

# UNTOUCHABLE: THE CLIMATE CASE AGAINST ARCTIC DRILLING

 **OILCHANGE**  
INTERNATIONAL

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# SUMMARY

There is a clear logic that can be applied to the global challenge of addressing climate change: when you are in a hole, stop digging. If we are serious about tackling the global climate crisis, we need to stop exploring, expanding, and ultimately exploiting fossil fuels.

According to the best available science, at least three-quarters of the fossil fuels that we already have access to must stay in the ground to have a decent chance of limiting global warming to two degrees Celsius or less (a temperature that will already have devastating impacts on many of the world's most vulnerable regions).<sup>1</sup>

And yet companies like Royal Dutch Shell continue to sink billions of dollars into the hunt for unburnable carbon in places like the U.S. offshore Arctic.<sup>2</sup> Supported by complicit governments through regulatory permits and subsidies, these efforts are wholly irreconcilable with stated national and international objectives to address climate change.

Projects that expand or break open new reserves and generate more greenhouse gas emissions clearly fail a test of what is safe for the global climate. And this *climate test* principle is what governments must begin applying to fossil fuel projects – just as President Obama has promised to do with the Keystone XL tar sands pipeline. Anything that would exacerbate the problem of climate change, and that is not in line with our national and international target of limiting global warming to “safe” levels, should come off of the table.

As the world begins to grapple with how to divide up a limited carbon budget, there are some fossil fuels that will not make the cut no matter how the budget is split. U.S. Arctic offshore oil is one of these untouchable fossil fuel reserves.

An iceberg spotted in calm waters on the edge of Kane Basin, in late evening light.



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<sup>1</sup> Intergovernmental Panel on Climate Change, “Climate Change 2014 Synthesis Report,” p.63. [https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5\\_SYR\\_FINAL\\_All\\_Topics.pdf](https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_All_Topics.pdf)  
<sup>2</sup> Oil Change International, Greenpeace UK, Platform, “Frozen Future: Shell and the U.S. Offshore Arctic,” February 2015. <http://priceofoil.org/2015/02/18/frozen-future-shell-us-offshore-arctic/>



#### KEY FINDINGS:

- ❑ **Arctic drilling would unlock new and unburnable carbon that does not fit in a climate-safe world.** Fossil fuels that have not yet been proven are not burnable in a climate-safe world, given that the vast majority of the fossil fuels we already have access to will need to be left in the ground.
- ❑ **Industry and government claims that Arctic oil is “needed” are based on oil supply and demand scenarios that will lead to at least 5 degrees Celsius warming by 2100 – i.e. climate disaster.**
- ❑ The Obama Administration relies on this disastrous scenario as its Reference Case for long-term U.S. oil supply and demand planning. Under this scenario, U.S. CO<sub>2</sub> emissions would be 190 percent higher than ‘safe’ climate levels in 2040.
- ❑ **Arctic oil will mean high oil – and gasoline – prices for decades.** Arctic oil is high cost (i.e. expensive to find, produce, and ship), and the global oil demand scenarios that would be required to make it profitable not only lead to catastrophic levels of global warming, but also project oil prices that are 35 to 50% higher than oil prices in a safe climate scenario.
- ❑ **Large investments in Arctic oil are a multi-billion dollar bet that the world will fail to address climate change,** and continue hazardous levels of oil use, for decades to come.
- ❑ From an investor perspective, U.S. Arctic oil is an asset that has a high risk of becoming stranded as billions are poured into exploration for a resource that ultimately cannot be burned safely. A recent study in Nature found that no Arctic oil production was consistent with a climate safe scenario. Zero.
- ❑ U.S. Arctic oil will be exposed to increasing risks associated with mounting public opposition. These public accountability risks have cost other high carbon industries, such as the Alberta tar sands, billions of dollars, and are the most significant barrier to fossil fuel infrastructure expansion. Concerned citizens are increasingly willing to step up where governments and markets are failing to protect the climate, the environment, and impacted communities.

The fossil fuel industry wants us to believe that oil, gas and coal will continue to dominate our energy supply for decades to come. This *fossil fuel fatalism* is far from reality, yet it is the basis for flawed policy around the world and a justification for ongoing exploration. It is time to align energy policy with climate science, and start planning for the energy transition everyone knows we must make if we are to meet our collective climate goals.

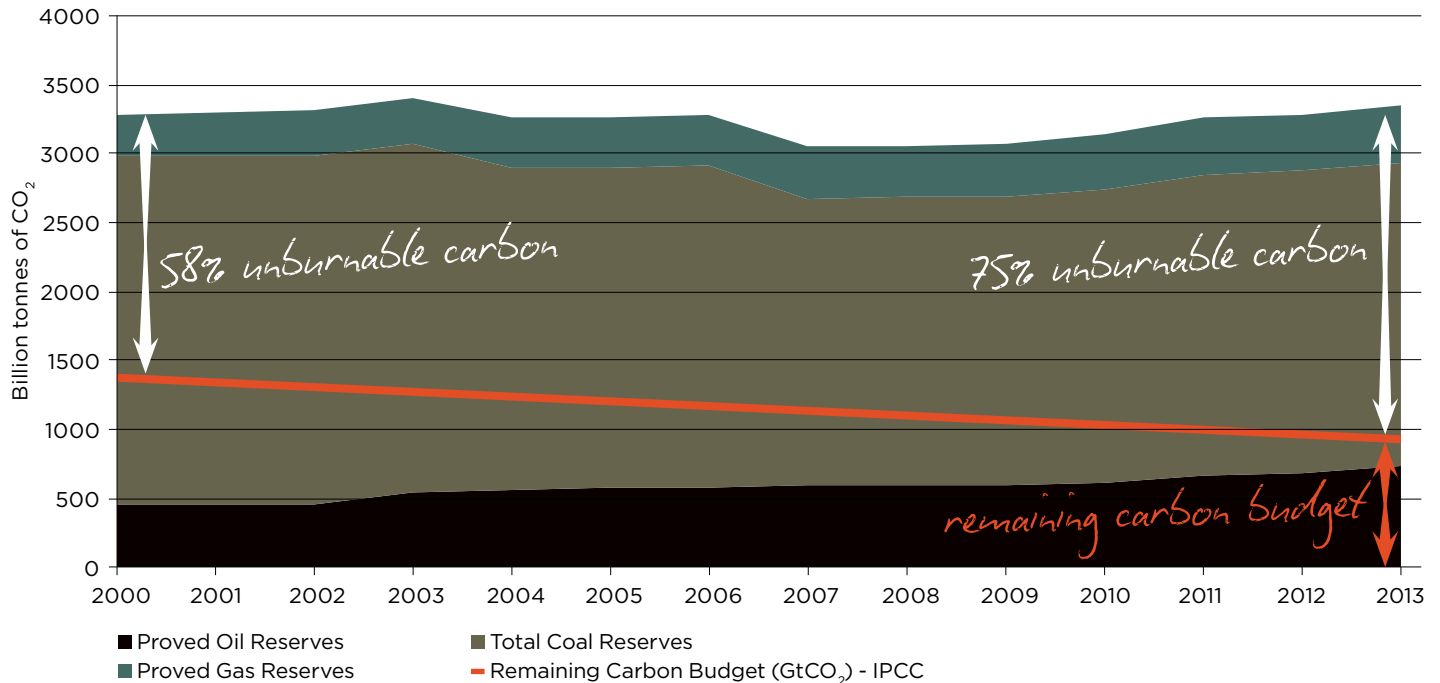
# UNBURNABLE CARBON

Fully three-quarters of the fossil fuels that we already have access to cannot be burned in order to have a two-in-three chance of keeping global warming to less than 2 degrees C.<sup>3</sup> A clear implication of this is that exploration for new fossil fuel reserves - in particular, high cost frontier fossil fuels - is inconsistent with efforts to stay within our global carbon budget.

This carbon budget gets smaller every year as the atmosphere fills with more greenhouse gases, and yet companies and governments continue to pour hundreds of billions of dollars into exploration efforts to find new reserves (Figure 1). Few examples of this irrational practice are clearer than the hunt for oil in the Arctic Ocean.

Offshore Arctic reserves are not currently proven reserves and should therefore be off the table. All credible analyses indicate that they are simply too expensive to be profitable in a climate-constrained world.

**Figure 1: Carbon Content of Fossil Fuel Reserves, Unburnable Carbon, and the Carbon Budget** Source: Oil Change International using IPCC, EIA, IEA



# ARCTIC OIL FAILS THE CLIMATE TEST

The United States and the world have agreed in multiple international forums to limit average global temperature rise to below 2 degrees C. At this point, the world is dangerously close to passing the point at which that goal can be achieved.

Because of this dire situation, a climate test must be applied to all fossil fuel related policies and projects. The climate test requires energy projects or policy decisions to be evaluated on the basis of whether they fit within the United States' existing commitment to limit global warming to no more than 2 degrees C above pre-industrial levels.<sup>4</sup> If a project does not fit within a science-based scenario that meets this goal, it is not in the public interest and should not be approved.

As President Barack Obama noted in June 2013 in regards to the Keystone XL pipeline:

*"[O]ur national interest will be served only if this project does not significantly exacerbate the problem of carbon pollution."*

Thinking about the impact of infrastructure on our climate is critical, as many of these projects have operational lifetimes that span decades. Infrastructure that is being built today "locks in" additional carbon, because once it is operational there are few if any financial incentives for companies to stop production.

Therefore this 'climate test' should be applied to all legislation, policy and permits related to infrastructure to extract, transport, or process fossil fuels.

Drilling in the Arctic clearly fails this climate test, as there is no existing (or imaginable) 2 degrees C scenario in which Arctic drilling plays a role.

In fact, the only scenarios published in defense of Arctic oil exploration are consistent with at least 5 degrees Celsius of global warming – a level widely considered to be disastrous.

Adding Arctic oil to the existing pool of carbon "exacerbates the problem of carbon pollution" by adding carbon to our global reserves that by any measure must be considered unburnable in a safe-climate scenario. If the President is to be consistent in applying such a climate test beyond one project and to the nation's energy policy overall, he must view Shell's drilling for oil in the Arctic as a proposal that fails the climate test.

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<sup>4</sup> This commitment to limiting warming to below 2 degrees C has been affirmed by the Obama Administration in a number of global agreements, including the 2009 Copenhagen Accord, 2010 Cancun Agreements, numerous G7/8/20 declarations, and in various other international forums.

# THE PERCEPTION OF NEED AND A BET ON CLIMATE FAILURE

*The Arctic is an important component of the Administration's national energy strategy, and we remain committed to taking a thoughtful and balanced approach to oil and gas leasing and exploration offshore Alaska.*

– Secretary of the Interior, Sally Jewell, March 2015

*Why pursue Alaskan exploration and development now? The answer to this question lies in the long lead times involved in exploration and development in Alaska, compared with other sources of U.S. oil production, and the potentially transitory nature of the current world oil supply/demand situation. If development starts now, the long lead times necessary to bring on new crude oil production from Alaska would coincide with a long-term expected decline of U.S. Lower 48 production. Alaskan opportunities can play an important role in extending U.S. energy security in the decades of the 2030s and 2040s. ... However, these new sources of crude oil production in the 2030s and 2040s will only be available if new offshore exploration drilling can ramp up in Alaska during this decade.*

– National Petroleum Council Report, March 2015

To date, both the Obama Administration and the oil industry have defended exploration of Arctic oil as necessary to meet future U.S. energy needs. Unfortunately, that perception of need is based on projections of oil demand that will clearly lead to climate disaster.

The Bureau of Ocean Energy Management (BOEM), which is part of the Department of the Interior (DOI), released its Draft Proposed Program for oil and gas leasing in the U.S. Outer Continental Shelf (OCS) for the period 2017-2022 in January of 2015.<sup>5</sup> The leasing program includes additional leasing in the Chukchi Sea.

In a section of the document entitled “National Energy Needs” the BOEM refers to the Obama Administration’s “national strategy to meet U.S. energy needs,” which is articulated in a May 2014 document called, “The All-of-the-Above Energy Strategy as a Path to

Sustainable Economic Growth.”<sup>6</sup> In this document the Administration cites the Energy Information Administration’s (EIA) Reference Case forecast for U.S. oil supply and demand and discusses the need to pursue additional domestic oil production in order to enhance U.S. energy security. It also lists further leasing in the OCS as one of a selection of “initiatives” the Administration is undertaking.

The EIA Reference Case is a climate disaster and should not be used to formulate energy policy. It is a forecast that shows where U.S. and global energy supply and demand will go if policies to safeguard the climate are not urgently implemented. The EIA Reference Case results in the precise opposite of the stated policy goal of the Administration when it comes to climate change. Basing the nation’s energy policy on the EIA Reference Case is akin to planning to achieve climate disaster.

The International Energy Agency (IEA) also produces energy forecasts and its forecasts include a Current Policies Scenario (CPS), which is broadly aligned with the EIA Reference Case.<sup>7</sup> In addition it publishes a 450 Scenario (450S), which models what the world’s energy and emissions trajectories would look like if carbon in the atmosphere were to be limited to 450 parts per million (PPM), a recognized threshold that climate scientists believe will give a 50 percent chance of containing average global temperature rise to within the ‘safe’ benchmark limit of 2 degrees C. The IEA states that the Current Policies Scenario is likely to lead to a catastrophic 5.3 degrees of warming, a level that will fundamentally undermine life on the planet as we know it.<sup>8</sup>

5 BOEM, “2017–2022 Outer Continental Shelf Oil and Gas Leasing Draft Proposed Program” January 2015. <http://www.boem.gov/2017-2022-DPP/> See page 4-1 for the discussion of energy needs.

6 Executive Office of the President of the United States, “The All-Of-The-Above Energy Strategy as a Path to Sustainable Economic Growth”. May 2014, [https://www.whitehouse.gov/sites/default/files/docs/aota\\_energy\\_strategy\\_as\\_a\\_path\\_to\\_sustainable\\_economic\\_growth.pdf](https://www.whitehouse.gov/sites/default/files/docs/aota_energy_strategy_as_a_path_to_sustainable_economic_growth.pdf)

7 The IEA outline its various scenarios at: <http://www.iea.org/publications/scenariosandprojections/>

8 On page 52 of the WEO 2012, the IEA states that emissions associated with the Current Policies Scenario will lead to 5.3°C of average global warming. <http://www.worldenergyoutlook.org/publications/weo-2012/>



Figure 2: EIA and IEA Forecasts for U.S. Energy Related CO<sub>2</sub> Emissions Source: Oil Change International using EIA (2015) and IEA (2014)

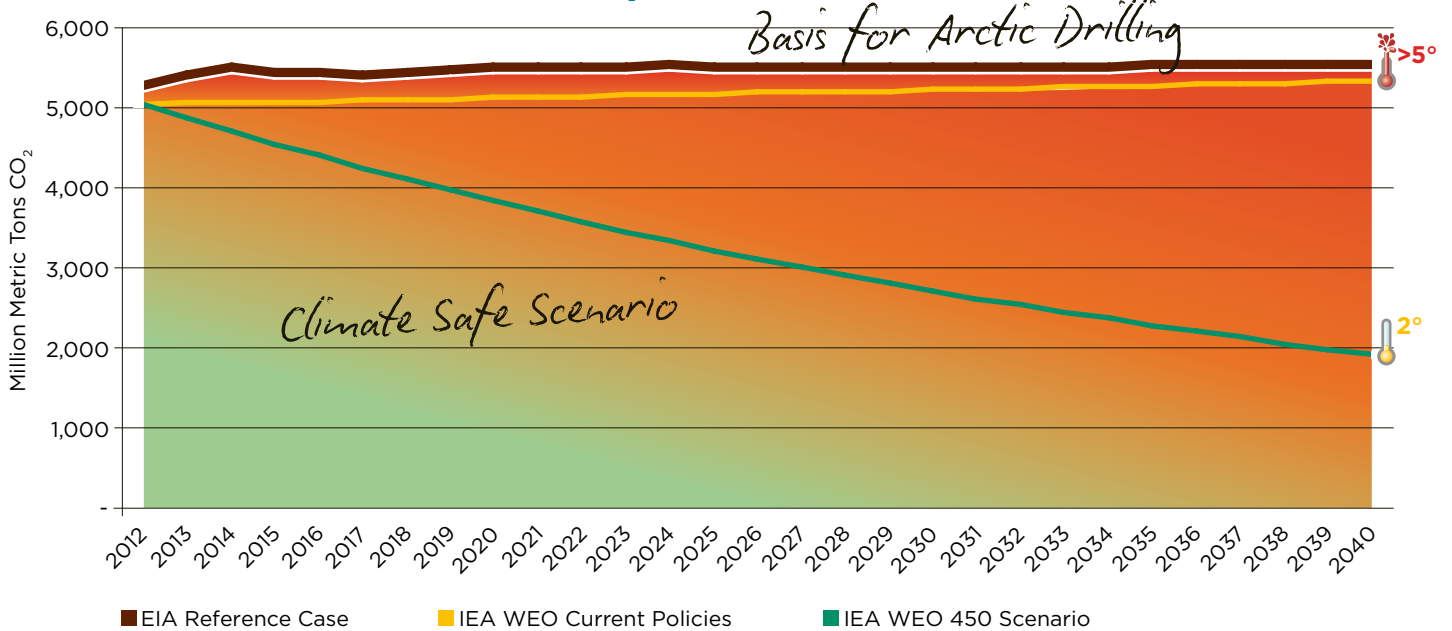


Figure 3: Global Oil Supply in EIA Reference Case and IEA 450 Scenario Source: Oil Change International using EIA (2015) and IEA (2014)

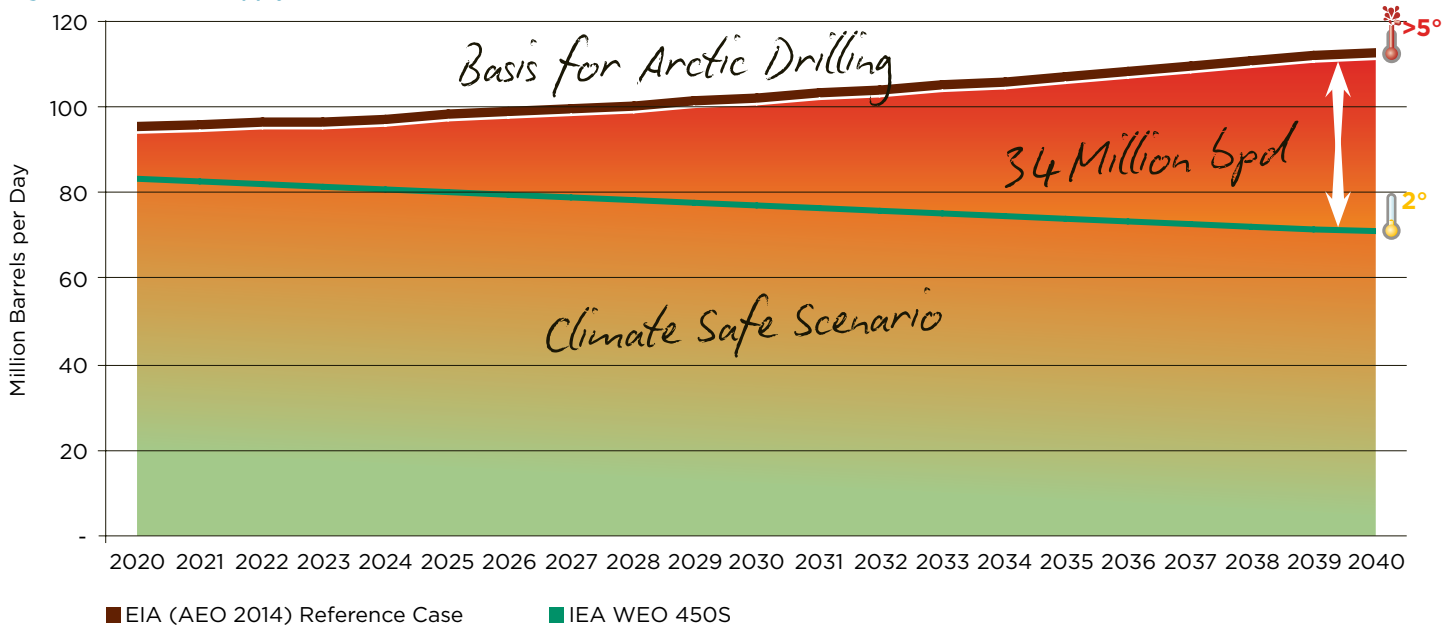


Figure 2 shows the difference between U.S. energy-related CO<sub>2</sub> emissions in the EIA Reference Case, the IEA's CPS and the IEA's 450S. In the EIA Reference Case, U.S. CO<sub>2</sub> emissions in 2040 would be over 3.6 billion tons a year, or 190 percent, more than they should be according to the IEA 450 Scenario. It could not be clearer that basing energy policy on the EIA's Reference Case is a recipe for a catastrophe.

The BOEM leasing program document further cites the EIA Reference Case to

support greater oil and gas production, stating that the "EIA expects the United States to rely on more oil and natural gas to meet its energy demands, even as alternative sources of energy provide an increasing share of U.S. energy needs."<sup>9</sup>

Again, the reliance on the EIA Reference Case forecast for oil supply and demand misleads the public and policymakers into believing that the U.S. requirement for oil 25 years from now will inevitably be the same as it is today despite clear evidence

that if that were to be the case, we will have failed to achieve the nation's stated climate policy goals.

The IEA does not provide data in the 450S for U.S. oil supply but its forecast for global oil supply in 2040 is over 34 million barrels per day less than the EIA's, a 30 percent difference (see Figure 3). As the U.S. generally consumes over 20 percent of global oil, it is clear that U.S. oil demand, and supply, must be substantially curtailed in a climate safe world.

## ARCTIC OIL IS TOO EXPENSIVE FOR THE CLIMATE

Extraction in the U.S. Arctic Ocean is at the top end of estimated global oil production cost curves – in other words, it is potentially among the most expensive sources of oil on the planet.<sup>10</sup> The collapse of global oil prices in the past year has served as a clear reminder that oil market dynamics are highly volatile. Yet even in an industry best-case scenario, Arctic oil production would not begin for another decade, meaning the profitability of Arctic oil depends on sustained high oil prices decades into the future.<sup>11</sup>

According to recent research from the International Energy Agency and the New Climate Economy, oil prices will be 35 to 50 percent lower in a climate safe scenario.<sup>14</sup> As the world moves to tackle climate change, oil demand will necessarily decline (we are already seeing a decline in global demand growth), and subsequently prices will be lower.<sup>15</sup> As Figure 4 shows, the IEA forecasts global oil prices under three scenarios. The Rystad Energy UCube database shows that U.S. Arctic OCS oil production is currently uncommercial under current oil price forecasts. While precise breakeven pricing can only be estimated for fields in which oil is yet to

### Climate irony

The Arctic is disproportionately impacted by global climate change, warming twice as fast as the world average.<sup>12</sup> Recent decades have seen unprecedented melting of Arctic sea ice – one of the key regulators of global temperatures and ocean currents. It is this disappearance of sea ice, and the longer ice-free season that is allowing oil companies to explore well beyond what was

possible even a few years ago. Arctic sea ice reached its lowest maximum ever recorded in March of 2015.<sup>13</sup>

It is tragic irony that the impacts of the challenge we need to solve are being exploited by the very industry that created them in the first place – all in an effort to dig us even deeper into the same hole.

be discovered, Rystad models a breakeven price of between \$150 and \$250 per barrel for various fields in the U.S. Arctic OCS. The very bottom of this range is where the IEA predicts oil prices will be in a 5 degree-plus scenario. It could not be clearer that Arctic oil is only viable in a scenario in which the climate is irrevocably destroyed.

For this reason, Shell's multi-billion dollar investment in Arctic exploration – oil that will not come online for a decade and only in a sustained high oil price scenario – is a bet that governments will fail to live up to their commitments to tackle climate change.<sup>16</sup> A world where there is demand for Arctic oil will be a world that has

soared past safe climate limits and is en-route to global temperatures that are multiple times higher than what is considered 'safe'.

This bet on failure has been confirmed by recent research published in the journal *Nature*.<sup>17</sup> This approach to modeling identified global reserves that would remain unburned if an "economically rational" approach to addressing climate change were taken. Among its conclusions was that **no Arctic oil would be exploited** given the high-cost and long-term time frame.

10 Carbon Tracker Initiative, "Carbon supply cost curves: evaluating financial risk to oil capital expenditures," May 2014. <http://www.carbontracker.org/wp-content/uploads/2014/09/CTI-Oil-Report-Oil-May-2014-13-05.pdf>

11 Oil Change International, Greenpeace UK, Platform, "Frozen Future: Shell's ongoing gamble in the U.S. Arctic," February 2014. <http://priceofoil.org/2014/02/26/frozen-future-shells-ongoing-gamble-us-arctic/>

12 National Public Radio, "Arctic is warming twice as fast as world average," December 2014. <http://www.npr.org/2014/12/18/371438087/arctic-is-warming-twice-as-fast-as-world-average>

13 National Snow & Ice Data Centre, "Arctic sea ice maximum reaches lowest extent on record," March 2015. <http://nsidc.org/news/newsroom/arctic-sea-ice-maximum-reaches-lowest-extent-record>

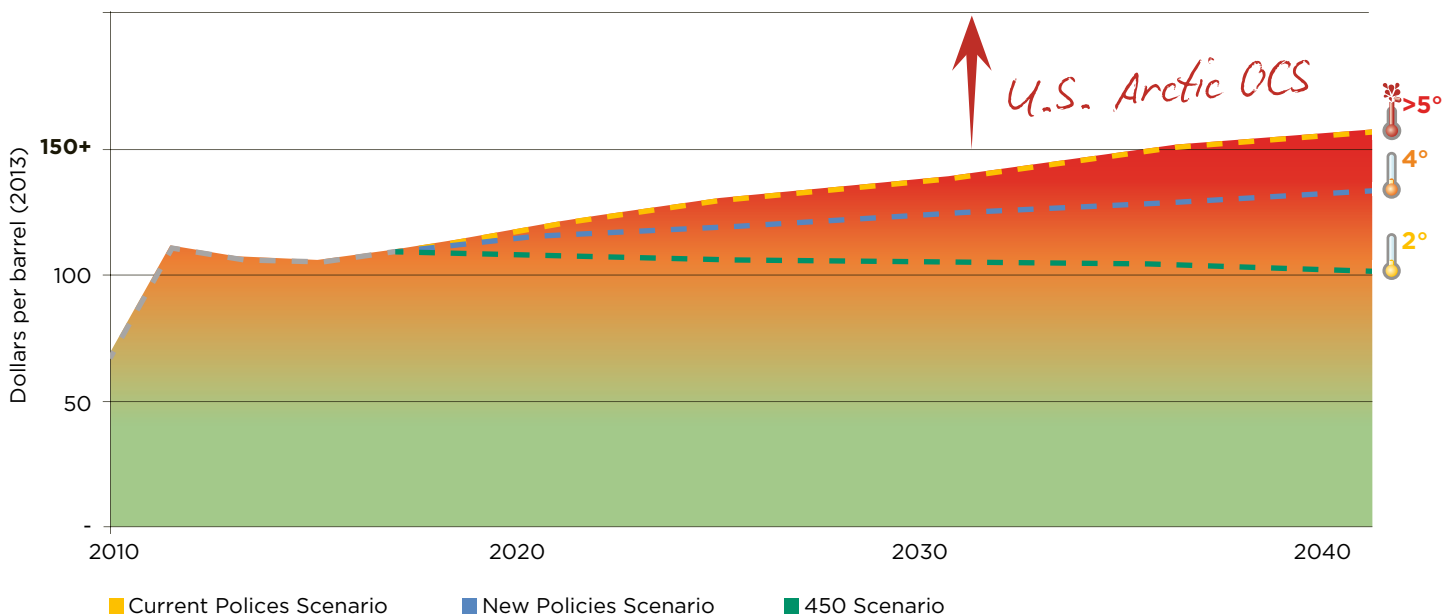
14 The Global Commission on Economy and Climate, "Oil prices and the new climate economy," 2015. <http://2014.newclimateeconomy.report/wp-content/uploads/2015/05/Oil-prices-and-the-New-Climate-Economy.pdf>

15 David Sheppard, "Oil to stay lower for longer; Chinese demand growth to slow – Goldman," Reuters, January 2005. <http://www.reuters.com/article/2015/01/27/us-oil-goldman-currie-idUSKBNOL024220150127>

16 Hannah McKinnon, "Fossil fuel fatalism and the untouchable arctic." Oil Change International, May 2015. <http://priceofoil.org/2015/05/20/fossil-fuel-fatalism-untouchable-arctic/>

17 Christopher McGlade and Paul Ekins. 'The geographical distribution of fossil fuels unused when limiting global warming to 2°C.' *Nature*. January 8, 2015. Page 187, vol 517.

Figure 4: Oil Price in Three IEA Scenarios and the Cost of U.S. Offshore Arctic Oil Source: Oil Change International using IEA and Rystad Energy UCube



Consider the assumptions that Shell must be making to assume a profitable future for Arctic oil. It is counting on the world looking identical to what it looked like five years ago: high oil prices, growing oil demand, weak or non-existent global climate policies, and limited technological change in energy supply and demand. All of these factors have been shown to be in flux or shifting:

- ☒ Global oil prices nose-dived late last year partly as a result of slowing demand growth, partly as a result of an oil supply glut;<sup>18</sup>
- ☒ the link between GDP growth and oil demand growth is getting weaker;<sup>19,20</sup>
- ☒ governments are gearing up for more ambitious climate action in the lead up to Paris;<sup>21</sup>
- ☒ growth and uptake in renewables has exceeded all forecasts and expectations;<sup>22</sup> and
- ☒ electric vehicles and battery technology has growing potential to be a disruptive force on oil demand for transportation.<sup>23</sup>

Collectively, these assumptions amount to willful denial of the future energy paths that the world desperately needs to avoid climate catastrophe.

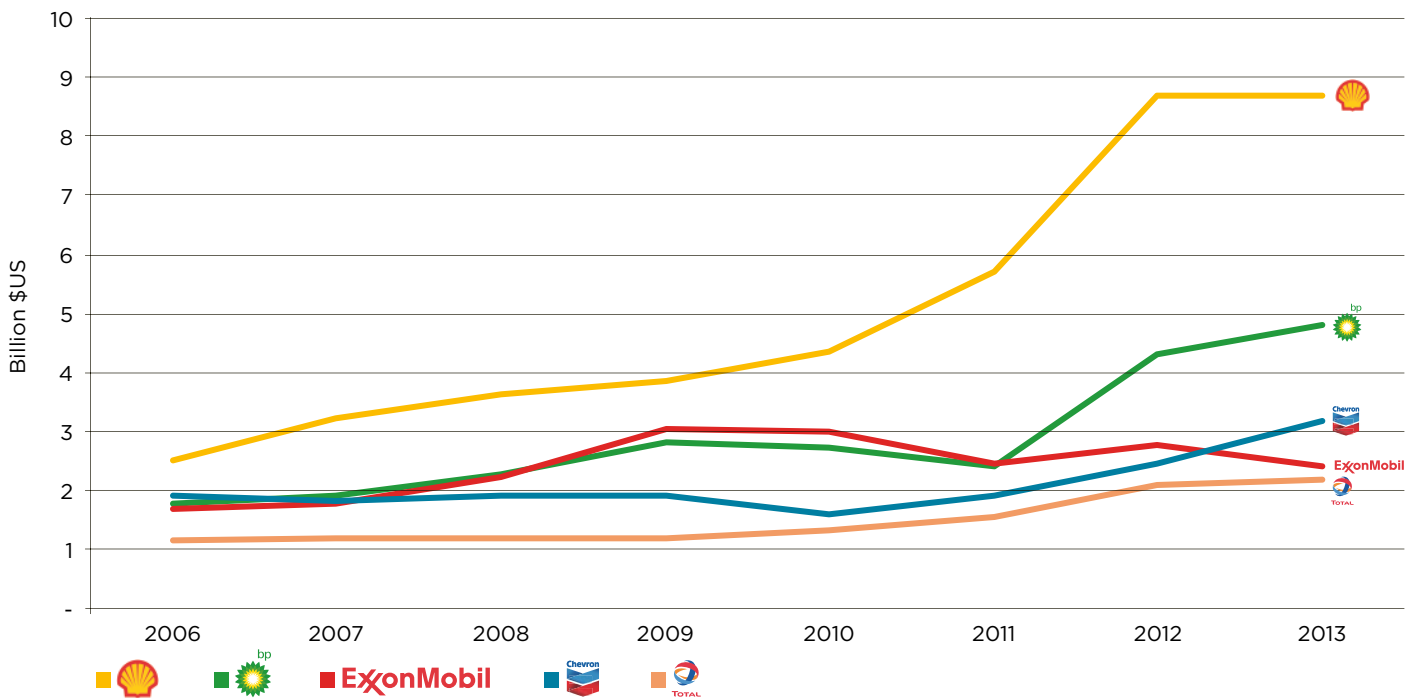
18 Tom Randall, "These charts show clearly why oil prices crashed," Bloomberg, March 2015. <http://www.bloomberg.com/news/articles/2015-03-30/these-charts-show-clearly-why-oil-prices-crashed>  
 19 David Sheppard, "Oil to stay lower for longer; Chinese demand growth to slow - Goldman," Reuters, January 2015. <http://www.reuters.com/article/2015/01/27/us-oil-goldman-currie-idUSKBNOL024220150127>  
 20 Bloomberg, "America is shaking off its addiction to oil," December 2014. <http://www.bloomberg.com/graphics/2014-america-shakes-off-oil-addiction/>  
 21 World Resources Institute, "Tracking 2020 climate action pledges on the road to Paris," March 2015. <http://www.wri.org/blog/2015/03/tracking-2020-climate-action-pledges-road-paris>  
 22 Oil Change International, "Forecasts of convenience: why is the fossil fuel industry mapping our energy future?" July 2015. <http://priceofoil.org/2015/07/01/forecasts-convenience-fossil-fuel-industry-mapping-energy-future/>  
 23 Max Fawcett, "Is Tesla's Model-S the beginning of the end for oil?" Alberta Oil Magazine, July 2, 2015. <http://www.albertaoilmagazine.com/2015/07/is-teslas-model-s-the-beginning-of-the-end-for-oil/>

# LEADING THE PACK IN THE HUNT FOR UNBURNABLE CARBON

Compared to its peers, Shell is waging the biggest bet on the failure of climate action. It leads all other international oil companies in spending on exploration capital expenditure (expex) – leading the charge in the high-cost, high-risk hunt for unburnable carbon (Figure 5). Between 2010 and 2012 Shell doubled its exploration spend to \$8.7 billion, a significant portion of which has gone towards its Arctic program.

Despite \$7 billion and counting, Shell's Arctic program has been an objective failure for the company, without a single well completed and countless mishaps and legal cases following in its wake. While this is good news for the climate, the Arctic environment, and those who depend on it, it is bad business.<sup>24</sup>

**Figure 5: Exploration Expenses (Expex) of International Oil Companies** Source: Oil Change International using Company Annual Reports



23 Max Fawcett, "Is Tesla's Model-S the beginning of the end for oil?" Alberta Oil Magazine, July 2, 2015. <http://www.albertaoilmagazine.com/2015/07/is-teslas-model-s-the-beginning-of-the-end-for-oil/>

# STRANDED ASSETS

Given that huge portions of the world's carbon must remain unburned, investments that have been made in many fossil fuel reserves will be lost on what are often referred to as stranded assets or unburnable carbon. Companies are increasingly facing demands from campaigns, investors, and shareholders alike to test their portfolios against climate scenarios and prove how they plan to be resilient against stranding shareholder money in unburnable carbon.<sup>25</sup>

Shell, as well as some other international oil companies like BP, have recently responded to shareholder pressure and supported shareholder resolutions to stress test their portfolios against low-carbon scenarios.<sup>28</sup> While this is an important admission that the companies understand that the problem exists, it also remains clear that they are missing or denying the crux of the problem: exploration and expansion of their reserves will inevitably result in stranded assets in a climate-safe world.

If Shell's bet on climate action failure is wrong, shareholders are poised to lose multiple billions of dollars in money wasted on carbon that will have no returns because it must be left in the ground.

The Carbon Tracker Initiative has identified \$2.8 trillion dollars of potential capital expenditure (capex) in Arctic projects through to 2050 that would require an oil price higher than \$95, many of which would require a price higher than \$150. Companies that continue to insist on exploration and expansion of these high-cost new resources are putting shareholders at increasingly high-risks of stranded assets.

## Divestment

The divestment movement has been gaining global traction over recent years, calling on institutions, individuals, and businesses to divest from fossil fuels completely. While shareholder activism and pressure has long been used to pressure companies from the inside, divestment instead asks that all investments be moved out of fossil fuel companies.

Divestment campaigns have been powerful forces of change in places such as South Africa during apartheid, or against tobacco companies in recent decades. When it comes to fossil fuel divestment, many universities have committed to divestment, and even some major national funds such as the Norwegian Pension Fund, which plans to divest completely from coal and tar sands.<sup>26,27</sup>

While the divestment movement is having a modest financial impact on the industry, the central objective of the movement is moral bankruptcy: to make investment in fossil fuels akin to investment in tobacco, arms, or other ethically unacceptable things.

Divestment from fossil fuels is predicated on the ultimate reality that the business model of fossil fuel companies is based on the exploration, expansion, and exploitation of fossil fuels and that tweaks within that model will not lead to the massive decarbonization we need to avoid dangerous climate change.

25 Michelle McGagh, "BP and Shell investors demand answers on climate risk," Citywire, January 2015. <http://citywire.co.uk/money/bp-and-shell-investors-demand-answers-on-climate-risk/a794196>

26 Responsible Endowments Coalition, <http://www.endowmentethics.org/>

27 John Schwartz, "Norway will divest from coal in push against climate change," The New York Times, June 2015. [http://www.nytimes.com/2015/06/06/science/norway-in-push-against-climate-change-will-divest-from-coal.html?\\_r=0](http://www.nytimes.com/2015/06/06/science/norway-in-push-against-climate-change-will-divest-from-coal.html?_r=0)

# FOSSIL FUEL FATALISM

The very core of the fossil fuel industry's business model is threatened by the imperative to address climate change. If your health as a company is measured in large part by how fast you can explore, expand, and exploit new fossil fuels – then the reality that the vast majority of the world's carbon must stay in the ground is a hard pill to swallow.

Shell's leadership (along with all other major fossil fuel companies) has a vested interest in convincing the world that fossil fuels will be the centerpiece of our energy future. Despite the undeniable high cost of Arctic Oil, Shell argues to its investors and to regulators that its oil will be necessary. Statements such as, “[M]

odern life would not be possible” without oil from Shell's CFO Simon Henry drive this sense that fossil fuel growth is necessary and inevitable.<sup>29</sup>

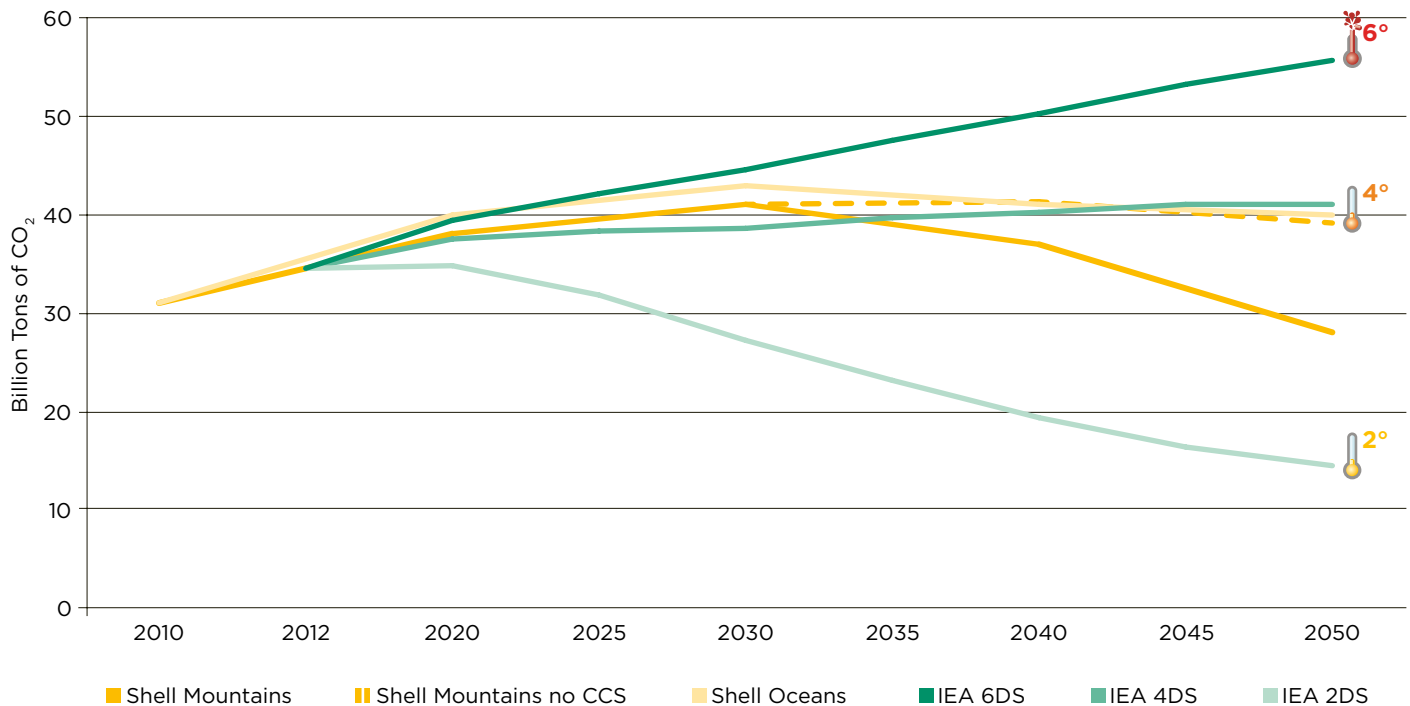
Even with a heavy dependence on the still mythical carbon capture and storage technology (CCS), neither of Shell's own scenarios (called 'mountains' and 'oceans') are in line with the globally agreed upon goal of limiting global warming to 2 degrees Celsius or less. Shell has only invested in two CCS projects around the world and the firm's CEO Ben van Beurden recently said the firm cannot invest more heavily in the technology because shareholders would be unhappy with the low returns.<sup>30</sup>

Without massive deployment of CCS (which remains an unproven technology at scale) both scenarios would see global warming beyond 4 degrees Celsius (see Figure 6).

Fossil fuel fatalism is clear in all of the major energy forecasts, where fossil fuels still play a central role while the real world exponential growth in renewables is ignored.

Consider the past few years as renewable energy sources have moved from the margins to the mainstream. Last year, renewable energy growth topped that of fossil fuels in the electricity sector, adding 135 gigawatts of power from

**Figure 6: Shell Projections of Global CO<sub>2</sub> Emissions in 'Mountains' and 'Oceans' Scenarios, Compared to IEA Scenarios for 2°C, 4°C and 6°C Warming** Source: Oil Change International using Shell and IEA scenarios data<sup>31</sup>



29 Sean Farrell, "Climate change dominates marathon Shell Annual General Meeting," The Guardian, May 2015. <http://www.theguardian.com/business/2015/may/19/climate-change-shell-annual-meeting-oil-global-warming-resolution-shareholders>

30 Terry Macalister and Damian Carrington, "Shell boss endorses warnings about fossil fuels and climate change," The Guardian, May 2015. <http://www.theguardian.com/business/2015/may/22/shell-boss-endorses-warnings-about-fossil-fuels-and-climate-change>

31 See <http://www.shell.com/global/future-energy/scenarios/new-lens-scenarios.html> for Shell scenarios and [www.iea.org/etp2015](http://www.iea.org/etp2015) for IEA.

32 Karl Ritter, "Renewable energy growth outpaces fossil fuels," The Associated Press, June 2015. <http://www.ctvnews.ca/sci-tech/renewable-energy-growth-outpaces-fossil-fuels-1.2427639>



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Irrigation pipes sit along a dried irrigation canal on a field in Stockton, California.

renewable sources.<sup>32</sup> Growth rates have been exceeding everyone's expectations, largely because Big Oil and the institutions they heavily influence have been underestimating them for years despite the obvious market trends and signals.

The only way that the industry can sustain its fossil-friendly projections is by predicating an immediate drop in the growth rate of renewables. This is downright illogical as renewable costs plunge, incentivizing policies kick-in, and demand growth for fossil fuels begins to slow. Last year, for example, global emissions did not rise for the first time ever outside economic recessions, while China's coal consumption remained flat. To tackle climate change, one step must be to liberate our imaginations - and our policies - from the grip of this fatalism.

### Mission Impossible

The Arctic Ocean is a high-risk location for fossil fuel exploration for many reasons. It remains one of the vast, relatively untouched regions of the world, defined by unpredictable weather and unforgiving sea ice movements. The operational challenges associated with oil exploration in the region are unprecedented, and in the face of a spill, the challenges would be insurmountable.

And a spill is not unlikely. The U.S. Government identifies a 75% chance of a large spill over the lifetime of projects in the Chukchi Sea. Yet, Shell has continuously failed safety tests and has not demonstrated any ability to apply clean-up strategies in the extreme Arctic environment.

Shell also has a humiliating track record when it comes to its Arctic exploration program as outlined in the timeline on page 15.

# #SHELLNO: PUBLIC ACCOUNTABILITY RISKS

The Arctic has become a focal point for citizens around the world concerned about climate change and the sensitive Arctic environment. Arctic oil exploration is a reminder that Big Oil really is prepared to go to the ends of the earth in search of a product that needs to be kept in the ground.

And this movement of concerned citizens is growing. This year, public activism has put Shell's Arctic program front and center with the rise of 'Kayaktivism' and the widely publicized campaign against Shell's drilling fleet using Seattle's port as a home base. This has been part of a broader effort to save the Arctic that continues to gain traction internationally.

Activism should not be underestimated in the face of mounting urgency to address the climate crisis. Where political leadership has lapsed, citizens have stepped up to leverage litigation, financial, and political tools to slow and stop expansion of high carbon resources. The impact of such campaigns has been particularly clear in the Alberta tar sands, where public concern was vastly underestimated, but has effectively blocked and delayed necessary infrastructure for market access. This lack of market access driven by concerned citizens has cost the industry upwards of 17 billion USD and is poised to keep significant amounts of carbon in the ground.<sup>33</sup>

Public pressure has the potential to delay and ultimately even drive the cancellation of Arctic exploration in the future. According to estimates published in *Nature*, there is over 100 billion barrels of oil and 35 trillion cubic meters of gas within the Arctic Circle that have not yet been exploited (as of 2010 data).<sup>34</sup> If this oil and gas is burned it would emit at least 61 billion metric tons of CO<sub>2</sub>, equivalent to the emissions of 400 typical U.S. coal plants over 40 years. This is a significant amount of carbon at stake.

Driven in part by a broader concern for the climate, the environment, and the lives and livelihoods of those that live, work, and depend on the Arctic environment, the #ShellNo campaign has also crystalized around Shell's multiple failures, disregard for local law and regulations, and instance on drilling in the Arctic at all costs.<sup>35</sup>

Kulluk aground on the southeast side of Sitkalidak Island on 1 January 2013 (Public Domain)



<sup>33</sup> Oil Change International, "Material Risks: How public accountability is slowing tar sands development," October 2015. <http://priceofoil.org/2014/10/29/material-risks-how-public-accountability-is-slowing-tar-sands-development/>  
<sup>34</sup> Christopher McGlade and Paul Ekins. 'The geographical distribution of fossil fuels unused when limiting global warming to 2°C.' *Nature*, January 8, 2015. Page 187, vol 517.  
<sup>35</sup> Matt Maiorana, "#ShellNo! Reflections on two weeks of action," Oil Change International, May 27, 2015. <http://priceofoil.org/2015/05/27/shellno-reflection-on-two-weeks-action/>



# REPEATED MISHAPS - SHELL'S TRACK RECORD IN THE U.S. ARCTIC

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## June, 2012

Shell admits inability to comply with air permission permits.

## July, 2012

Planned commencement date delayed by ice cover.

## July, 2012

Drill ship Noble Discoverer slips its moorings.

## August, 2012

Shell receives permission for limited preparatory drilling.

## September, 2012

Shell begins preparatory drilling but is forced to stop within 36 hours because of ice incursion into the drilling area.

## September, 2012

Shell's oil containment dome is 'crushed like a beer can' in testing.

## September, 2012

Shell officially abandons attempts to drill for oil due to damage to vital spill equipment.

## November, 2012

Small fire caused by an explosion reported on Noble Discoverer.

## December, 2012

Confirmation that US Coast Guard finds deficiencies on Noble Discoverer.

## December, 2012

Shell's drilling rig, the Kulluk, runs aground.

## January, 2013

Confirmation that the US Coast Guard has launched a criminal investigation into Noble Discoverer's safety violations.

## February, 2013

Shell announces a 'pause' in its Arctic drilling plans for 2013.

## March, 2013

US Department of the Interior publishes review which is highly critical of Shell.

## October, 2013

Shell announces plans for scaled back Arctic drilling in 2014.

## January, 2014

US 9th Circuit Court of Appeals' decision makes 2014 drilling highly unlikely.

## January, 2014

Shell confirms it will not drill in 2014.

## April, 2014

US Coast Guard publishes highly critical report into the running aground of the Kulluk.

## December, 2014

Noble Drilling LLC pleads guilty to eight felony offences with regard to the Noble Discoverer and pays \$12.2 million in penalties. Noble retains its Arctic contract with Shell.

## June 2015

U.S Interior Department's Fish and Wildlife Service rules that Shell must adhere to regulation requiring a 15-mile separation between exploratory drilling operations in order to protect walrus and other marine life from excessive noise and disturbance. Shell had sought to drill wells 9 miles apart.

## July 2015

MSV Fennica tears a gash in its ballast tank on leaving Dutch Harbor, AK for the Chukchi Sea. The Fennica was redirected to Portland, OR for repairs. The vessel carries equipment for capping a well blowout and drilling cannot proceed without it. The Fennica left Portland nearly a month later on July 31.

# CONCLUSION

At the 2015 Annual General Meeting, Shell CEO Ben van Beurden called efforts to tie Arctic oil in particular to climate change, “illogical.”<sup>36</sup> But as this briefing shows, Arctic oil is fundamentally tied to our collective efforts to address climate change.

Arctic oil fails the climate test and represents a future that we cannot afford: a future where oil demand, and subsequently price, remains high and global climate change has gone unabated.

The impacts of climate change are already being felt around the world, and also close to home with a record-breaking drought in California, or unprecedented hurricanes on the East Coast as recent examples.

But energy is being redefined. And while Big Oil and the fossil fuel industry will continue to lay claim to a fossil-fueled future, the world is changing around them. This change is being driven in large part by concerned citizens and organizations who are stepping up to fill leadership voids when it comes to climate action and environmental and human rights protection.

At the time of publication, Royal Dutch Shell is poised for another season of exploratory drilling in the U.S. Arctic Ocean with practical approval from the U.S. Government. While this is a political failure and incompatible with the government’s own climate objectives, it is not the end of the story.

Now more than ever, pressure and action is critical to ensure Shell never produces oil from the U.S. Arctic Ocean. We must break the grip of the fossil fuel industry on politics and energy and put an end to the fossil fuel fatalism that is only delaying the urgent, yet inevitable, shift to a cleaner, safer and more just energy future.

Activists are hanging off the St John's bridge in Portland, Oregon, to stop the Fennica from reaching the Arctic where Shell plans to drill for oil.



<sup>36</sup> Hannah McKinnon, “Fossil fuel fatalism and the untouchable arctic,” Oil Change International, May 2015. <http://priceofoil.org/2015/05/20/fossil-fuel-fatalism-untouchable-arctic/>





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