- Periodic public reporting of information about Alberta's royalty regimes will add impetus to resolving issues. Owners, MLAs, and stakeholders will have better information about the royalty regimes and will ask better questions of the Department and Minister. See recommendation 6.4.

Reporting royalty regime information

Only the Department has the capacity to do technical review

This is especially important. In theory any Albertan with enough time and money could assemble the analysts, buy the tools and data, and evaluate Alberta's royalty regimes using the Department's analytical methods. In reality, only the Department has the capacity to do this work. If the Department does not make analytical information available to the public, Albertans will not understand the issues and their magnitude.

The Department does not make technical review results public

To date, the Department does not publicly report royalty regime analytical information. This does not provide transparency or accountability for the stewardship of Alberta's key resource. Recommendations 6.3 and 6.4 are critical to improving public reporting.

6. Recommendations

6.1 Royalty regime objectives and targets

Recommendation No. 9

We recommend that the Ministry of Energy clearly describe and publicly state the objectives and targets of Alberta's royalty regimes.

Background

Public documents contain general statements about royalty regimes

Ministry of Energy plans and reports contain general statements about royalty regimes and royalty review such as:
- a core business, "securing benefits for Albertans – secure Albertans' share";
- objectives such as "optimize Albertans' resource revenue share" and "maintain the competitiveness of Alberta's energy … resources"; and
- strategies such as "continue to review royalty regimes and recommend changes needed to address changing economic circumstances and opportunities".

Information on the Department's website is also general about objectives. There's detailed information about how the royalty regime is designed and administered.

Criteria: the standards we used for our audit

The Department should have clearly defined objectives for its royalty regimes. The Department should make these objectives clear for external reviewers.

Our audit findings

Optimization and royalty review

"Optimize" is a vague objective for a royalty regime

The Department uses the word "optimize" to describe its royalty regime objective. In the royalty review context, it is difficult to understand what optimization means. The Canadian Oxford Dictionary defines optimizing as "mak[ing] the best or most effective use of an opportunity". So optimization suggests a choice amongst alternative uses for Alberta's resources. That concept can be understood for the resource in general because government may want to trade off some financial benefit to accomplish other goals. The royalty regime might be one tool to effect the trade. But the primary royalty regime question is how large a share of economic rent the province can take while remaining competitive with other jurisdictions. Competitive means offering the same return on investment to industry on similar oil and gas projects. Once that primary question is answered, the government can make informed decisions about trade offs.

Best if decision makers all support the same objective

To support effective and efficient royalty review work, it would be best if decision makers supported the same high-level objective for the royalty regime. Many who perform royalty review in the Department told us their objective is to maximize government take and their work reflects that objective. On the other hand, politicians have expressed the view that as long as resource revenues are high, the province need not capture excess available economic rent. This contradicts the Department's conclusion that "a decision to not capture the full [economic rent] amounts to a decision to sell the province's resources at less than their full value."[17]

"Optimize" does not drive Departmental technical review

In practice, the optimization objective does not drive the technical review processes at the Department. The processes analyze government share and conclude whether Alberta's regimes are competitive. The processes do not analyze alternative uses for Alberta's resources. Some Ministry of Energy *Business Plans* (e.g. 2003-06) reflect the maximization objective for royalty review, but it is not consistently stated over time.

Detailed targets

Economic rent theory drives analysis of royalty regimes

The Department of Energy analyzes economic rent to determine whether royalty regime objectives are met. The theory suggests that governments should capture close to 100% of available economic rent. In practice, jurisdictions usually allow industry a share of economic rent. This compensates industry for taking the majority of financial risk and encourages cost efficiency in their operations. Like most governments, Alberta's regime is regressive. That is to say, the more economic rent available, the lower is

[17] Alberta Department of Energy, "*Alberta Royalty Review 2005; Some Additional Questions?*", March, 2006.

Alberta's proportional share of that rent.

Taxes form a portion of economic rent

In practice, federal and provincial corporate taxes take a slice of available economic rent. As the Department of Energy does not control the tax burden, one could say that, in modeling economic rent, taxes are similar to operating or capital costs. In essence, the Department collects a portion of available net operating revenue[18].

Target often described in contradictory ways

Departmental documents confound these concepts when talking about targets. The Department's internal documents usually say its royalty regimes should collect between 50% and 75% of available economic rent. But we have also seen documents setting the target in the 50% to 75% range of net operating revenue. We often saw the objective to collect 50% to 75% of economic rent through royalties, plus 25% to 50% through bonuses. If a regime collects 50% or more of economic rent through royalty, 25% or more through bonuses, and includes a tax burden on top of that, it's possible that governments could take more than 100% of economic rent. The Department should be consistent in describing its economic rent targets.

Target range is not specific

In addition, 50% to 75% is a wide range. 50% is usually the target for unattractive circumstances while 75% and above is usually reserved for attractive opportunities. In reality, Alberta's conventional oil and gas regimes aim to collect a share similar to competing jurisdictions. Because Alberta is part of a North American energy network, competitive jurisdictions for conventional oil and gas are found in Western Canada and the lower 48 U.S. states. Through comparison with these jurisdictions, the Department has determined that 66% of net revenues, plus or minus a few percentage points, would be competitive. It needs to state that target clearly.

Politicians can have different views on targets

Again, politicians seem to have different views. We interviewed a former Energy Minister who felt that 50/50 was an appropriate split because of industry's risk burden and the need for a stable royalty regime. This lack of precision and consistency for detailed targets has an impact on the Department's ability to complete acceptable technical review work.

Oil sands objectives and targets

1997 oil sands regime intended to kick start projects

Departmental staff tell us the objective for oil sands was generally the same as for other commodities. The Department aimed to collect 50% to 75% of economic rent over the life of an oil sands project. High up-front costs and low prices in the 1980s and 1990s meant that industry was reluctant to take up

[18] Net operating revenue is defined as economic rent less federal and provincial corporate income taxes.

oil sands development. OSRR 1997[19] intended to kick-start the oil sands industry in Alberta. This generic oil sands regime reduced the royalty burden in the early years of high-cost development, but the long-term royalty objective remained the same.

No detailed target for oil sands regime

The Department's current modeling indicates that OSRR 1997 projects have slipped out of the 50% to 75% range; they're now estimated to collect about 45% over the life of a new project. The Department does not appear to have calculated a more precise target. However, the high capital cost for these projects make them comparable to projects such as off-shore deep-water drilling, not the lower 48 states scenario.

Kick start intentions now met; further objectives not clear

The OSRR 1997 regime was established when oil prices were $20 per barrel; they have been well above that for more than five years. The specific objectives for the kick-start program were achieved years ago. There are reasons to be careful about changing the regime. Preserving Alberta's reputation as a stable regime is important. As well, industry assumes the financial risks for these huge projects so can argue they should reap the windfall reward. Updating and clarifying oil sands royalty regime objectives and targets would support royalty regime design and review.

Publicly reporting objectives and targets

Regime objectives and targets not publicly reported

Historically, the Department has not publicized its objectives and targets for Alberta's royalty regimes. Since the royalty review panel was announced, the Department has put technical papers on their website that describe its royalty objectives. Unfortunately, even that material is vague about targets. For example, one document states that "[fair] share is ultimately determined by what resource owners want". [20] We believe that owners require a more specific definition.

Implications and risks if recommendation not implemented

Unless the Department describes its royalty regime objectives and targets, royalty reviewers will not have a standard against which to analyze the effectiveness of Alberta's royalty regimes. Inconsistent objectives may lead to inconclusive analysis, rework of analysis, and decision paralysis. External stakeholders need this information to understand the purpose and assess the performance of the royalty regimes.

[19] *Oil Sands Royalty Regulation*, 1997. This is the regulation under the *Mines and Minerals Act* that establishes the generic oil sands royalty regime.

[20] "Royalty Information Briefing #2 – What is Fair Share?" See: http://www.energy.gov.ab.ca/docs/aboutus/pdfs/InfoSeries-Report2-_FairShare.pdf

6.2 Planning, coverage, and internal reporting

Recommendation No. 10

We recommend that the Department of Energy improve the planning, coverage, and internal reporting of its royalty review work.

Background

The Department has performed royalty review for many years

Royalty review was a strategic priority in the Department's *Business Plans* from 2000 through 2004. After that, royalty review was not specifically mentioned as a priority in the plans although it is implied in the Department's core business of "securing benefits for Albertans". The Department of Energy has been busy at monitoring and technical review since at least 2000. Much of the technical review in recent years focused on sub-program analysis. We outlined important outputs in this report, pages 105 through 108.

Criteria: the standards we used for our audit

When signals indicate the need for technical review, the Department should effectively plan, complete, and internally report its work. Our planning criteria follow project management principles and practices that can be found in Project Management Institute and similar authoritative texts. The Department should have effective, efficient systems in place to monitor developments in the oil and gas environment and perform its technical review to determine whether its royalty regimes continue to meet objectives.

Our audit findings

Planning, coverage, and reporting support stewardship role

The Department manages the hydrocarbon resource on behalf of the owners, the people of Alberta. Royalty review plays a significant role in ensuring the Department maintains up-to-date royalty regimes. The Department has done technical review for years and its work is generally high-quality. However, better planning, coverage, and reporting will mean that rework can be reduced, more work can be completed, and the results can be more clearly expressed.

Planning technical review

Planning establishes the parameters for a successful project

As the Department has emphasized, they perform a technical review when signals indicate they should. This means that technical review is a project with a specific purpose. Cross-commodity concerns or single issues can trigger review projects. Planning should establish and authorize the scope, principles, expected deliverables, timelines, and leadership for the project. The purpose of planning is to set the parameters for successful results. Involving the Minister in the planning phase of major review activities helps ensure that final results satisfy his requirements.

In 2000, the Department identified the major issues

As early as 2000 when the price of oil hit \$30 per barrel, the Department recognized it needed to perform a cross-commodity technical review. The major issues for the royalty regimes were clear: royalty caps for conventional oil and gas and the kick-start nature of OSRR 1997 in an environment of \$20 oil. Internally, the Department used the term "windfall price levels". Cross-commodity technical review has been underway in one form or another since then.

No detailed planning for cross-commodity technical review

Cross-commodity technical review is large enough to warrant detailed project planning. Generally the Department's formal planning for technical review consists of brief statements in the Ministry *Business Plan* and in the individual business units' plans. Employees also list "royalty review" as a responsibility in their performance agreements. From time to time, technical review planning initiatives contained a little more detail. For instance in the early 2000s, business unit plans estimated resource requirements for technical review. We also saw the oil business unit's planning for its portion of cross-commodity review. But overall, we saw no formal, authorized, detailed planning for cross-commodity technical review in the Department.

No detailed planning for single-issue technical review

Single issues need to be resolved as well. The longest-standing example is the non-arm's length bitumen valuation methodology. This issue dates back to at least 2000. It is a transfer pricing issue, where oil sands producers pay royalty based on a non-arm's length price for their produced bitumen. This issue affects royalty calculation, fair share calculations, and revenue forecasting. To give perspective, in 2005 the Department estimated that by 2010 as much as \$1 billion per year of royalty revenue could be at risk. Ministry and business unit plans as well as individuals' performance agreements have mentioned bitumen valuation methodology for years but the Department has not undertaken further detailed planning. The issue has not yet been resolved.

Department does not adjust its approach when monitoring suggests a roadblock

The Department monitors progress with a formal internal quarterly reporting system. Royalty review initiatives, both cross-commodity and single issue, routinely appear in these updates. Delivery dates often slip. For example, the "competitiveness assessment with the U.S." is discussed in the second quarter report of 2005–2006; the assessment should be ready in October 2005. That date then slips to March 2006 in the third quarter and becomes "ongoing" in the fourth quarter. The comparison is presented to the Minister in the second quarter of 2006–2007. In another example, the bitumen valuation methodology issue has been reported regularly since 2001–2002. That issue is still not resolved. Where projects do not meet timelines or expectations, planning should adjust to increase the likelihood that work will be successfully completed.

Expanding the coverage of technical review

Technical review supports analysis of regimes' performance

The Department can cover more ground with its technical review. Much of the work now focuses on inter-jurisdictional competitiveness. This is critical work but can be supplemented to give a more balanced view of current issues and the royalty regimes' historical performance.

Results can be quantified by dollar impacts

The results of technical review are rarely expressed in dollar terms. Presentations focus on government share expressed as a percentage, or Alberta's government share percentage vs. another jurisdiction's government share percentage. From time to time the Department has quantified the dollar differences. These estimates tend to be rough estimates, not performed to the same level of detail as the technical review. For example, in 2005 the Department calculated "un-captured economic rent" from natural gas. The calculation only considers annual totals for inputs such as production, average product price, average supply cost, and average tax and royalty rates. The calculation estimates a range of $0.7 to $1.4 billion per year of un-captured rent, but this can only be considered a rough estimate.

Quantification can apply to individual issues as well

Quantification in dollar terms should be applied to individual issues as well as to the regimes in general. We already mentioned the bitumen valuation methodology issue and its maximum dollar impact. Quantifying the impact helps decision makers weigh the importance of the issue. It deserves greater rigour in calculation and greater prominence in reporting by the Department.

Quantifying apparent options supports decision making

While technical review is not the policy development stage, we earlier mentioned the overlap between the phases of royalty review. Often options to address the royalty regime issues are self-evident from performing the technical review. The Department often reports apparent options, but rarely quantifies the impact. To support decision makers, the Department should quantify the impact of apparent options and report the results.

The Department models only go-forward projects

The Department models only go-forward projects (i.e. projects that would begin in the immediate future). This is critical for inter-jurisdictional comparison because those are the circumstances that attract new investment to Alberta. However, to understand the performance of Alberta's royalty regimes, it is also necessary to analyze projects or wells that are already operating, have actual performance results, and will continue to operate into the future. This provides a clearer view of the historical performance of the current regimes against the objectives for those regimes.

Technical review covers only the most recent vintages

For conventional oil and gas, the Department models only the most recent vintage: "third tier" for oil and "new" for gas.[21] However, industry commonly drills new wells that tap into already discovered pools and so qualify for the earlier vintages. We took conventional oil as our sample. The royalty review group assumes that all wells will pay "third tier" royalty, the most recent vintage. It used the period 1998 through 2002 as the basis for modeling production rates, so we examined that period as well. Of the 7,300 oil wells that began producing during that time, 64% pay "new" royalties and only 36% pay "third tier". Modeling the major vintages gives a complete view.

The Department should model cold production of bitumen

Under OSRR 1997, bitumen is defined by its geographic and geological location in the province. In some of those formations, the resource in the ground is essentially heavy oil that is classified as bitumen for the purposes of royalty. Cold production wells use conventional drilling techniques to extract the heavy oil from these formations but are charged royalty based on oil sands regulation. To date the Department has not modeled cold production wells that operate under OSRR 1997. These wells account for about 10% of Alberta's total bitumen production.

Royalty review is not often used to analyze further issues

Issues such as industry-specific investment or inflation are germane to the integrated energy strategy of the province. We believe that the Department should use the analytical tools of its royalty review groups to analyze these issues. As well, the Department internally reports that not collecting a sufficient share of economic rent will negatively influence these issues. In fact, royalty reviewers have done little detailed work to analyze or quantify these issues. One reason for this is that the Department has not been instructed to progress to the policy development stage.

Nine issues sampled during our audit

During our audit, we sampled nine issues that the royalty regimes affect or that have an impact on the royalty regimes. These include issues that economists could analyze such as investment and disincentives to maximize production from existing wells. The royalty review business unit groups had worked on two of the issues in the past, although one issue (bitumen valuation) has not been resolved and the other piece of work yielded no documentation or result that we could review. The royalty review groups have recently started work on four of the issues. This recent work flows from queries of the public royalty review panel. The royalty review groups have not examined three of the nine issues. Other groups or business units at the Department have worked on some of the nine issues but the royalty reviewers have not yet used their technical capacity to examine the impact of the royalty

[21] This is the Department's practice over the last few years. In the past (e.g. May 2003), other vintages were modeled.

regimes on the issues or the impact of the issues on the royalty regimes.

Reporting technical review results within the Alberta government

Internal presentations can be more focused and less complicated

We have seen the PowerPoint presentations that report the Department's technical review results to the Minister, Standing Policy Committee, and others. These presentations often result in information overload due to busy slides, too many of them, with too much information to digest at a sitting. Presentations can be improved by focusing on the purpose and conclusions of the work, simplifying slides, and supplementing the presentations with written reports.

Conclusions can be stated more clearly

The presentations often provide overviews of the energy environment in Alberta, the province's royalty regimes, and the work the Department has done to date on royalty review. While this is essential background, it can detract from the key messages. Some presentations place the key conclusions at the end, contain ambiguous conclusions, or state no conclusions at all. Departmental technical review staff assure us that they have held the view that Alberta has not been collecting its appropriate share since 2000. But as an example, the 2005 Royalty Review presentation has a section called "Conclusions" that provides a mixed message. The section begins, "Alberta's royalty system works well in the price environment for which it was designed: Government captures a fair share; Alberta is competitive Globally". The section goes on to note three primary concerns and two slides later recommends, "Increase conventional oil and gas royalty rates to *restore* [sic] Alberta's 'fair share' at high prices". This does not clearly state the Department's conclusion that in today's circumstances the royalty regimes do not capture an appropriate share.

Presentations are long and all-inclusive

The Department's presentations tend to be long and complex. For example, the presentation given to us at the beginning of our audit contained 57 slides covering everything from historical pool size analysis to theories of economic rent. If the presenter spent only two minutes on each slide (and that would be a very quick review), the presentation would take about two hours. These presentations can be improved by:

- Clarifying the key messages. For example, we discussed clearer conclusions in the previous paragraph.
- Simplifying the slides themselves. Many are complicated graphs or tables with considerable marginal information included.
- Reducing the volume of evidence reproduced in the presentations. For example, the presentation we saw made the point that pool sizes in Alberta are small and therefore costly to produce on a "per unit of production" basis. The presentation used three slides to support that conclusion where one example would suffice.

Reports instead of presentations can provide detail

For audiences that require greater detail, the Department should provide written reports. The Department should consider whether detailed reports can be made available before or after presentations so the audience have reference materials available. Since the public royalty review panel began its work, the Department has begun to make reports available on aspects of the royalty regimes[22]. These contain detailed analysis that could supplement presentations.

December 2004 report is an example of analysis and conclusions well packaged

Clear and complete reporting is essential for decision makers. To support decision makers, the Department should clarify its analysis, conclusions, quantification, and options. The December 2004 report titled "Cross Commodity Royalty Review and Assessment" is a report that achieves those goals. That sort of reporting also supports Departmental accountability for the stewardship of the province's oil and gas resources.

Implications and risks if recommendation not implemented

Poor planning can lead to unsuccessful projects

Without detailed, authorized planning, the chances of completing a project on time, on budget, and of sufficient quality to satisfy stakeholders are reduced. Adequate planning reduces the risk of rework and, in the case of technical review, supports informed and timely decision making.

Inadequate coverage may compromise accountability

Without expanding its analysis to cover major aspects of its royalty regimes, the Department will not have or present a complete view of the effectiveness of its royalty regimes or the magnitude of the issues, especially related to the objective of maximizing revenues from its oil, gas, and oil sands resources.

Weak reporting may leave unclear messages

Without clear presentations, the Department risks presenting an incomplete or unclear message to its audiences. For clarity, decision making, and accountability purposes, formal reporting has advantages over presentations.

6.3 Improving annual performance measures

Recommendation No. 11

We recommend that the Department of Energy improve its annual performance measures that indicate royalty regime results.

Background

The Department reports two measures annually

There are two measures that speak to the issues addressed by royalty review.

- "Sharing the profits from resource development". This measures crown revenue share as a percent of the oil and gas industry's annual net operating revenue. Due to volatility, the measure calculates a three-year moving average. The target is 20% to 25%. This addresses the

[22] These can be found at: http://www.energy.gov.ab.ca/842.asp.

government take portion of the basic royalty regime equation, fair share vs. competitiveness.

- "Resource development". This measures annual industry investment in the upstream oil and gas industry. The target is $15 billion per year or higher. This addresses the competitiveness portion of the basic royalty regime equation, fair share vs. competitiveness.

The profits measure fell out of range for calendar year 2004 (reported in the Ministry of Energy's 2005-2006 *Annual Report*) and will remain at 19% for 2005. Results for resource development have exceeded the target in recent years.

Criteria: the standards we used for our audit

The Department should periodically and publicly report information about the performance of its royalty regimes against program objectives.

Our audit findings

Sharing the profits

Profits measure does not follow same methodology as technical review

The Department indicates that this measure is a "dashboard light", intended to indicate trends. Its approach is different from the Department's royalty review work. The measure is historical, a year-by-year snapshot of aspects of economic performance. For example, it includes royalties but not bonuses; it contains operating but not capital costs. By comparison, technical review is forward looking and follows the economic rent model. It calculates the net cash flow of the full life cycle of oil and gas industry projects, including all major revenues and expenditures.

The Department does not reconcile the measure to technical review results

The Department does not reconcile the one approach to the other, so it is not clear how sensitive the measure is in comparison to detailed technical review work. Indeed until the 2005-2006 *Annual Report*, the measure indicated successful performance by the royalty regimes while technical review suggested a different result. Senior management of the Department do not feel confident about the measure and intend to refine or change it. The public royalty review panel may comment on performance measures. Whatever new measures may be developed, the Department should ensure they agree with (if they do not use) the results of its technical review.

Measures may need to distinguish oil sands from conventional regimes

In its performance measure, the Department will need to consider how to deal with the underlying differences between conventional oil and gas business and oil sands business. As oil sands grow in importance, the Department's current measure is likely to continue to fall because royalty rates in the pre-payout period are small compared to net revenue. Management has mentioned splitting the current measure into two parts but have not begun to develop new measures.

Influences on the measure's results not analyzed or quantified

Another problem with the measure's lack of precision is that it is difficult to interpret what influences its movement up or down. As a result, the discussion of results lists a number of issues but it is not clear how much each issue impacts the measure, if at all. Until 2006–2007, the issue of royalty caps was not mentioned although a knowledgeable reader would have to assume this is a major factor. The Department has not analyzed or quantified the impact of the reported issues on the measure.

Measure is not indexed for inflation in costs

Resource development
This is a useful measure to indicate overall direction of competitiveness and whether Alberta is still attractive to investors. The target has remained at \$15 billion since its introduction in 2003. In recent years, industry has experienced rapidly rising costs for upstream energy exploration and development projects. The measure is not indexed for general or industry-specific inflation. The Department should consider indexing its measure or highlighting this information in its description and discussion of the measure.

Implications and risks if recommendation not implemented
Without well-designed and analyzed performance measures, the Department will not accurately portray whether its royalty regimes are successful in meeting their objectives. Public information about royalty regime issues will promote the timely resolution of those issues.

6.4 Periodic public information

Recommendation No. 12

We recommend that the Department of Energy periodically report on the province's royalty regimes. Periodic public reports should use the methods and tools of technical review to:
- **Provide information to owners, MLAs, and stakeholders about the performance and issues for Alberta's royalty regimes;**
- **Demonstrate the Department's capacity and methodology to analyze its royalty regimes.**

Background
Every year, the Ministry of Energy releases audited financial statements that report the billions of dollars collected by Alberta's royalty regimes.

The Department reported results of a royalty review in 2003-04

In its *2003–2004 Annual Report*, the Department reported it had completed "a review of Alberta's royalty structure and competitiveness". It reported that the conventional oil and gas regimes "successfully encourage[ed] continued development while collecting a fair share of resource development profits".

The oil sands regime "continues to function as designed by successfully attracting capital investment and increased production."

Since then, royalty review is "ongoing"

Since the *2003–2004 Annual Report*, the Department has reported in its *Annual Plans* and *Reports* that royalty review is an ongoing process. From time to time, government ministers have confirmed the ongoing status. Since the public royalty review panel began its work in December 2006, the Department has begun to make "Royalty Information Briefings" available on its website. These papers describe the royalty regimes but do not disclose all major technical review processes or results.

Criteria: the standards we used for our audit

The Department should periodically and publicly report information about the performance of its royalty regimes against program objectives.

Our audit findings

Dollars collected by the royalty regimes are not enough to judge stewardship

From time to time, politicians observe that the province annually collects billions of dollars through its royalty regimes and as a result runs annual surpluses. To some, this indicates that the regimes are effective. However, Albertans should think like owners when considering their oil and gas resources. Owners will want to consider not only the number of dollars collected but also whether that number of dollars is appropriate. Owners should have the information necessary to confirm the Department's stewardship performance. With that information, owners, MLAs, and stakeholders can ask relevant questions.

No information about technical review has been available

We outlined the technical review work done by the Department earlier in this report. None of the presentations or documents flowing from technical review have gone to the public except through FOIP requests. Nor can owners determine how the Department analyzes its royalty regimes. The Department does not disclose its approach to or results from analyzing its royalty regimes. The principles of transparency and accountability dictate that the Department should demonstrate its stewardship of Alberta's royalty regimes and provide analysis to support that statement. This has not happened.

The Royalty 101 approach extended to owners

What information should be presented? The Department recognized the need to educate legislators about the oil and gas industry and Alberta's royalty regimes. The Royalty 101 presentations were the result. With that background, government MLAs have a foundation on which to judge royalty matters. Owners need the same kind of education and information. A public report that covers the same ground as Royalty 101 would benefit a wider Alberta audience.

The beginning of an outline for public reporting already exists

What should a public report contain? The outline of Royalty 101 provides a starting point:

- A description of what the Department does to monitor and analyze the oil and gas sector.
- An overview of the oil and gas sector, including components about prices, costs, investment, and impact to Alberta's economy;
- The nature of Alberta's reserves;
- The theory and practice of royalty regimes and economic rent;
- The evolution and current status of Alberta's royalty regimes;
- Modeling Alberta and other jurisdictions' scenarios;
- Inter-jurisdictional comparisons;
- Issues for Alberta's oil and gas sector.

Report with the regimes' objectives in mind

One element is missing from this preliminary list. The Department's public reporting would have to analyze performance against the objectives set out for the royalty regimes. With this information, readers can understand both how the Department fulfills its responsibilities and whether Alberta's royalty regime objectives are being met.

This is education and information, not policy advice

The Department is concerned that reporting may prematurely expose policy considerations and advice to the public. The public reporting need not contain policy conclusions or recommendations any more than Royalty 101 contains conclusions or recommendations. But as these public reports would essentially be the only source of detailed information about the performance of Alberta's royalty regimes, they need to be complete, candid, and well-written. We believe it unlikely that any one or small group of annual performance measures would satisfy Albertans the way this public reporting could.

"Periodic" must result in timely information

The oil and gas environment changes rapidly enough that technical review is regularly required. Indeed, the Department says in its *Annual Report* that the process is ongoing. By "periodic" public reporting, we envision a routine frequency that ensures owners, MLAs, and stakeholders get timely information and do not have to worry that the available information is stale. A defined reporting schedule may also add rigour to the planning of the Department's technical review work, an issue with the current system as we discussed in recommendation 6.2.

Finance Investments does this type of reporting

Other Alberta government entities publicly report to satisfy Albertans about the stewardship of Crown assets. For example, Alberta Finance manages another huge asset pool, the province's billions of dollars of investments including the Alberta Heritage Savings Trust Fund. Alberta Finance publishes a wealth of information and analysis about its investment objectives, types of investment pools, rates of returns, and comparisons with other investment funds. The Department of Energy should consider the same level of accountability for the stewardship of Alberta's oil and gas resources.

Requirement might be legislatively mandated

The Ministry of Energy should consider making this periodic public reporting a legislative requirement. In this way, information would be provided to owners, MLAs, and stakeholders no matter what circumstances unfold between public reports.

Implications and risks if recommendation not implemented

With information, debate on royalty regimes will be stronger

If the Department of Energy does not make this information public, owners, MLAs, and stakeholders will not have access to the facts about the province's royalty regimes. Better understanding of the issues promotes informed debate about current issues, in both the legislature and other public forums. Stronger debate should lead to timelier and better justified decisions.

Lack of information can result in misdirected effort

Without information, owners, MLAs, and stakeholders can misdirect their efforts. For example, in 2006 a great deal of discussion inside and outside the Legislature focused on whether the Department had performed a royalty review. The time could have been better spent discussing the royalty regimes themselves.

6.5 Enhancing controls

Recommendation No. 13

We recommend that the Department of Energy enhance controls for its monitoring and technical review work.

Background

Earlier we outlined the Department's methodology, tools, and processes for royalty review. These systems depend heavily on the training, experience, and dedication of individual staff members to succeed.

Criteria: the standards we used for our audit

The Department should have effective, efficient systems in place to monitor developments in the oil and gas environment and perform its technical review to determine whether its royalty regimes continue to meet objectives.

Our audit findings

Departmental staff do a great amount of good work on royalty review. However their systems and practices can improve, particularly where they can mitigate operational risks through better control. In implementing this recommendation, the Department should balance the benefits with the cost of increased control. This is key for activities that rely so heavily on employees' individual expertise.

Documenting complex business practices

Documentation mitigates risks of staff turnover

The Department's royalty review systems depend heavily on the quality of the people doing the work. We found that these employees have the education, training, experience, and initiative to do the job. But what happens if these employees leave? How can the Department minimize the disruption that would take place in replacing them? One control is to ensure that employees document their complex business processes.

Complex royalty review processes are not documented

In general, we found that employees in the royalty review business unit groups have not documented their practices. For example, the gas group contracted with a consultant to prepare detailed production data for the Department's royalty modeling. The consultant did a good job documenting what he did. But once the consultant's data arrived in the group, employees performed a complex seven-step analysis to massage the data for further use. This seven-step process has not been documented. In a similar vein, the oil group began to document its technical review processes only when we asked at the beginning of our audit.

Review and sign-off

Data input errors can and have happened

Most of the technical review work is economic modeling and depends on the collection and analysis of large data sets. During the audit, we examined samples of these models in detail. We found they include data entry errors. In the most important case, the employee made a transposition mistake in manual data entry for abandonment costs. He made the same manual data input error across four gas field types and across the five-year timeframe of his analysis. The employee who made that error both inputs large volumes of data and checks the accuracy of his own input. This is common practice in these groups. Fortunately, none of the errors that we found had a significant impact on the calculated results. However, if there were significant input or calculation errors, the groups do not have controls to catch them before reviewing the final result.

Groups do not have detailed data entry or calculation controls

The business unit groups do not have a system to check manual or automated data entry, nor to ensure that complex spreadsheets calculate accurately. At present, the director of the group usually makes a cursory review of the finished product. There is no sign-off of completed products by preparer or reviewer. High level review by business unit leaders or assistant deputy ministers may also identify data or calculation errors. However, the groups should consider a more rigorous control methodology.

Document internal sources of report contents

Groups do not reference the specific sources for material in final reports

As a rule, the royalty review groups do not cross-reference the material in presentations or reports to internal sources. The presentations and reports that we examined contain Department-generated graphs; over time readers can see the results change. These graphs are generated by analytical software like ValueNavigator. Where graphs change over time, there could be any number of input or methodology reasons for the change. The Department does not cross-reference the graphs in particular reports to their specific source, so when asked why a change has taken place, it may not be able to answer.

To identify the source of material in reports may be onerous

For example, the graph depicting the comparative government shares of economic rent between Alberta and the ten-state American average is a standard item. It is generated by the TEAM software. We asked why the results changed from report to report. For example in a three-month period, the Alberta share for high-price natural gas moved from 50% to 57% while the ten-state average changed from 65% to 62%. While staff could suggest reasons for these changes, it would be an onerous task for them to identify the underlying support and provide detailed explanations for these changes.

Results in reports may change for many reasons

Part of the issue may be that the presentations themselves do not precisely define what the graph is displaying; they may portray related but different scenarios. Analytical methodology may have changed slightly from one presentation to another. In other cases, there may be legitimate reasons for the variations such as changes in regime. But unless the Department keeps track of the source for its presentation material, it will find it difficult to explain apparent inconsistencies.

Document questions and answers

Questions often drive review, but no system to monitor questions or answers

At the beginning of our audit, Departmental staff told us that much of their royalty review work responds to questions about the royalty regimes. These questions may be generated through the Department's own monitoring of the oil and gas environment or from ministers, MLAs, or other stakeholders. Staff also told us that the questions tend to evolve as work is completed so that in the end the Department has answered a related but different question. However, when we asked what were the original questions, the final questions, or even the final answers, Departmental staff could not provide us with that information. A system to track questions would help organize and standardize the groups' technical review work.

Implications and risks if recommendation not implemented

Without documentation and control, new employees do not have appropriate background and support to learn their positions. Without documented and controlled processes, the Department runs the risk of incurring a significant error in its royalty review work and not detecting it. Without a management trail to trace from final reports back to source material, the Department may not be able to explain their results efficiently or effectively.