- Purpose of report

  - To report on the ISO's internal controls relating primarily to its market operations and settlements activities

  - Reporting under the SSAE 16 (Statement on Standards for Attestation Engagements No. 16 – Reporting on Controls at a Service Organization)

- Expected use of report

  - Provide assurance to market participants who rely on the ISO's controls related to the ISO's market settlements

  - The report is required by some market participants and their auditors to comply with Sarbanes-Oxley (404 Attest) requirements

- Reporting period

  - October 1, 2014 – September 30, 2015

Results of Examination

- PwC opinion and report were issued to ISO management and market participants on December 4, 2015

- The opinion is unqualified

  - Management's system description is fairly stated

  - Controls were suitably designed to meet related control objectives

  - Controls were operating effectively (except as noted on next slide)
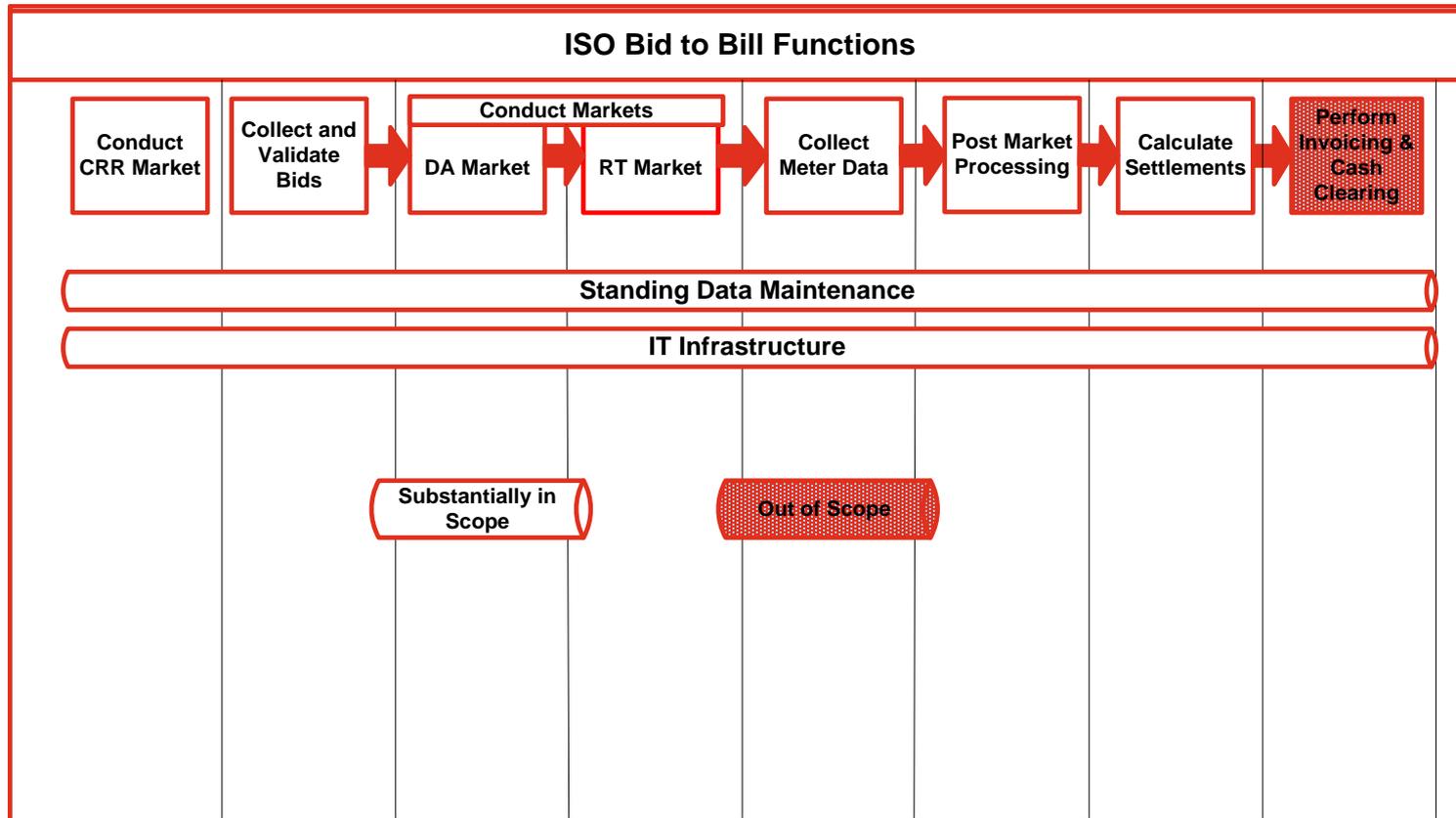
Results of Examination cont'd

- Report disclosed testing exceptions for one control activity

  - Exceptions identified in the following areas:

    - Full network model maintenance (geospatial database markups)

  - Disclosed in the results section of the report

  - Full population was tested with no additional exceptions identified

  - Tested compensating controls (pricing review and root-cause investigation)

  - Concluded that exception impacted the effectiveness of the control; however, the related control objective was met, and therefore did not affect the opinion

Scope of Report

- Scope is consistent with prior year market controls report issued in December 2014

- Processes not included in the scope of report

  - Control room and operational judgments and decisions

  - Processes after the settlement statement preparation (such as invoicing and market clearing)

  - Certain other functions that are transparent to the market

- Testing of controls

  - Covers 12 main areas (the 12 control objectives)

  - Over 60 different control activities tested

  - Over 1,600 transactions/items tested

Scope of Processes Covered

ISO Bid to Bill Functions

| Conduct CRR Market | Collect and Validate Bids | Conduct Markets | | Collect Meter Data | Post Market Processing | Calculate Settlements | Perform Invoicing & Cash Clearing |
| DA Market | RT Market |

Standing Data Maintenance

IT Infrastructure

Substantially in Scope

Out of Scope

Audit Process Improvements

- Applied lessons learned from prior year for increased productivity
- 2015 Adjustments to Approach
  - Adjusted timing of first phase of testing to begin after spring release to accommodate Critical Systems workload cycle
  - Applied benchmarking approach to testing of certain IT dependent controls – resulting in audit and data gathering efficiencies
- Pre-validation process through interviews with control activity owners before initiating testing of the data.

Looking Forward

- The next attestation period has already begun – started on October 1, 2015

- PwC and ISO staff have begun planning for next year's internal controls audit

  - Continuous process improvement cycle

  - Debrief on 2015 examination and lessons learned for 2016

  - Recommendations related to potential controls improvement were shared with management

  - No significant changes in control environment are anticipated by management in 2016

Closing Thoughts

- The ISO continues to demonstrate a high level of ownership for the control environment and ownership of the controls report

- Benefits of the attestation include:
  - Direct assurance to market participants and their auditors
  - Internal assurance to ISO management related to market controls
  - Process improvement feedback from PwC
  - Governance coverage by ISO Board

- Questions?

Thank you