

# The Permanent Peoples’ Tribunal Session on Human Rights, Fracking and Climate Change

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## APPENDIX 2 to Violations of Nature’s Rights

### Legal status of unconventional oil and gas extraction across the world

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## Australia

Under the Australian Constitution, ownership of mineral and petroleum resources onshore and within three nautical miles offshore vests with the state and territory governments.<sup>1</sup>

Currently, hydraulic fracturing is lawful in Queensland, New South Wales and South Australia. Bans or temporary moratoriums are currently in place in Victoria, Tasmania, the Northern Territory and Western Australia, with South Australia soon to implement a ban in the south-east of the State only.

## Victoria

- Legislation was introduced at the end of 2016 permanently banning hydraulic fracturing in Victoria, where a moratorium on the process had been in place since 2012.<sup>2</sup>
- The *Resources Legislation Amendment (Fracking Ban) Act 2017* permanently bans the exploration and development of onshore, unconventional gas resources in Victoria, including the use of fracking, and also extends a moratorium on conventional onshore gas extraction until mid-2020.<sup>3</sup>
- Certain activities, which were not covered by the moratorium, are exempt from the ban, including gas storage, carbon storage research, and offshore gas exploration and development.<sup>4</sup>

## Tasmania

- A one year moratorium on hydraulic fracturing was introduced in Tasmania in March 2014.<sup>5</sup>
- In March 2015, the moratorium was extended for five years until March 2020.<sup>6</sup>

## Western Australia

- Hydraulic fracturing has been used in the exploration of shale gas in a number of sites across Western Australia.<sup>7</sup>
- In 2017 the Western Australian Government announced a ban on fracking in three metropolitan areas (including the capital, Perth) and a moratorium on fracking throughout the rest of the state, pending an independent scientific inquiry into the potential impacts of fracking.<sup>8</sup>

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<sup>1</sup> Department of Industry, Innovation and Science. (Undated). Unconventional Gas. Australian Government. Retrieved from <https://industry.gov.au/resource/UpstreamPetroleum/Pages/UnconventionalGas.aspx>.

<sup>2</sup> Australian Mining. (2016, 22 November). Victoria introduces legislation to ban fracking. Retrieved from <https://www.australianmining.com.au/news/victoria-introduces-legislation-to-ban-fracking>.

<sup>3</sup> Mazengarb, M. (2017, 8 March). Victorian Parliament unites to approve fracking ban. *RenewReporter*. Retrieved from <https://www.renewreporter.com.au/2017/03/victorian-government-unites-to-approve-fracking-ban/>.

<sup>4</sup> Victorian Government. (2016, 30 August). Media Release: Victoria bans fracking to protect farmers. Retrieved from <https://www.premier.vic.gov.au/victoria-bans-fracking-to-protect-farmers/>.

<sup>5</sup> Smiley, S. (2015, 26 February). Fracking banned for five years by Tasmanian Government. *ABC News*. Retrieved from <http://www.abc.net.au/news/2015-02-26/fracking-banned-for-five-years-by-tasmanian-government/6265378>.

<sup>6</sup> Department of Primary Industries, Parks, Water and Environment. (2015, 26 March). *Tasmanian Government Policy Statement on Hydraulic Fracturing (Fracking) 2015*. Tasmanian Government. Retrieved from [http://dpipwe.tas.gov.au/Documents/Tasmanian%20Fracking%20Policy%20Statement\\_26-2-15.pdf](http://dpipwe.tas.gov.au/Documents/Tasmanian%20Fracking%20Policy%20Statement_26-2-15.pdf).

<sup>7</sup> Department of Mines, Industry Regulation and Safety. (Undated). Recent activities involving high pressure, high volume hydraulic fracture stimulation. Government of Western Australia. Retrieved from <http://www.dmp.wa.gov.au/Petroleum/Recent-activities-involving-18011.aspx>.

<sup>8</sup> Department of Mines, Industry Regulation and Safety. (Undated). *Fracking Policy Statement*. Government of Western Australia. Retrieved from [http://www.dmp.wa.gov.au/Documents/Petroleum/PET-HydraulicFracture\\_PolicyStatement.pdf](http://www.dmp.wa.gov.au/Documents/Petroleum/PET-HydraulicFracture_PolicyStatement.pdf).

## New South Wales

- Natural gas from coal seams (CSG) has been commercially produced in New South Wales since 2001 at Camden in south-west Sydney by AGL, and exploration is taking place in the Narrabri region in northern New South Wales.<sup>9</sup>
- According to AGL, hydraulic fracturing has been used on approximately 85% of the total wells it has drilled in NSW.<sup>10</sup>
- Regulations applying to the CSG industry in NSW include a two kilometre residential exclusion zone for residential and village areas, and a ban on the use of BTEX chemicals (Benzene, Toulene, Ethylbenzene and Xylene).<sup>11</sup>
- AGL announced in February 2016 that after a review of business activities it would not proceed with its Gloucester Gas Project and it would begin to decommission and rehabilitate CSG wells at its Camden site, enabling closure of the facility in 2023.<sup>12</sup>

## Northern Territory

- An independent Scientific Inquiry into Hydraulic Fracturing of Onshore Unconventional Reservoirs in the Northern Territory was announced by the Northern Territory Government in December 2016. The Inquiry released its Final Report on 27 March 2018 making 135 recommendations, which it says if adopted will mitigate or reduce any risks of development of NT's onshore shale gas industry to acceptable levels.<sup>13</sup>
- A moratorium on hydraulic fracturing has been in place since the end of 2016 and will remain in place until the NT government has considered the recommendations from the Inquiry<sup>14</sup>.

## Queensland

- In the last 15 years there has been rapid growth in the coal seam gas industry in Queensland, peaking at 1,634 gas wells drilled in 2013-2014. This growth has been driven by more than \$70 billion worth of investment in three liquefied natural gas (LNG) projects which will produce approximately one quarter of the global LNG supply.<sup>15</sup>

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<sup>9</sup> Department of Resources and Energy. (Undated). FAQs on coal seam gas. *New South Wales Government*. Retrieved from [https://www.resourcesandenergy.nsw.gov.au/landholders-and-community/coal-seam-gas/the-facts/faqs#\\_what-exploration-and-production-is-underway-in-\\_n\\_s\\_w\\_\\_003f](https://www.resourcesandenergy.nsw.gov.au/landholders-and-community/coal-seam-gas/the-facts/faqs#_what-exploration-and-production-is-underway-in-_n_s_w__003f).

<sup>10</sup> AGL. (2013, 22 January). AGL's New South Wales hydraulic fracturing fact sheet and frequently asked questions. Retrieved from <https://www.agl.com.au/-/media/AGL/About-AGL/Documents/How-We-Source-Energy/Camden-Documents-Repository/Fact-Sheets/20130122-Hydraulic-Fracturing.pdf>.

<sup>11</sup> Department of Resources and Energy. (Undated). Protections and controls. *New South Wales Government*. Retrieved from <https://www.resourcesandenergy.nsw.gov.au/landholders-and-community/coal-seam-gas/the-facts/protections-and-controls>.

<sup>12</sup> AGL Energy Limited. (2016, 4 February). ASX & media release: Review of gas assets and exit of gas exploration and production. Retrieved from <https://www.agl.com.au/~/-/media/AGL/About%20AGL/Documents/Media%20Center/ASX%20and%20Media%20Releases/2016/1521917.pdf>.

<sup>13</sup> Hydraulic Fracturing Taskforce, *The Scientific Inquiry into Hydraulic Fracturing in the Northern Territory*. Retrieved from <https://frackinginquiry.nt.gov.au/inquiry-reports>.

<sup>14</sup> Northern Territory Government. (2017, 28 November). Hydraulic fracture stimulation: moratorium and public inquiry. Retrieved from <https://nt.gov.au/industry/mining-and-petroleum/petroleum-activities/hydraulic-fracture-stimulation-moratorium-and-public-inquiry>.

<sup>15</sup> Business Queensland. (2018, 3 January). Petroleum and coal seam gas. *Queensland Government*. Retrieved from <https://www.business.qld.gov.au/industries/invest/mining/resources-potential/petroleum-gas>.

- Commercial production of coal seam gas in Queensland started in 1996 in the Bowen Basin and in the Surat Basin in 2006. Exploration of tight gas is being conducted as is shale gas, which is still at a very early stage in Queensland.<sup>16</sup>
- Hydraulic fracturing to enhance CSG production from coal seams has been carried out in Queensland since the 1990s.<sup>17</sup>
- The fluid used for hydraulic fracturing is made up of a proppant (for example sand), water and chemical additives, however the use of BTEX chemicals (benzene, toluene, ethylbenzene and xylene) is regulated in Queensland.<sup>18</sup>
- While as at 2014 approximately 8% of the gas wells then existing in Queensland had been exploited (approximately 400 of a total of 5000 wells), it is estimated that it could currently be around 40% of wells.<sup>19</sup>

## South Australia

- Australia's first commercial unconventional gas well (shale), which started flowing gas in October 2012, is located in the Cooper Basin in the north east of South Australia.<sup>20</sup>
- In November 2016, the Natural Resources Committee (NRC) of the Parliament of South Australia concluded its two-year inquiry into unconventional gas in the South East of South Australia, concluding that social licence did not exist for the development of an unconventional gas industry in the South East.<sup>21</sup>
- The South Australian Liberal party, which won the state election in March 2018, announced back in 2016 that if elected to government they would impose a 10-year moratorium on fracking in South Australia's south-east.<sup>22</sup>

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<sup>16</sup> Department of Natural Resources and Mines. (2017, January). Queensland's unconventional petroleum potential. *Queensland Government*. Retrieved from [https://www.dnrm.qld.gov.au/\\_\\_data/assets/pdf\\_file/0018/291330/unconventional-petroleum-potential-2017.pdf](https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0018/291330/unconventional-petroleum-potential-2017.pdf).

<sup>17</sup> CSIRO. (2015, 24 February). What is hydraulic fracturing? *Australian Government*. Retrieved from <https://www.csiro.au/en/Research/Energy/Hydraulic-fracturing/a-What-is-hydraulic-fracturing>.

<sup>18</sup> Department of Environment and Heritage Protection. (2016, 29 November). Information sheet: Fracking and BTEX. *Queensland Government*. Retrieved from <https://www.ehp.qld.gov.au/assets/documents/regulation/rs-is-fracking-and-btex.pdf>.

<sup>19</sup> Department of Environment and Heritage Protection. (2014, 10 July). Fracking. *Queensland Government*. Retrieved from <https://www.ehp.qld.gov.au/management/non-mining/fracking.html>.

<sup>20</sup> Department of State Development. (Undated). The facts about natural gas and fracture stimulation in South Australia. *Government of South Australia*. Retrieved from <https://statedevelopment.sa.gov.au/upload/Fracking/thefactsguide.pdf>.

<sup>21</sup> Natural Resources Committee. (2016, 29 November). Media Release: NRC tables final report on Inquiry into Unconventional Gas Development in the South East of South Australia. *Parliament of South Australia*. Retrieved from <https://www.parliament.sa.gov.au/Committees/Pages/Committees.aspx?CTId=5&CId=295>.

<sup>22</sup> Evans, S. (2018, 20 March). Gas firms angry over 10-year fracking ban in part of SA. *Financial Review*. Retrieved from <http://www.afr.com/business/energy/gas/gas-firms-angry-over-10year-fracking-ban-in-part-of-sa-20180319-h0xp5i>.

## North America

In the United States, five states account for about 65% of the total dry natural gas production: Texas 24%, Pennsylvania 20%, Oklahoma 9%, Louisiana 6%, and Wyoming 5%.<sup>23</sup>

In 2016, hydraulically fractured and horizontally drilled wells accounted for 69% of all oil and natural gas wells drilled in the U.S.<sup>24</sup>

### Vermont

- Vermont was the first U.S. state to ban fracking after it passed legislation in 2012 banning the practice.<sup>25</sup>
- At the time of passing the legislation Vermont was not known to have any natural gas reserves.<sup>26</sup>

### New York State

- High-volume hydraulic fracturing was banned in New York State by executive order in June 2015 following the completion of a seven-year review of the activity by the state Department of Environmental Conservation.<sup>27</sup>

### Maryland

- Maryland in the U.S. passed legislation in 2017 banning the use of fracking, effectively preventing the development of the Marcellus Shale, which underlies the western portion of Maryland.<sup>28</sup>

### New Brunswick

- In 2015, the Canadian province of New Brunswick declared a moratorium on fracking until its safety could be proven.<sup>29</sup>

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<sup>23</sup> U.S. Energy Information Administration. (2017, 25 October). Natural gas explained: Where our natural gas comes from. Retrieved from [https://www.eia.gov/energyexplained/index.cfm?page=natural\\_gas\\_where](https://www.eia.gov/energyexplained/index.cfm?page=natural_gas_where).

<sup>24</sup> Cook, T., Perrin, J., Van Wagener, D. (2018, 30 January). Hydraulically fractured horizontal wells account for most new oil and natural gas wells. *U.S. Energy Information Administration*. Retrieved from <https://www.eia.gov/todayinenergy/detail.php?id=34732>.

<sup>25</sup> CNN. (2012, 17 May). Vermont first state to ban fracking. Retrieved from <https://edition.cnn.com/2012/05/17/us/vermont-fracking/index.html>.

<sup>26</sup> NewsCore. (2012, 17 May). Vermont becomes first state to ban fracking. *FoxNews*. Retrieved from <http://www.foxnews.com/politics/2012/05/17/vermont-becomes-first-state-to-ban-fracking.html>.

<sup>27</sup> Department of Environmental Conservation. (2015, 29 June). New York State officially prohibits high-volume hydraulic fracturing. *New York State Government*. Retrieved from <http://www.dec.ny.gov/press/102337.html>.

<sup>28</sup> Hurdle, J. (2017, 4 April). With governor's signature, Maryland becomes third state to ban fracking. *State Impact*. Retrieved from <https://stateimpact.npr.org/pennsylvania/2017/04/04/with-governors-signature-maryland-becomes-third-state-to-ban-fracking/>.

<sup>29</sup> Concerned Health Professionals of New York & Physicians for Social Responsibility. (2016, November 17). Compendium of scientific, medical, and media findings demonstrating risks and harms of fracking (unconventional gas and oil extraction) (4<sup>th</sup> ed.). <http://concernedhealthny.org/compendium/>. At page 5.

## Europe

According to estimates, Europe has more recoverable shale gas than the U.S., however there has been little production.<sup>30</sup> France, the Netherlands, Scotland, Ireland, Wales, Denmark, and Bulgaria effectively ban hydraulic fracturing, while in other countries, such as Sweden, Poland, Romania, and Spain, results of exploration have been disappointing and many companies have abandoned projects. The Ukraine (in order to reduce its reliance on Russian gas), England (and possibly Portugal) appear to be the only countries still trying to push ahead with the industry, although no commercial quantities of unconventional gas appear to have yet been produced.

## France

- France was the first country in the world to ban hydraulic fracturing for the exploration and exploitation of shale gas and oil in July 2011.<sup>31</sup>
- The ban was upheld by France's Constitutional Council in a challenge by a US company. The International Energy Agency named France as a European country with some of the most plentiful underground reserves of shale gas.<sup>32</sup>

## Bulgaria

- In January 2012, Bulgaria became the second European country to ban exploratory drilling for shale gas using hydraulic fracturing, when Bulgarian MPs voted overwhelmingly in favour of the ban. Bulgaria also revoked a shale gas permit granted to the US company Chevron the previous year.<sup>33</sup>

## Germany

- German law distinguishes between "conventional" fracking in the extraction of natural gas from sandstone, which has been used in Germany for many years<sup>34</sup> and "unconventional" fracking.
- Legislative changes came into force in February 2017, which prohibit the use of fracking technology in Germany for unconventional gas extraction (in shale, marl, clay and coal bedrock) for commercial purposes. Four test drillings for scientific purposes are exempt from the ban. The ban will be reviewed at the end of 2021.<sup>35</sup>

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<sup>30</sup> Gilblom, K. Patel, T. (2014, 17 September). Fracking in Europe. *Bloomberg*. Retrieved from <https://www.bloomberg.com/quicktake/fracking-europe>.

<sup>31</sup> Le Monde. (2011, June 30). Gaz de schiste : le Parlement interdit l'utilisation de la fracturation hydraulique. Retrieved from [http://www.lemonde.fr/planete/article/2011/06/30/gaz-de-schiste-le-parlement-interdit-l-utilisation-de-la-fracturation-hydraulique\\_1543252\\_3244.html](http://www.lemonde.fr/planete/article/2011/06/30/gaz-de-schiste-le-parlement-interdit-l-utilisation-de-la-fracturation-hydraulique_1543252_3244.html).

See also *LOI n°2011-835 du 13 juillet 2011*, available from <https://www.legifrance.gouv.fr/eli/loi/2011/7/13/DEVX1109929L/jo/texte>.

<sup>32</sup> Deutsche Welle. (2013, October, 11). French court rejects challenge to anti-fracking legislation. Retrieved from <http://www.dw.com/en/french-court-rejects-challenge-to-anti-fracking-legislation/a-17151744>.

<sup>33</sup> BBC News. (2012, January 19). Bulgaria bans shale gas drilling with "fracking" method. *BBC*. Retrieved from <http://www.bbc.com/news/world-europe-16626580>.

<sup>34</sup> Federal Ministry for Economic Affairs and Energy, Germany. (undated). Fracking. Retrieved from <http://www.bmwi.de/Redaktion/DE/Artikel/Industrie/fracking.html>.

<sup>35</sup> Umwelt Bundesamt (Federal Environment Agency). (2017, February 20). Fracking. Retrieved from <https://www.umweltbundesamt.de/themen/wasser/gewaesser/grundwasser/nutzung-belastungen/fracking> (in German).

## Ireland

- Hydraulic fracturing for the exploration and extraction of onshore petroleum has been prohibited since July 2017.<sup>36</sup>
- Attempts to include offshore fracking in the ban were defeated.<sup>37</sup>

## United Kingdom

### England

- A temporary moratorium on hydraulic fracturing, following two earth tremors linked to the practice in 2011, was lifted in 2012.<sup>38</sup>
- While no commercial production of shale gas has yet occurred, exploration has been occurring and a number of companies have permits and plan to commence fracking on sites across England in 2018.<sup>39</sup>

### Scotland

- A two year moratorium on both hydraulic fracturing (fracking) and underground coal gasification (UCG) was enacted in 2015.<sup>40</sup>
- In October 2017 the Scottish Government announced the moratorium on fracking would be extended indefinitely, relying on Government's planning powers to ban the industry.<sup>41</sup>
- The Scottish Government had previously announced that it would not allow UCG to go ahead.<sup>42</sup>

### Wales

- A moratorium on fracking and underground coal gasification has been in place since 2015, which requires Councils to refer planning applications to the environment secretary. The moratorium, however, does not apply to applications for exploratory drilling.<sup>43</sup>

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<sup>36</sup> See the *Petroleum And Other Minerals Development (Prohibition Of Onshore Hydraulic Fracturing) Act 2017*.

<sup>37</sup> O'Halloran, M. (2017, May 31). Bill banning onshore fracking passed by Dáil. *The Irish Times*. Retrieved from <https://www.irishtimes.com/news/politics/oireachtas/bill-banning-onshore-fracking-passed-by-d%C3%A1il-1.3103027>.

<sup>38</sup> Gosden, E. (2015, 17 December). Fracking: plans to drill 68 new shale gas wells unveiled. *The Telegraph*. Retrieved from <https://www.telegraph.co.uk/news/earth/energy/fracking/12056209/Fracking-plans-to-drill-for-shale-gas-at-68-new-sites-unveiled.html>.

<sup>39</sup> Vaughan, A. (2017, 25 December). UK fracking to begin in earnest in 2018 after tough year for industry. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2017/dec/25/fracking-start-2018-shale-gas-uk-industry-protests>;

Goldsmith, C. (2018, 12 January). Cuadrilla prepares for fracking at Preston New Road after "sizeable" gas discovery. *CITY A.M.* Retrieved from <http://www.cityam.com/278704/cuadrilla-prepares-fracking-preston-new-road-after-sizeable>.

<sup>40</sup> Nicolson, S. (2017, October 3). Scotland and fracking: How did we get here? *BBC News*. Retrieved from <http://www.bbc.com/news/uk-scotland-scotland-politics-41483642>.

<sup>41</sup> Carrell, S. (2017, October 3). Scottish government bans fracking after public opposition. *The Guardian*. Retrieved from <https://www.theguardian.com/uk-news/2017/oct/03/scottish-government-bans-fracking-scotland-paul-wheelhouse>.

<sup>42</sup> Nicolson, S. (2017, October 3). Scotland and fracking: How did we get here? *BBC News*. Retrieved from <http://www.bbc.com/news/uk-scotland-scotland-politics-41483642>.

<sup>43</sup> Flint, R. (2017, October 3). Fracking ban: What is the situation in Wales? *BBC News*. Retrieved from <http://www.bbc.com/news/uk-wales-politics-41489253>.



## Northern Ireland

- Northern Ireland's Environment Minister announced in 2015 that no hydraulic fracturing would occur unless there was sufficient and robust evidence of its environmental safety.<sup>44</sup>
- In 2014, an application to conduct exploratory drilling in County Fermanagh by Australian company, Tamboran Resources, was rejected.<sup>45</sup>

## Denmark

- Denmark imposed a moratorium on fracking in 2012, however, two exploration licenses issued prior to the ban, to the French energy company Total, remained valid.<sup>46</sup>
- Initial drilling commenced in May 2015, but in August 2015 Total announced it was pulling out of the project due to inadequate deposits. At the time of Total's decision to end exploration, Lars Lilleholt, Denmark's Minister for Energy, indicated that he did not expect more fracking in the country in the near future as no new licenses had been approved.<sup>47</sup>

## Netherlands

- Hydraulic fracturing has been used in the Netherlands since the 1950s in the production of conventional gas.
- A number of exploration permits in relation to shale gas reserves were granted by the Dutch government, however, in 2013 a temporary moratorium was placed on hydraulic fracturing and exploratory drilling for shale gas.
- In July 2015, the previous Dutch Minister of Economic Affairs announced that no commercial exploration or extraction of shale gas would take place in the Netherlands over the next five years.<sup>48</sup>
- In 2018, the current Dutch Minister of Economic Affairs stated that shale gas was no longer an option in the Netherlands.<sup>49</sup>

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<sup>44</sup> Campbell, J. (2015, 28 September). Mark H Durkan publishes planning blueprint for Northern Ireland. *BBC News*. Retrieved from <http://www.bbc.com/news/uk-northern-ireland-34377268>.

<sup>45</sup> RT. (2014, 12 August). N. Ireland fracking: minister rejects global energy firm's drilling proposal. Retrieved from <https://www.rtt.com/uk/179784-fracking-proposal-rejected-protest>.

<sup>46</sup> Vinson & Elkins (2016, September). Shale & Fracking Tracker. *VELaw.com*. Retrieved from <https://www.velaw.com/Shale---Fracking-Tracker/Global-Fracking-Resources/Denmark>.

<sup>47</sup> Jacobsen, H. (2015, August 18). Total drops shale gas project in Denmark. *Euractiv.com*. Retrieved from <https://www.euractiv.com/section/energy/news/total-drops-shale-gas-project-in-denmark>.

<sup>48</sup> Government of the Netherlands. (2015, 10 July). No extraction of shale gas during the next five years. Retrieved from <https://www.government.nl/latest/news/2015/07/10/no-extraction-of-shale-gas-during-the-next-five-years>.

<sup>49</sup> DutchNews.nl. (2018, 16 February 2018). Dutch minister confirms ban on drilling, shale gas 'not an option'. Retrieved from <http://www.dutchnews.nl/news/archives/2018/02/dutch-minister-confirms-ban-on-drilling-shale-gas-not-an-option>.

## Sweden

- In 2008 the Swedish government granted the resources company Shell permission to test for shale gas in Skåne. In 2011, exploration efforts concluded that the reserves were limited and extraction would be economically unviable and Shell abandoned the project.<sup>50</sup>
- The only other company that was still looking for shale gas in Sweden, Gripen Gas,<sup>51</sup> ceased trading and was deregistered in April 2016.<sup>52</sup>
- More recently, hydraulic fracturing has been tested at two existing iron ore mines in Northern Sweden in attempts to make the mines safer.<sup>53</sup>

## Poland

- Despite hopes back in 2010 that Poland's shale gas reserves (once estimated to be some of the most favourable shale gas resources in Europe) would mark fossil fuel independence for the country,<sup>54</sup> as at May 2016, no shale gas had been produced in commercial quantities and many of the world's major energy companies had pulled out due to unsatisfactory results.<sup>55</sup>

## Romania

- In February 2015, oil and gas giant Chevron announced it was suspending its shale gas plans for Romania stating that the fracking project did not make economic sense.<sup>56</sup>
- As at October 2015, no national ban was in place and valid exploration permits existed, however there have been no reports of any sizeable production of unconventional gas.<sup>57</sup>

## Ukraine

- In January 2013, Shell signed a major gas deal with Ukraine valued at approximately 7.5 billion Euros,<sup>58</sup> but subsequently withdrew after separatist violence erupted near the Yuzivska shale gas field in Ukraine's east.<sup>59</sup>

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<sup>50</sup> Vinson & Elkins. (Undated) Shale & Fracking Tracker: Sweden. *Velaw.com*. Retrieved from <https://www.velaw.com/Shale---Fracking-Tracker/Global-Fracking-Resources/Sweden>.

<sup>51</sup> Zettersten, P. (2013, 13 November). "Fracking" – not applicable in Sweden. *Sverige Radio*. Retrieved from <http://sverigesradio.se/sida/artikel.aspx?programid=3345&artikel=5702936>.

<sup>52</sup> Gripen Oil & Gas. (2016, 8 April). Kommuniqué från extra bolagsstämma i Gripen Oil & Gas AB (in Swedish). Retrieved from <http://news.cision.com/se/gripen-oil---gas/r/kommunike-fran-extra-bolagsstamma-i-gripen-oil---gas-ab--publ-,c9951950>.

<sup>53</sup> Radio Sweden. (2017, 9 October). Sweden may start fracking to make mines safer. *Barents Observer*. Retrieved from <https://thebarentsobserver.com/en/industry-and-energy/2017/10/sweden-may-start-fracking-north>.

<sup>54</sup> The Economist. (2014, November 14). Shale Fail. Retrieved from <https://www.economist.com/blogs/easternapproaches/2014/11/polish-fracking>.

<sup>55</sup> Harper, J. (2016, May 24). Polish shale fits the rocks. *Deutsche Welle*. Retrieved from <http://www.dw.com/en/polish-shale-hits-the-rocks/a-19279069>.

<sup>56</sup> Rosenfeld, E. (2015, February 23). European shale dream is dying before it started. *CNBC*. Retrieved from <https://www.cnbc.com/2015/02/23/chevron-withdraws-from-romania-shale-gas-projects.html>.

<sup>57</sup> Herron, D. (2015, October 16). Fracking may be returning to Romania, Oil & Gas summit scheduled for March 2016. *The Long Tail Pipe*. Retrieved from <https://longtailpipe.com/2015/10/16/fracking-may-be-returning-to-romania-oil-gas-summit-scheduled-for-march-2016>.

<sup>58</sup> Euronews. (2013, January 25). Shell for shale: Ukraine signs major deal. Retrieved from <http://www.euronews.com/2013/01/25/shell-for-shale-ukraine-signs-major-deal>.

<sup>59</sup> Rachkevych, M. (2015, 11 June). Shell pulls out of east Ukraine gas exploration project. *KyivPost*. Retrieved from <https://www.kyivpost.com/article/content/business/shell-pulls-out-of-east-ukraine-gas-exploration-project-390803.html>.

- Despite reports that a contract for exploitation of the Yuzivska shale gas field was later won by Emerstone Energy,<sup>60</sup> as at the end of 2017 it appears that the gas field lies dormant.<sup>61</sup>
- Other announcements indicating a desire to push ahead with the development of Ukraine's unconventional gas reserves were made in 2017, with Belarusneft and Romania's Tacrom winning a tender for the implementation of 40 fracking wells.<sup>62</sup>
- The State-owned natural gas explorer Ukrgezvydobuvannya also announced plans to invest in hydraulic fracturing on a large scale.<sup>63</sup>

## Portugal

- Hydraulic fracturing remains a possibility in Portugal, where both offshore and onshore gas and oil exploration has taken place in the Algarve region in recent years.<sup>64</sup>

## Spain

- Despite reports that Spain contains a gas supply potential equal to 70 years of consumption, and the Spanish Government changing legislation to make it more favourable for fracking, commercial extraction of unconventional gas has not taken place.
- Several regional governments in Spain tried to ban fracking but these laws were struck down by Spain's Constitutional Court. In response, some regional governments have allowed fracking but imposed extremely strict conditions, effectively preventing projects from proceeding.<sup>65</sup>

## South America

### Uruguay

- Legislation was passed in December 2017 banning fracking for a four-year period.<sup>66</sup>

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<sup>60</sup> Zinets, N. (2016, July 27). Emerstone Energy wins Ukraine shale search after Shell pulls out. Retrieved from: <https://www.reuters.com/article/ukraine-shalegas/emmerstone-energy-wins-ukraine-shale-search-after-shell-pulls-out-idUSL8N1AD3EH>.

<sup>61</sup> Kovensky, J. (2017, September 1). New OPIC president wants to expand investor support in Ukraine. *Kyivpost.com*. Retrieved from <https://www.kyivpost.com/business/new-opic-president-wants-expand-investor-support.html>.

<sup>62</sup> Interfac-Ukraine. (2017, July 27). Belarusneft and Romania's Tacrom win Ukrgezvydobuvannya tender for 40 fracking operations. *Kyivpost.com*. Retrieved from <https://www.kyivpost.com/ukraine-politics/belorusneft-romania-tacrom-win-ukrgazvydobuvannya-tender-40-fracking-operations.html>.

<sup>63</sup> Kovensky, J. (2017, October 6). State gas producer is key to energy independence. *Kyivpost.com*. Retrieved from <https://www.kyivpost.com/business/state-gas-producer-key-energy-independence.html>.

<sup>64</sup> Rodrigues, E. (2016, 15 January). Primeiro ministro diz que prospeção de gás e petróleo no Algarve é para continuar (in Portuguese). Retrieved from <http://www.sulinformacao.pt/2016/01/antonio-costa-sobre-petroleo>.

<sup>65</sup> Planelles, M. (2017, 16 March). Spain's fracking bubble bursts. *El Pais*. Retrieved from [https://elpais.com/elpais/2017/03/14/inenglish/1489505343\\_720028.html](https://elpais.com/elpais/2017/03/14/inenglish/1489505343_720028.html).

<sup>66</sup> Telesur. (2017, December 20). Uruguay Bans Fracking for 4 Years. Retrieved from <https://www.telesurtv.net/english/news/Uruguay-Bans-Fracking-for-4-Years-20171220-0008.html>.