The Orphaned Wells Team

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Policy Paper





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Alternative policies for managing orphan wells in Alberta

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Abstract:

Orphan wells are non-producing or inactive assets left behind by bankrupt oil and gas producers without proper plugging or reclamation. With the current industry downturn, there are 2,888 orphan wells in Alberta, and the number is growing. The Orphan Well Association (OWA) is a responsible entity for plugging or properly abandoning orphan wells. The current mechanism for funding OWA is insufficient to deal with the growing number of orphan wells. The insufficiency imposes significant risks to landowners, indigenous communities, and taxpayers. This paper looks at reforming the current orphan well policies; it only deals with conventional and hydrofracturing assets. The proposed options are cyclically adjusted levy, blanket bond, adoption, accelerated inactive well closure, and direct government subsidy.

1.0 Introduction

The current energy industry downturn has brought numerous bankruptcies and business closures. Along with those bankruptcies, orphan wells are left behind. This type of well is non-

producing without an owner responsible for environmental liabilities.[1] As a result of it, those wells are not properly plugged and left not reclaimed by the responsible owner.[2] The existing mechanism for dealing with orphan wells is not functioning with the increasing number of bankruptcies.[3] It has created the need for the review of existing orphan well policies and the design of new policies. For the purpose of this paper, we are only interested in conventional oil and gas wells and hydrofracturing operations. Oilsand related problems are not discussed.

The responsible orphan well policy framework includes forcing economic beneficiaries, or owners of resource development licenses to pay for environmental cleanup costs. That doctrine is also known as the 'polluters pay' principle.[4] Essentially, the private sector must be environmentally responsible for the resource development. Currently, the private sector collectively deals with orphan well through "risk pooling."[5] Under this context, risk pooling implies a group of oil and gas producers in Alberta collectively contributing to fund the bankrupt producers' well plugging expenses. In Alberta, the industry consortium is legally responsible for orphan wells. An industry-funded Orphan Well Association (OWA) is the assigned entity.[6] The OWA has the following classification system for drilled wells in Alberta:[7]

- Active: a well that is currently producing oil or natural gas.
- Inactive: a well that has not produced oil or natural gas in 12 months.
- Orphan: a well or facility confirmed not to have anyone responsible.

[1] Canadian Association of Petroleum Producers, *Understanding Liability for Oil and Natural Gas Assets in Alberta* (Calgary: Canadian Association of Petroleum Producers, 2017), www.capp.ca.

[2] Ibid.

[3] Alberta Oil and Gas Orphan Abandonment and Reclamation Association, *Orphan Well Association 2016/17 Annual Report* (Calgary: Alberta Oil and Gas Orphan Abandonment and Reclamation Association, 2017), 8, http://www.orphanwell.ca/OWA2016-17AnnRptFinal.pdf

[4] Ibid.

[5] Barry Robinson, "The Inactive Well Compliance Program: Alberta's Latest Attempt to Bring the Inactive Well Problem under Control," *Ecojustice* 20 (2014): 10, https://ecojustice.ca/wp-content/uploads/2014/12/IWCP-Paper-FINAL-20-Nov-2014.pdf.

[6] Alberta Oil and Gas Orphan Abandonment and Reclamation Association, *2016/17 Annual Report*, 3.

[7] Canadian Association of Petroleum Producers, *Understanding Liability for Oil.*

- Abandoned: a site that is permanently dismantled (plugged, cut and capped) and left in a safe and secure condition.
- Reclaimed: a site remediated and reclaimed to its original state before drilling.

The OWA collects a $45 million through an orphan fund levy annually from producers by an agreement set by the Alberta Energy Regulator (AER) and two industry representatives-the Explorer and Producer Association of Canada (EPAC) and the Canadian Association of Petroleum Producers (CAPP).[8] EPAC represents small & medium sized producers,[9] while CAPP represents large producers.[10] The current orphan well program is designed to deal with idiosyncratic risks. During the normal part of economic cycle, idiosyncratic risks deal with very few producers going bankrupt due to operational problems or bad management.[11] The risk pooling is a sensible method for dealing with idiosyncratic risks. However, when the industry is faced with systemic risks, the current policy imposes crisis to both the industry and taxpayers.

The recent industry downturn presents challenges to the OWA. The systematic risk to the industry comes from the prolonged downturn of the industry due to depressed resource prices.[12] The current orphan fund levy is not designed to manage the unexpected increase in the orphan well inventory. The unfunded expenses have been a problem for the AER and taxpayers, as public funds are used for the OWA's activities. The current crisis threatens the core "polluters pay" principle and the future of responsible resource development.

The current crisis is not the first time with this problem. The economic downturn of 2008-09 highlighted the flaws of the existing system, as the provincial government provided a $30 million

[8] Alberta Oil and Gas Orphan Abandonment and Reclamation Association, *2016/17 Annual Report*, 3.
[9] Explorers and Producer Association of Canada, "Membership Benefits," accessed March 23, 2018, http://www.explorersandproducers.ca/benefits.html.
[10] Canadian Association of Petroleum Producers, "Producer Members," accessed March 23, 2018, https://www.capp.ca/about-us/membership/producer-members.
[11] Robinson, "Inactive Well Compliance Program," 5
[12] Ibid.

public fund to the OWA.[13] However, the AER did not address the inherent issue with the funding scheme, as the downturn was short-lived. With the prolonged industry recession, the funding shortfalls faced by OWA needs to be subsidized by the taxpayers with the government announcing a $235 million interest-free loan in 2016.[14] The justification of the funding was protecting the environment from potentially leaking wells. However, continuous taxpayer subsidies to the private sector cannot be justified. The current downturn calls for the need of immediate reform.

In addition to the funding shortfall, the current OWA funding structure does not fairly distribute the levies among the participating producers. The structure is a risk pooling model; the industry collectively shares the risk of bankruptcy and orphan well.[15] To be a fair risk pooling model, the levy has to be imposed according to the risk of incurred by each producer. Under the current rules, levies are charged to producers according to shares of estimated well abandonment expenses.[16] This method does not account for bank debt.[17] Also, the accuracy of reported abandonment expenses is questionable under the old accounting rules.[18]

The AER has sought to move away from relying on OWA funds for abandoning orphan wells. As a way to supplement OWA's cost, AER has attempted to obtain the first lien (right to reimbursement) on bankrupt producers' property. That legal claim was established by insisting Crown's right to environmental compensation.[19] However, the court rejected the claim in the Grant Thorton v. AER case, stating the secured creditors get the first lien. [20] Under the Law,

[13] Alberta Oil and Gas Orphan Abandonment and Reclamation Association, *2016/17 Annual Report*, 3.
[14] Lauren Krugel, "Alberta Aims to Speed up Orphan Well Cleanup With $235M Loan," *Canadian Press*, last modified May 18, 2017, https://globalnews.ca/news/3461832/alberta-aims-to-speed-up-orphan-well-cleanup-with-235m-loan/.
[15] Robinson, "Inactive Well Compliance Program," 10.
[16] Ibid., 13.
[17] Ibid.
[18] Ibid.
[19] Supreme Court of Canada, "Orphan Well Association, et al. v. Grant Thornton Limited, et al.," accessed March 22, 2018, https://www.scc-csc.ca/case-dossier/info/sum-som-eng.aspx?cas=37627.
[20] Alberta Energy Regulator v. Grant Thornton, 2017 ABCA 278, August 30, 2017.

private property rights have precedence over environmental claims. This court ruling reinforces that both regulators and legislators need to take action.

Currently, social cost of orphan well is estimated to be between $129 million to $8.6 billion depending on the accounting standard.[21] With the growing number of orphan wells, the new policy solution must alleviate the environmental concerns of landowners and indigenous communities, while making the cost reasonable to both taxpayers and industry. The new policy solution would restructure how well abandonment and reclamation costs are ought to be paid over the project cycle.

2.0 Current status

In Alberta, wells drilled on the land with the mineral right to the Crown (81% of the total land) is regulated by the AER.[22] However, land owned by indigenous communities (Indian Reserves) are directly regulated by the federal agency, Indian Oil and Gas Canada (IOGC).[23] Despite being federally regulated, orphan wells on the Indian Reserves end up being abandoned by the OWA.[24] At this stage, most orphan well concerns deal with wells drilled on the Crown land, as they account for most of problematic wells.

In Alberta, there are currently 2888 orphan wells to be abandoned or plugged by the OWA.[25] The number of wells, which have been plugged but not remedied, is 1062.[26] However, the number of orphan wells to be abandoned is expected to grow by another 3000 wells with the

[21] Benjamin Dachis, Blake Shaffer, and Vincent Thivierge, *All's Well that Ends Well: Addressing End-of-Life Liabilities for Oil and Gas Wells* (Toronto: C.D. Howe Institute, 2017), 16.

[22] Alberta Energy Regulator, "Abandonment & Reclamation," accessed April 3, 2018, https://www.aer.ca/abandonment-and-reclamation/liability-management/reporting.

[23] Government of Canada, "Indian Oil and Gas Canada Annual Report," last modified May 17, 2017 http://www.pgic-iogc.gc.ca/eng/1492612115384/1492612169840?wbdisable=true.

[24] Alberta Energy Regulator, "Abandonment & Reclamation."

[25] Orphan Well Association, "Orphan Inventory," accessed April 4, 2018, http://www.orphanwell.ca/pg_orphan_well_list.html.

[26] Ibid.

recent bankruptcy of Sequoia Energy.[27] The cost of abandonment and remediation per well can be estimated from reviewing the OWA's annual report; those costs are estimated to be $61,000 and $20,000 per well respectively.[28] The total budget needed by the OWA for the full remediation of all orphan wells (including Sequoia energy) is expected to be $611 million.

3.0 Key considerations

There are following socioeconomic considerations to be made for the stakeholders; small and large oil and gas producers, indigenous communities and landowners, and taxpayers.

1. Economical impact of policies on small and large oil and gas producers

Alberta's resource industry is comprised of both small and large sized firms. Due to diverse players, the impact of orphan wells on the industry is not monolithic. The impact of policies on variously sized firms need to be considered.

2. Taxpayers

Taxpayers have a stake in this new orphan well policy design. Taxpayers already committed to the resolution of this problem with the $235 million of loan. With the growing inventory, the provincial government may need to bring additional taxpayer funded solutions.

3. Timely abandonment of orphan wells

The most affected stakeholders of indigenous communities and landowners. Indigenous communities in the Indian Reserves have both mineral and surface rights. Landowners have a limited protection as they only have surface right. To protect their land and property, their top concern is the timely abandonment of orphan wells.

4.0 Policy options

[27] CBC News, "Oil Firm Ceasing Operations, Leaving Thousands of Untended Alberta Wells," *CBC News*, last modified March 8, 2018, http://www.cbc.ca/news/canada/calgary/alberta-energy-regulator-sequoia-resources-untended-wells-1.4567790.

[28] Alberta Oil and Gas Orphan Abandonment and Reclamation Association, *2016/17 Annual Report*, 14.

4.1 Changing the orphan fund levy to cyclically adjusted payments

The newly proposed levy structure takes the cyclicality of the industry into account. The energy industry faces recession every 7-10 years. By averaging inflation-adjusted orphan well abandonment expenses over the previous 10 years, the OWA can raise enough revenue for the whole energy industry cycle. During the normal period of expansion, the OWA accumulates reserves by collecting excess levy; the accumulated reserves are drawn during industry recession.

This levy structure aims to reduce the industry burden by evenly distributing the required levies over 10 years. Also, this change does not require legislative action, as AER has the legal mandate on OWA levies with the consultation of the EPAC and CAPP under the *Responsible Energy Development Act (REDA).*[29] This solution prevents the need of suddenly increasing levies. Unlike the previous system, the policy accounts for the cyclical nature of the industry. The proposed levy structure will protect the government and taxpayers from unexpected orphan well inventory build. Compared to other options, the change can effectively deal with the outstanding orphan well inventories.

Despite the benefit, the increase in the orphan fund levy imposes additional costs to the struggling industry. It unfairly affects larger producers by maintaining the current risk pooling structure. Also, it is not adequate to promote timely abandonment of orphan wells, as proceeds from orphan fund levy needs to accumulated before reaching the sufficient amount. Currently, there's $611 million in expected expenses, while the current levy is only $45 million annually.

4.2 Accelerated inactive well abandonment

The other policy option is restricting the allowed time of inactivity. Unlike the current system that gives producers flexibility for deciding well abandonment,[30] the forced abandonment will

[29] Alberta Energy Regulator, "Acts, Regulations & Rules," accessed March 30, 2018, https://www.aer.ca/rules-and-regulations/acts-and-rules

[30] Alberta Energy Regulator, "Abandonment & Reclamation."

effectively reduce the number of orphan and inactive wells. North Dakota's one-year closure rule is an example, which mandates producers to abandon inactive wells within one year of the last production.[31]

North Dakota's record demonstrates that the forced abandonment should be successful in reducing the number of orphan wells. Instead of the current risk pooling structure of the levy, this policy is designed to impose the cost of well abandonment on each firm. This solution is supported by the CAPP and large producers, as the association wants to move away from the risk pooling model.[32]

However, the implementation of this policy will disproportionally affect small and medium-sized producers. At the stage of growing business, producers allocate capital to grow energy production. If the AER and the government want to promote small & medium-sized producers, this policy will favor established and large producers over the smaller counterparts. Also, the EPAC and smaller producers will strongly oppose the proposed change.[33]

4.3 Blanket bond-secured creditor status against assets

Under this option, producers are required to submit a company named bond to the AER. That bond acts as a claim for well abandonment expenses. Before issuing drilling licenses, the AER calculates expected expenses from well abandonment and reclamation.[34] Also, the regulator assesses producers' credit rating and financial debt.[35] These metrics are used to determine their ability to pay for future expenses. Then, the AER can determine the value of the bond to be submitted. This bond entails a condition, which names AER as the first claimant of the company

[31] Geoffrey Morgan, "North Dakota's last orphan: Why is America so much better at cleaning up the oil bust?," *National Post*, last modified March 28, 2017, http://business.financialpost.com/commodities/energy/north-dakotas-last-orphan-how-canada-needs-a-lesson-on-cleaning-up-an-oil-boom-gone-bust.

[32] Dachis, *All's Well that Ends Well*, 2.

[33] Explorers and Producer Association of Canada, "EPAC comments on AER ruling on new financial test for license transfers," Explorers and Producer Association of Canada, accessed April 1, 2018, http://www.explorersandproducers.ca/664.html.

[34] Austin Mitchell and Elizabeth Casman, *Economic Incentives and Regulatory Framework for Shale Gas Well Site Reclamation in Pennsylvania* (Washington D.C.: American Chemical Society, 2017), 5.

[35] Ibid., 5.

named assets in case of bankruptcy. If the producer cannot submit a bond due to its complex asset structures, it can submit a letter of credit from its designated bank. In case of the bankruptcy, the bank is responsible for environmental liabilities.

This policy is designed to shift away from the existing regime. By imposing the cost of abandonment onto individual producers and their creditors, the whole industry and taxpayers can be insulated from orphan well risks incurred by individual producers. The solution helps smaller firms with limited financial capacity to effectively deploy their resources. Also, the policy has the proven track record in Pennsylvania and Texas.[36] The track record demonstrates that promoting small-sized producers can be achieved while imposing the responsibility.

Despite the advantage, the implementation of this policy requires new legislation to allow AER's status as a creditor. Also, the policy change only applies to newly drilled wells. The industry and government need to implement another solution, like increasing the levy, for existing orphan wells.

4.4 Adoption of orphan wells

The other option is encouraging the adoption of orphan wells. According the OWA's database, there are several wells of which last reported oil production was up to 20,000 barrels of oil per year with some associated natural gas; and some wells of which last gas production was up to 120 million of cubic feet of gas with some minor associated oil production.[37] Naturally, a comprehensive evaluation of the viability of these wells should be conducted by the potential buyers (takers). The process to acquire an orphan well is called the Regulator Directed Transfer

[36] Ibid.
[37] Tyler Visscher (Blue Star Energy) in discussion with the authors, March 2018.

(RDT).[38] To apply for an RDT, the potential buyers must obtain mineral (subsurface) and surface rights to the well.[39]

Also, the rising interest in renewable energy can lead to the adoption for geothermal energy purposes.[40] In the United States, the Pennsylvania Utilities Commission (PUC) has been investigating the use of inactive shale gas wells for geothermal harvesting plants.[41] In a recent report, the PUC concluded that ~10% of inactive wells are economically feasible to be converted to geothermal plants.[42] The renewable energy adoption target by the Alberta Government makes this option attractive.

Even if some adoptions occur, there's only limited numbers of assets that can be converted for further production or geothermal purposes. Despite the value add of repurposing, the adoption solution is not a universal solution for the growing inventory.

4.5 Direct government subsidy for accelerated abandonment

The government of Alberta and taxpayers are major stakeholders in orphan wells policies and resource development. Conventional oil and gas assets contributed more than $1.1 billion of the royal revenue for the province.[43] As the owner of the resource, the additional funding to deal with the growing inventory might be justified. This particular solution should work with the aforementioned solutions to accelerate the process. Also, it should be only applied to legacy assets. For new assets, privately funded solutions including the cyclically adjusted levy, accelerated well abandonment, and blanket bond might be necessary.

[38] Orphan Well Association, "Taking Orphans," accessed April 7, 2018, http://www.orphanwell.ca/pg_TakingOrphans.html.
[39] Ibid.
[40] Alberta Government, "Climate Leadership Plan," accessed March 15, 2018, https://www.alberta.ca/climate-leadership-plan.aspx.
[41] Mitchell, *Economic Incentives and Regulatory Framework.* 8.
[42] Ibid.
[43] Alberta Government, "How Alberta's Royalty System Works?," accessed April 2, 2018, https://www.alberta.ca/royalty-how--system-works.aspx.

5.0 Conclusion

The current orphan fund levy is insufficient to deal with the growing orphan well inventories. The system needs reform, as the increasing number of orphan wells exposes both government and taxpayer. There are currently 2,888 orphan wells in Alberta, and the number is growing. Also, the growing number of orphan well has prompted the provincial government to provide $235 million of emergency loan. However, that loan is no where near sufficient with the current abandonment expenses standing at $611 million.

For designing new policies, the government must consider their impacts on small and large oil and gas producers, indigenous communities and landowners, and taxpayers. The recommended policy solutions are cyclically adjusted levy, blanket bond, adoption, accelerated inactive well closure, and direct government subsidy.

The blanket bond and accelerated inactive well closure can be the non-risk pooling structure for newly drilled wells. However, those solutions, especially inactive well closure, hurts small sized oil and gas more. Also, the policy can only be applied for new projects. The cyclically adjusted levy is another private funded solution to deal with the problem. However, due to the fairness and timely abandonment issues, the policy is not the optimal solution for both new and existing wells. Also, adoption is only possible for a limited number of cases.

Most likely solution is the combination of the aforementioned solutions and the taxpayer funding. For environmental responsibility and the government's involvement in the industry, existing orphan wells may need to dealt by the taxpayers.

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