Annex A: Timeline of Respondent Carbon Majors' knowledge of climate risks and action and/or inaction in light of foreseeable harms

This timeline provides an overview of a selection of the documentary evidence submitted during the course of the National Inquiry on Climate Change (NICC), Commission on Human Rights of the Philippines. The memorandum describes these documents and provides the full citation to the sources.

"At all relevant times, fossil fuel companies can and should be presumed to be experts in all aspects of the products they produced, manufactured, marketed or otherwise put into the stream of commerce."
Carroll Muffett of the Center for International Environmental Law

Exhibit "GGGGG" to "GGGGG-35," Profile and Statement of Carroll Muffett, dated 20 August 2018, available at https://www.dropbox.com/s/nw7q1nyl74vzf42/Exh%20GGGGG%20Carroll%20Muffett%20Statement.pdf?dl=0 (last accessed on 12 September 2019).

The fossil fuel industry should have been aware that fossil fuel combustion could alter the global climate by the early 20th century.

1938

Three-quarters of CO_2 emissions have remained in the atmosphere

Exhibit "VV" to "VV-8," Callendar, G. S. (1938), The Artificial Production of Carbon Dioxide and its Influence on Temperature, Quarterly Journal of the Royal Meteorological, available at http://www.met.reading.ac.uk/~ed/callendar_1938.pdf (last accessed on 12 September 2019).

By fuel combustion man has added about 150,000 million tons of carbon dioxide to the air during the past half century. The author estimates from the best available data that approximately three quarters of this has remained in the atmosphere.

The radiation absorption coefficients of carbon dioxide and water vapour are used to show the effect of carbon dioxide on "sky radiation." From this the increase in mean temperature, due to the artificial production of carbon dioxide, is estimated to be at the rate of 0·003°C. per year at the present time.

The temperature observations at 200 meteorological stations are used to show that world temperatures have actually increased at an average rate of 0·005°C. per year during the past half century.

In the 1950s and 1960s, the fossil fuel industry was actively engaging in climate science and had actual knowledge of the grave dangers posed to people by climate change arising from the use of their fossil fuel products.

1954

A proposal to the American Petroleum Institute, Steady increase in CO_2 concentration

Exhibit "BBBBBBBBB" to "BBBBBBBBB-1," Franta, B. (2018), Early Oil Industry Knowledge of CO2 and Global Warming citing Brown, H., Epstein, S., Lowenstam, H. & McKinney, C. R. The Determination of the Variations and Causes of Variations of the Isotopic Composition of Carbon in Nature: A Proposal to the American Petroleum Institute from the Division of Geological Sciences, the California Institute of Technology (California Institute of Technology, 1954) available at https://www.dropbox.com/s/k6687hn28svm3vz/Exh%20BBBBBBBBB%20Ben%20Franta.pdf?dl=0 (last accessed on 12 September 2019).

Perhaps the most interesting effect concerning carbon in trees which we have thus far observed is a marked and fairly steady increase in the C^{12}/C^{13} ratio with time. Since 1850 the ratio has clearly increased markedly. This effect can be explained on the basis of a changing carbon dioxide concentration in the atmosphere resulting from industrialisation and the consequent burning of large quantities of coal and petroleum. If this explanation were correct, the carbon dioxide content of the atmosphere today would be about 5% greater than it was a century ago.

1957

Humble Oil (now ExxonMobil), Fossil fuels contributing to high levels of CO_2 emissions

Exhibit "YY" to "YY-7," Brannon, H. R., Daughtry, A. C., Perry, D., Whitaker, W. W., & Williams, M. (1957), Radiocarbon Evidence on the Dilution of Atmospheric and Oceanic Carbon by Carbon from Fossil Fuels. Eos, Transactions American Geophysical Union , 38(5), 643-650, doi:10.1029/TR038i005p00643, available at https://www.smokeandfumes.org/documents/7 (last accessed on 12 September 2019).

Of particular interest is the fate of the enormous quantity of carbon dioxide which has been introduced into the atmosphere since the beginning of the industrial revolution in the 19th century, and the manner in which the added carbon dioxide has been distributed in the carbon cycle. Although appreciable amounts of carbon dioxide have undoubtedly been added from soils by tilling of land, apparently a much greater amount has resulted from the combustion of fossil fuels.

1958

Smoke and Fumes Committee submission to U.S. Department of Health, Education, and Welfare: Sources of Air Pollution, Transportation (Petroleum)

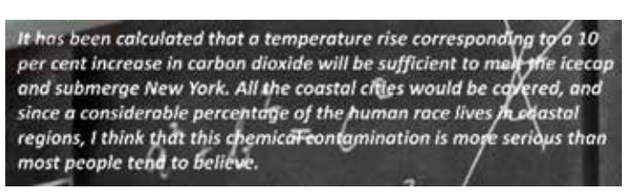
C.A. Jones, Executive Secretary, Smoke and Fumes Committee, American Petroleum Institute, submitted to United States Department of Health Education and Welfare (19 November 1958), Sources of Air Pollution: Transportation (Petroleum), p. 2., available at https://www.industrydocuments.ucsf.edu/docs/#id=xrcm0047 (last accessed on 12 September 2019).

The petroleum industry supplies the fuel used by the automobile, and thus has a sincere interest in the solution to the problem of pollution from automobile exhaust. The stated objective of the Smoke and Fumes Committee of the American Petroleum Institute is "to determine the causes and methods of control of objectionable atmospheric pollution resulting from the production, manufacture, transportation, sale, and use of petroleum and its products."

1959

CO_2 emissions and sea level rise

Exhibit "TT" to "TT-27," Printed PowerPoint presentation of Carroll Muffett, entitled "The Legal and Evidentiary Basis for Holding Carbon Majors Accountable for the Climate Crisis, slide 25 citing Teller, E. (1960) Energy patterns of the future. In Energy and Man: A Symposium (pp. 53-72) available at https://www.dropbox.com/s/cx5w2lxssb6m9a8/Exhibit%20TT%20to%20TT-27%20Carroll%20Muffett%20PowerPoint.pptx?dl=0 (last accessed on 12 September 2019).



1962

National Academy of Sciences, CO_2 emissions contribute to higher average temperatures

Exhibit "TT" to "TT-27," Printed PowerPoint presentation of Carroll Muffett, entitled "The Legal and Evidentiary Basis for Holding Carbon Majors Accountable for the Climate Crisis, slide 28 citing Hubbert, M.K (1962), Energy Resources: A Report to the Committee on Natural Resources of the National Academy of Sciences--National Research Council. United States, available at https://www.dropbox.com/s/cx5w2lxssb6m9a8/Exhibit%20TT%20to%20TT-27%20Carroll%20Muffett%20PowerPoint.pptx?dl=0 (last accessed on 12 September 2019).

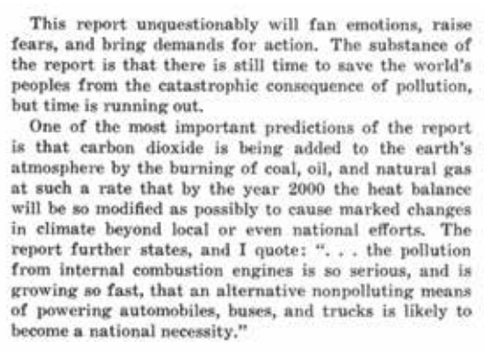
There is evidence that the greatly increasing use of the fossil fuels, whose material contents after combustion are principally H_2O and CO_2, is seriously contaminating the earth's atmosphere with CO_2. Analyses indicate that the CO_2 content of the atmosphere since 1900 has increased 10 per cent. Since CO_2 absorbs long-wavelength radiation, it is possible that this is already producing a secular climatic change in the direction of higher average temperatures. This could have profound effects both on the weather and on the ecological balances.

In view of the dangers of atmospheric contamination by both the waste gases of the fossil fuels and the radioactive contaminates from nuclear power plants, Professor Hutchinson urges serious consideration of the maximum utilization of solar energy.

1965

American Petroleum Institute, Burning fossil fuels would modify the climate by 2000

Exhibit "BBBBBBBBB" to "BBBBBBBBB-1," Franta, B. (2018), Early Oil Industry Knowledge of CO2 and Global Warming, p.1 citing Ikard, F. N. (1965), Meeting the Challenges of 1966, In Annual Meeting of the American Petroleum Institute (pp. 12-15), available at https://www.dropbox.com/s/k6687hn28svm3vz/Exh%20BBBBBBBBB%20Ben%20Franta.pdf?dl=0 (last accessed on 12 September 2019).



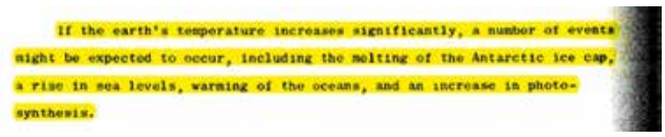
This report unquestionably will fan emotions, raise fears, and bring demands for action. The substance of the report is that there is still time to save the world's peoples from the catastrophic consequence of pollution, but time is running out.

One of the most important predictions of the report is that carbon dioxide is being added to the earth's atmosphere by the burning of coal, oil, and natural gas at such a rate that by the year 2000 the heat balance will be so modified as possibly to cause marked changes in climate beyond local or even national efforts. The report further states, and I quote: ". . . the pollution from internal combustion engines is so serious, and is growing so fast, that an alternative nonpolluting means of powering automobiles, buses, and trucks is likely to become a national necessity."

1968

Report for American Petroleum Institute on the impact of increase in the earth's temperature

Exhibit "HHH" to "HHH-13," Robinson, E., and Robbins, R.C. (1968), Final Report (Sources, Abundance, and Fate of Gaseous Atmospheric Pollutants) prepared for the American Petroleum Institute (1968)," available at https://www.dropbox.com/s/axoqdpfkx7au9am/Exhibit%20HHH%20to%20HHH-13.pdf?dl=0 (last accessed on 12 September 2019).

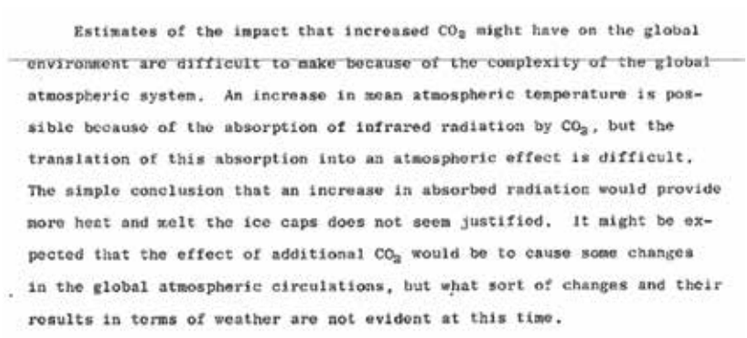


If the earth's temperature increases significantly, a number of events might be expected to occur, including the melting of the Antarctic ice cap, a rise in sea levels, warming of the oceans, and an increase in photosynthesis.

1969

Report for American Petroleum Institute Lack of certainty about the effect of CO_2 emissions

Exhibit "III" to "III-40," Supplemental Report (Sources, Abundance, and Fate of Gaseous Atmospheric Pollutants) prepared for the American Petroleum Institute dated June 1969, Stanford Research Institute, Menlo Park, CA, available at https://www.dropbox.com/s/7fgogklhebg6iux/Exhibit%20III%20to%20III-40.pdf?dl=0 (last accessed on 12 September 2019).



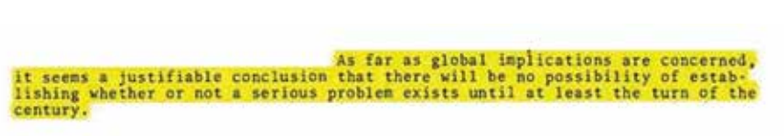
Estimates of the impact that increased CO_2 might have on the global environment are difficult to make because of the complexity of the global atmospheric system. An increase in mean atmospheric temperature is possible because of the absorption of infrared radiation by CO_2, but the translation of this absorption into an atmospheric effect is difficult. The simple conclusion that an increase in absorbed radiation would provide more heat and melt the ice caps does not seem justified. It might be expected that the effect of additional CO_2 would be to cause some changes in the global atmospheric circulations, but what sort of changes and their results in terms of weather are not evident at this time.

In the 1970s, the fossil fuel industry began to publicly question the legitimacy of climate science, as a business tactic, while internally their own scientists repeatedly warned of climate risks.

1972

National Petroleum Council, No conclusions until the turn of the century

Exhibit "JJJ" to "JJJ-215," Environmental Conservation (The Oil and Gas Industries / Volume Two) by National Petroleum Council dated February 1972, available at https://www.npc.org/reports/1972-Environmental_Conservation-Oil_and_Gas_Industries-Vol_II.pdf (last accessed on 12 September 2019).

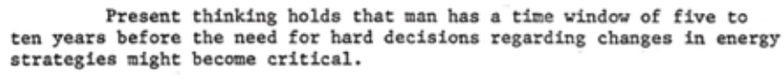


As far as global implications are concerned, it seems a justifiable conclusion that there will be no possibility of establishing whether or not a serious problem exists until at least the turn of the century.

1978

Exxon Research and Engineering Co., presentation on the greenhouse effect

Exhibit "KKKKK" to "KKKKK-33," The Greenhouse Effect; J.F. Black, Products Research Division, Exxon Research and Engineering Co., dated 06 June 1978, available at https://insideclimatenews.org/sites/default/files/documents/James%20Black%201977%20Presentation.pdf (last accessed on 12 September 2019).



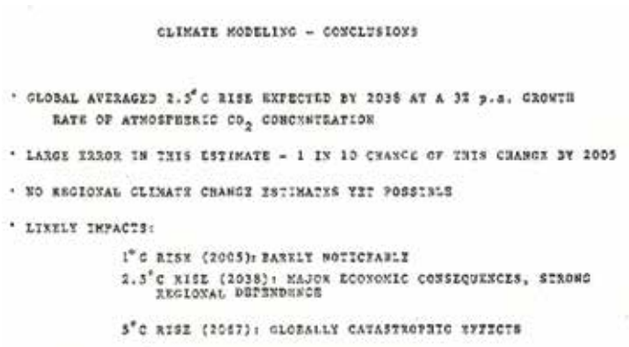
Present thinking holds that man has a time window of five to ten years before the need for hard decisions regarding changes in energy strategies might become critical.

By the 1980s, the fossil fuel industry knew there was broad scientific consensus that climate change was real, was caused by fossil fuel consumption, and would have significant impacts on the environment and human rights.

1980

American Petroleum Institute, CO_2 and Climate Task Force (AQ-9)

American Petroleum Institute, AQ-9 Task Force Meeting Nelson, J. J. (18 March 1980), Minutes of Meeting, Letter to AQ-9 Task Force (Washington, D. C., USA (citing Attachment A: Presentation by Dr. John Lauden to API's AQ-9 Task Force, available at https://insideclimatenews.org/sites/default/files/documents/AQ-9%20Task%20Force%20Meeting%20%281980%29.pdf (last accessed on 12 September 2019).



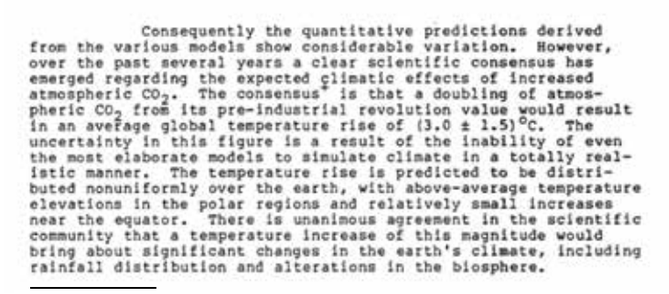
CLIMATE MODELING - CONCLUSIONS

* GLOBAL AVERAGED 2.5°C RISE EXPECTED BY 2038 AT A 3% p.a. GROWTH RATE OF ATMOSPHERIC CO_2 CONCENTRATION
* LARGE ERROR IN THIS ESTIMATE - 1 IN 10 CHANCE OF THIS CHANGE BY 2005
* NO REGIONAL CLIMATE CHANGE ESTIMATES YET POSSIBLE
* LIKELY IMPACTS:
  - 1°C RISE (2005): BARELY NOTICEABLE
  - 2.5°C RISE (2038): MAJOR ECONOMIC CONSEQUENCES, STRONG REGIONAL DEPENDENCE
  - 5°C RISE (2067): GLOBALLY CATASTROPHIC EFFECTS

1982

Exxon Memo Summarizing Climate Modeling and CO_2 Greenhouse Effect Research

Exxon Research and Engineering Company, M.B. Glaser, Manager of Environmental Affairs Program (12 November 1982), Exxon Corporate Primer on CO2 Greenhouse Effect, available at https://insideclimatenews.org/sites/default/files/documents/1982%20Exxon%20Primer%20on%20CO2%20Greenhouse%20Effect.pdf (last accessed 12 September 2019).



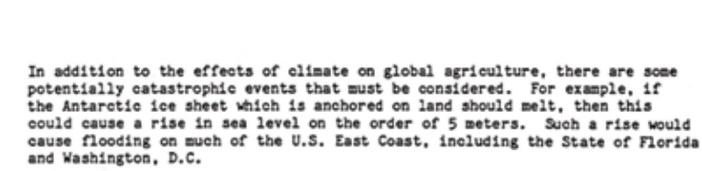
Consequently the quantitative predictions derived from the various models show considerable variation. However, over the past several years a clear scientific consensus has emerged regarding the expected climatic effects of increased atmospheric CO_2. The consensus is that a doubling of atmospheric CO_2 from its pre-industrial revolution value would result in an average global temperature rise of $(3.0 \pm 1.5)^{\circ}C$. The uncertainty in this figure is a result of the inability of even the most elaborate models to simulate climate in a totally realistic manner. The temperature rise is predicted to be distributed nonuniformly over the earth, with above-average temperature elevations in the polar regions and relatively small increases near the equator. There is unanimous agreement in the scientific community that a temperature increase of this magnitude would bring about significant changes in the earth's climate, including rainfall distribution and alterations in the biosphere.

Furthermore our ethical responsibility is to permit the publication of our research in the scientific literature; indeed to do otherwise would be a breach of Exxon's public position and ethical credo on honesty and integrity.

1982

CO_2 Greenhouse Effect

Esso (27 October 1983), Environmental Background Paper on the Natuna Gas Project, available at https://insideclimatenews.org/sites/default/files/documents/Natuna%20Background%20Paper%20%281983%29.pdf (last accessed on 12 September 2019).

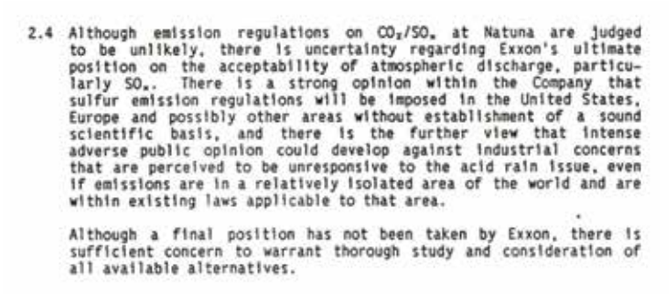


In addition to the effects of climate on global agriculture, there are some potentially catastrophic events that must be considered. For example, if the Antarctic ice sheet which is anchored on land should melt, then this could cause a rise in sea level on the order of 5 meters. Such a rise would cause flooding on much of the U.S. East Coast, including the State of Florida and Washington, D.C.

1983

Natuna Gas Project

Esso Environmental Background Paper on the Natuna Gas Project, 27 October 1983, made available by Exxon on 10 September 2018, available at: https://corporate.exxonmobil.com/-/media/global/files/climate-change/media-reported-document s/16_natuna-background-paper-1983.pdf (last accessed on 12 September 2019).



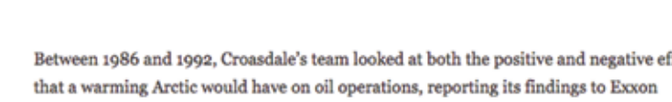
2.4 Although emission regulations on CO_2/SO_x at Natuna are judged to be unlikely, there is uncertainty regarding Exxon's ultimate position on the acceptability of atmospheric discharge, particularly SO_x. There is a strong opinion within the Company that sulfur emission regulations will be imposed in the United States, Europe and possibly other areas without establishment of a sound scientific basis, and there is the further view that intense adverse public opinion could develop against industrial concerns that are perceived to be unresponsive to the acid rain issue, even if emissions are in a relatively isolated area of the world and are within existing laws applicable to that area.

Although a final position has not been taken by Exxon, there is sufficient concern to warrant thorough study and consideration of all available alternatives.

1986–92

Exxon, Warming Arctic and Oil Operations

Jerving, S., Jennings, K., Hirsh, MM., Rust, S. (09 October 2015), What Exxon Knew About Earth's Melting Arctic, Los Angeles Times, available at http://graphics.latimes.com/exxon-arctic/ (last accessed on 12 September 2019).

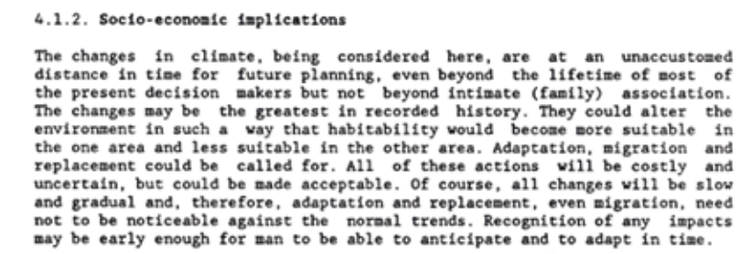


Between 1986 and 1992, Croasdale's team looked at both the positive and negative effects that a warming Arctic would have on oil operations, reporting its findings to Exxon headquarters in Houston and New Jersey.

1988

Shell, Changing temperature and rise in sea level, acidification of seawater, and the need to reduce fossil fuel dependency

Exhibit "NNN" to "NNN-45, Shell Greenhouse Effect Working Group (1988), The Greenhouse Effect, Prepared for Shell Environmental Conservation Committee available at http://www.climatefiles.com/shell/1988-shell-report-greenhouse/ (last accessed on 12 September 2019).



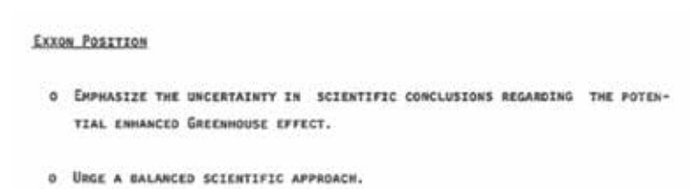
4.1.2. **Socio-economic implications**

The changes in climate, being considered here, are at an unaccustomed distance in time for future planning, even beyond the lifetime of most of the present decision makers but not beyond intimate (family) association. The changes may be the greatest in recorded history. They could alter the environment in such a way that habitability would become more suitable in the one area and less suitable in the other area. Adaptation, migration and replacement could be called for. All of these actions will be costly and uncertain, but could be made acceptable. Of course, all changes will be slow and gradual and, therefore, adaptation and replacement, even migration, need not to be noticeable against the normal trends. Recognition of any impacts may be early enough for man to be able to anticipate and to adapt in time.

1988

Exxon emphasizes uncertainty in scientific conclusions

Carlson, J. M. (03 August 1988), Exxon Memo on the Greenhouse Effect, p. 7, available at http://www.climatefiles.com/exxonmobil/566/ (last accessed on 12 September 2019).



EXXON POSITION

- EMPHASIZE THE UNCERTAINTY IN SCIENTIFIC CONCLUSIONS REGARDING THE POTENTIAL ENHANCED GREENHOUSE EFFECT.
- URGE A BALANCED SCIENTIFIC APPROACH.

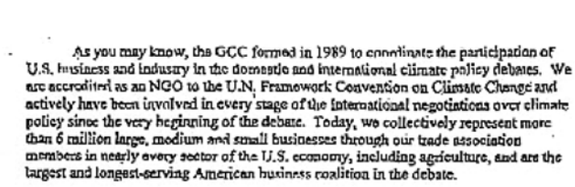
1988

Intergovernmental Panel on Climate Change (IPCC) Established

1989

Global Climate Coalition, Business participation in climate policy

Kelly, G. (2001, May 24), Letter to Paula Dobriansky, Undersecretary for Global Affairs, U.S. State Department, p. 5, available at file:///Users/gpsea/Downloads/Global%20Climate%20Coalition%20Meeting%20(2001).pdf (last accessed on 12 September 2019).



As you may know, the GCC formed in 1989 to coordinate the participation of U.S. business and industry in the domestic and international climate policy debates. We are accredited as an NGO to the U.N. Framework Convention on Climate Change and actively have been involved in every stage of the international negotiations over climate policy since the very beginning of the debate. Today, we collectively represent more than 6 million large, medium and small businesses through our trade association members in nearly every sector of the U.S. economy, including agriculture, and are the largest and longest-serving American business coalition in the debate.

1989

Greenhouse Effect:
Shell Anticipates A Sea Change

New York Times, (20 December 1989), Greenhouse Effect: Shell Anticipates A Sea Change, available at http://www.nytimes.com/1989/12/20/business/greenhouse-effect-shell-anticipates-a-sea-change.html (last accessed on 12 September 2019).

The New York Times

Greenhouse Effect: Shell Anticipates A Sea Change

Dec. 20, 1989

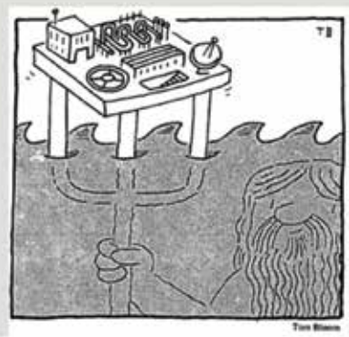
Greenhouse Effect: Shell Anticipates A Sea Change

Whether global warming will raise the level of the world's oceans is still being debated, but engineers who build natural-gas production platforms at Shell Oil do not want to take chances. In what is considered the first major project that takes account of the changes the greenhouse effect is expected to bring, the engineers are designing a huge platform that anticipates rising water in the North Sea.

Norske Shell, the company's Norwegian subsidiary, had been planning to build in the Troll gas field a 1.5-million-metric-ton structure that would stand in more than 300 meters of water, or about 1,000 feet, and rise 30 meters above the surface, or about 100 feet.

But if those are the dimensions of the structure when it is put in place in 1995, how much will be above the water in 2065, at the end of its life? Engineers are not sure. The global warming of the greenhouse effect, which is caused by carbon dioxide from combustion trapping the sun's heat in the atmosphere, is expected to raise the sea level in two ways: Warmer temperatures mean less water tied up in the ice caps, and therefore more in the oceans; also, warmer water occupies more space than cool water.

So the engineers are considering raising the platform from the standard 30 meters — the height now thought necessary to stay above the waves that



come in a once-a-century storm — to 31 or 32 meters.

A one-meter increase would cost an additional $16 million, said Einar Knudsen, a spokesman for the company in Stavanger, Norway, and a two-meter rise roughly double that. The higher number is about 1 percent of the platform's projected cost.

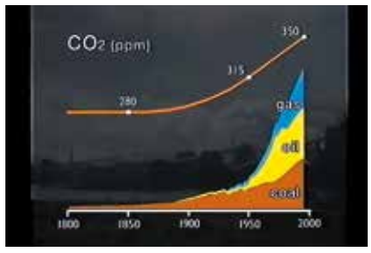
Shell's problem with its gas platform is tougher than the engineering questions involved in building oil platforms, of which the North Sea has many. The oil platforms are typically expected to be in use for only 30 or 35 years. But according to Mr. Knudsen, "We have such huge gas reserves; we can see this production going on for up to 70 years."

Into the 1990s, following the establishment of the IPCC and the start of the global climate negotiations, the fossil fuel industry ran full blown campaigns that manufactured doubt about climate science, concealed the foreseeable human impacts of using fossil fuel products, and delayed meaningful actions.

1991

Shell, "Climate of Concern" video about deadly and devastating consequences of climate change

Shell, Climate of Concern, available at https://www.youtube.com/watch?v=0VOWi8oVXmo, (Jelmer Mommers, Shell made a film about climate change in 1991 (then neglected to heed it's own warning), De Correspondent (27 February 2017), available at https://thecorrespondent.com/6285/shell-made-a-film-about-climate-change-in1991-then-neglected-to-heed-its-own-warning/692663565-875331f6 (last accessed on 12 September 2019).



1991

Information Council on the Environment Climate Denial Ad Campaign

Lukens, F. (02 May 1991), Information Council for the Environment Test Market Ad Materials [Letter to Bill Brier]; Brier, B. (15 May 1991), Information Council on the Environment Climate Denial Ad Campaign, available at http://www.climatefiles.com/denial-groups/ice-ad-campaign/ (last accessed on 12 September 2019).

Who told you the earth was warming... Chicken Little?

Chicken Little's hysteria about the sky falling was based on a fact that got blown out of proportion.

It's the same with global warming. There's no hard evidence it is occurring. In fact, evidence the Earth is warming is weak. Proof that carbon dioxide has been the primary cause is non-existent. Climate models cannot accurately predict far-future global change. And the underlying physics of climatic change are still wide open to debate.

If you care about the earth, but don't want your imagination to run away

1992

The United Nations Framework Convention on Climate Change (UNFCCC) opens for signature at the Rio Earth Summit.

1994

UNFCCC enters into force.

1994

Trying to Pull the Plug: Big Oil Companies Sponsor Efforts to Curtail Electric, Natural Gas Cars

Parrish, M. (12 April 1994), Trying to Pull the Plug: Big Oil Companies Sponsor Efforts to Curtail Electric, Natural Gas Cars, Los Angeles Times, available at https://www.latimes.com/archives/la-xpm-1994-04-14-fi-46003-story.html (last accessed on 12 September 2019).

A new group called Californians Against Utility Company Abuse--run by Woodward & McDowell, a high-powered Burlingame, Calif.-based public relations firm--gathered petitions and demonstrated Wednesday in front of a regional office of Southern California Gas Co. The group also recently mailed a letter to 200,000 utility ratepayers statewide. It does not mention oil industry support in its literature.

1994

Shell, Ecosystem Responses to Climate Change

Langcake, P. (December 1994), The Enhanced Greenhouse Effect: A Review of the Scientific Aspects, Shell Internationale Petroleum Maatschappij B.V. available at www.documentcloud.org/documents/4411099-Document11.html#document/p15/a411511 (last accessed on 12 September 2019).

Scientific uncertainty and the evolution of energy systems indicate that policies to curb greenhouse gas emissions beyond 'no regrets' measures could be premature, divert resources from more pressing needs and further distort markets.

1995

Global Climate Coalition Draft Climate Change Science Primer

Global Climate Coalition (GCC) Primer on Climate Change Science - Final Draft, Memo from Gregory J. Dana to AIAM Technical Committee, available at https://www.ucsusa.org/sites/default/files/attach/2015/07/Climate-Deception-Dossier-7_GCC-Climate-Primer.pdf (last accessed 12 September 2019).

The scientific basis for the Greenhouse Effect and the potential impact of human emissions of greenhouse gases such as CO_2 on climate is well established and cannot be denied.

1996

Global Climate Coalition: An Overview and Attached Reports

1996 Global Climate Coalition: An Overview and Attached Reports, available at https://www.documentcloud.org/documents/5453339-1996-GCC-Overview-and-Reports.html (last accessed on 12 September 2019).

GLOBAL CLIMATE COALITION

The GCC believes there is no convincing evidence that future increases in greenhouse gas concentrations will produce significant climatic effects. Such evidence necessarily must be based on projections produced by climate models. The IPCC Second Assessment Report (SAR) has highlighted a large number of inadequacies in current climate models which raise serious doubts about the credibility of current climate change scenarios, and therefore the policy-relevance of impact projections to policy makers.

1996

Exxon Corporation, CEO: “don’t ignore the facts”

Exxon Corporation (1996), Global Warming: Who’s Right? Facts About a Debate That’s Turned Up More Questions Than Answers, available at www.climatefiles.com/exxonmobil/global-warming-who-is-right-1996/ (last accessed on 12 September 2019).

Today, however, a multinational effort, under the auspices of the United Nations, is under way to cut the use of fossil fuels, based on the unproven theory that they affect the earth’s climate.

1996

Exxon Biomedical Services, Inc., Impact of Climate Change on Human Health

Devlin, D.J. (19 September 1996), Purported Impact of Climate Change on Human Health, Exxon Biomedical Sciences, Inc., available at https://assets.documentcloud.org/documents/3215116/Purported-Impact-of-Climate-Change-on-Human-Health.pdf (last accessed on 12 September 2019).

POTENTIAL NEXT STEPS

- **Monitor and Critique Ongoing Developments**
- **Identify and Critique Relevant Predictive Models**
- **Identify Scientific Leaders with Diverse Views . . . Encourage Active Participation in Debate**
- **Promote Concept of Relative Risk . . . Significance of Climate Impacts Vs. Other Disease Factors**

1996

American Petroleum Institute: Reinventing Energy, Making the Right Choices

Gentille, S. B., Bush, W. E., Jones, R. O., Kirlin, T. M., Moldauer, B., Porter, E. D. & Vaughn, G. A. (1996), Reinventing Energy: Making the Right Choices, American Petroleum Institute, available at http://www.climatefiles.com/trade-group/american-petroleum-institute/1996-reinventing-energy/ (last accessed on 12 September 2019).

Currently, no conclusive—or even strongly suggestive—scientific evidence exists that human activities are significantly affecting sea levels, rainfall, surface temperatures or the intensity and frequency of storms.

1997

The Kyoto Protocol is adopted.

1997

Climate Change Speech
By John Browne, Group Chief Executive, British Petroleum (BP America)

Browne, J. (19 May 1997), Climate Change Speech (Stanford University), available at http://www.climatefiles.com/wp-content/uploads/1997/05/bp-john-browne-stanford-1997-climate-change-speech-1.pdf (last accessed on 12 September 2019).

BP accepts that responsibility and we're therefore taking some specific steps.

To control our own emissions.

To fund continuing scientific research.

To take initiatives for joint implementation.

To develop alternative fuels for the long term.

And to contribute to the public policy debate in search of the wider global answers to the problem.

1998

Mobil CEO announced that the company had started a GHG inventory, which indicated that 5% of the company's emissions come from the facilities, while its products count for 95% of the emissions.

Noto, L. (1998, February 11), 1998 Mobil CEO Lou Noto Remarks on "Two-Sided Attitude Toward Climate," available at www.climatefiles.com/exxonmobil/mobil-collection/1998-two-sided-climate-stance/ (last accessed on 12 September 2019).

1998

American Petroleum Institute, Global Climate Science Communication Plan

Walker, J. (1998), Global Climate Science Communication Plan, American Petroleum Institute available at www.climatefiles.com/trade-group/american-petroleum-institute/1998-global-climate-science-communications-team-action-plan/ (last accessed on 12 September 2019).

Victory Will Be Achieved When

- Average citizens "understand" (recognize) uncertainties in climate science; recognition of uncertainties becomes part of the "conventional wisdom"
- Media "understands" (recognizes) uncertainties in climate science
- Media coverage reflects balance on climate science and recognition of the validity of viewpoints that challenge the current "conventional wisdom"
- Industry senior leadership understands uncertainties in climate science, making them stronger ambassadors to those who shape climate policy
- Those promoting the Kyoto treaty on the basis of extant science appear to be out of touch with reality.

1998

Shell, "There is no alternative" group scenarios.

1998 Shell Internal TINA (There is No Alternative) Group Scenarios 1998-2020 Report, available at http://www.climatefiles.com/shell/1998-shell-internal-tina-group-scenarios-1998-2020-report/ (last accessed on 12 September 2019).

"FOLLOWING THE STORMS, A COALITION OF ENVIRONMENTAL NGOS BRINGS A CLASS-ACTION SUIT AGAINST THE US GOVERNMENT AND FOSSIL-FUEL COMPANIES ON THE GROUNDS OF NEGLECTING WHAT SCIENTISTS (INCLUDING THEIR OWN) HAVE BEEN SAYING FOR YEARS: THAT SOMETHING MUST BE DONE. A SOCIAL REACTION TO THE USE OF FOSSIL FUELS GROWS, AND INDIVIDUALS BECOME 'VIGILANTE ENVIRONMENTALISTS' IN THE SAME WAY, A GENERATION EARLIER, THEY HAD BECOME FIERCELY ANTI-TOBACCO. DIRECT-ACTION CAMPAIGNS AGAINST COMPANIES ESCALATE. YOUNG CONSUMERS, ESPECIALLY, DEMAND ACTION ..." (p. 122)

2001

State Department Briefing for Global Climate Coalition Meeting

Letter from Ken Brill to Undersecretary Dobriansky (20 June 2001), Briefing Memorandum: Your meeting with members of the Global Climate Coalition, June 21, 2001, 9:10 - 9:50 a.m. (200113080), available at http://www.climatefiles.com/denial-groups/global-climate-coalition-collection/2001-state-department-meeting/ (last accessed on 12 September 2019).

- POTUS believes, however, we need to show leadership on this issue to advance U.S. domestic and international policy objectives.
- Interested in hearing from you, what type of international alternatives to Kyoto would you support?

From the Kyoto Protocol in 2005 to the Paris Agreement in 2015, the corporate attack on climate science and solutions continued.

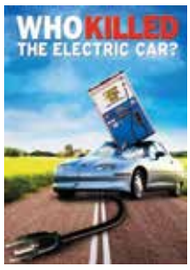
2005

Kyoto Protocol enters into force, without the United States

2006

Documentary:
Who Killed the Electric Car?

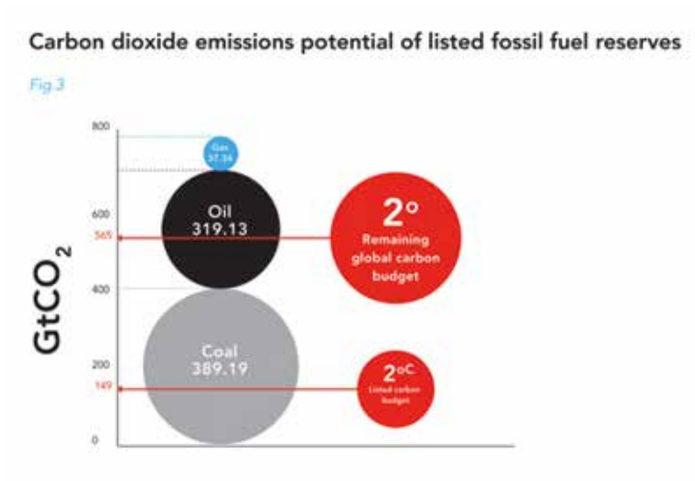
Paince C. (2006), Documentary: Who Killed the Electric Car? United States: Electric Entertainment, available at www.whokilledtheelectriccar.com (last accessed on 12 September 2019).



2011

Carbon Tracker Initiative,
Using up the Carbon Budget

Carbon Tracker Initiative (July 2011), Unburnable Carbon – Are the World's Financial Markets Carrying a Carbon Bubble? available at http://www.carbontracker.org/wp-content/uploads/2014/09/Unburnable-Carbon-Full-rev2-1.pdf (last accessed on 12 September 2019).



2013

Committee For A Constructive Tomorrow:
COP 19: Filipino negotiator
Goes on Hunger Strike Over Typhoon

CFACT Ed. (16 November 2013), COP 19: Filipino negotiator goes on hunger strike over typhoon, available at https://www.cfact.org/2013/11/16/cop-19-filipino-negotiator-goes-on-hunger-strike-over-typhoon/ (last accessed 12 September 2019).


Typhoon activity in the Philippines is normal. Despite over-the-top reporting before the typhoon struck (timed perfectly for COP 19) Typhoon Haiyan/Yolanda was not the strongest typhoon recorded in the Philippines. It was the seventh. The Philippines enjoys warm tropical weather. However, with tropical splendor comes tropical storms. This duality is a fact of life in the tropics.

There are no worthwhile science or historical records which support the notion that extreme storms have worsened in the Philippines or elsewhere as a result of a warming planet. We must soberly remind ourselves that global temperatures have not risen since the nineties and that warming to date peaked at less than a degree Centigrade, with only a few years coming anywhere near that.

Beaten Before

Typhoon Haiyan ranks seventh amongst the strongest storms to batter the Philippines.

Typhoon†	Year	Wind Speed*
Sening (Joan)	1970	171 - 193
Herming (Betty)	1987	162 - 183
Trining (Ruth)	1991	155 - 177
Anding (Irma)	1981	152 - 171
Saling (Dot)	1985	149 - 168
Ruping (Mike)	1990	149- 168
Yolanda (Haiyan)	2013	147 - 171

* Maximum Sustained Winds (MPH)
† The names in parentheses are the international names.
Source: Philippine Atmospheric, Geophysical and Astronomical Services Administration
The Wall Street Journal

2014

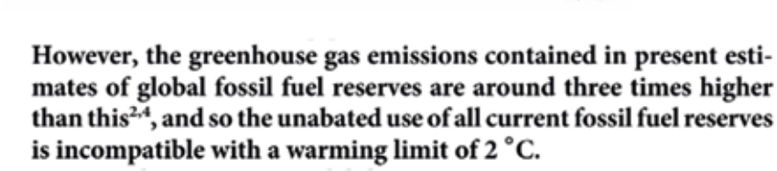
Western States Petroleum Association
climate deception campaign

Western States Petroleum Association (11 November 2014), WSPA Priority Issues, p. 13, available at https://www.ucsusa.org/sites/default/files/attach/2015/07/Climate-Deception-Dossier-3_WSPA-ppt.pdf (last accessed on 12 September 2019).

2015

The geographical distribution
of fossil fuels unused when limiting
global warming to 2°C

Exhibit "VVVVVVVV" to "VVVVVVVV-15," McGlade, C. and Ekins, P. (08 January 2015), The Geographical Distribution of Fossil Fuels Unused hen Limiting Global Warming to 2oC, available at http://www.collectif-scientifique-gaz-de-schiste.com/accueil/images/pdf/texteschoisis/McGlade_et_al-2015-Nature.pdf (last accessed on 12 September 2019).


However, the greenhouse gas emissions contained in present estimates of global fossil fuel reserves are around three times higher than this[2,4], and so the unabated use of all current fossil fuel reserves is incompatible with a warming limit of 2 °C.

2015

Deeper Ties to Corporate Cash
for Doubtful Climate Researcher, NYT

Gillis, J. and Schwartz, J. (21February 2015), Deeper Ties to Corporate Cash for Doubtful Climate Researcher, The New York Times, available at https://www.nytimes.com/2015/02/22/us/ties-to-corporate-cash-for-climate-change-researcher-Wei-Hock-Soon.html (last accessed on 12 September 2019).


The New York Times

Deeper Ties to Corporate Cash for Doubtful Climate Researcher

Following the adoption of the Paris Agreement in 2015 and the IPCC's 1.5°C Report in 2018, respondent Carbon Majors' actions continue to demonstrate intent to put profit over people and planet.

2015

Paris Pledge for Action

Paris Pledge for Action, signed by Anglo American, BHP Billiton, Cemex, ENI S.P.A, LafargeHolcim, Repsol, Rio Tinto, Total, available at http://www.parispledgeforaction.org/whos-joined/ (last accessed on 12 September 2019).

As cities, regions, businesses, investors, civil society groups, trade unions and other signatories, coming from every sector of society and every corner of the world, we realize that dangerous climate change threatens our ability and the ability of future generations to live and thrive in a peaceful and prosperous world. We also realize that taking strong action to reduce emissions can not only reduce the risks of climate change but also deliver better growth and sustainable development.

As a result, we the undersigned, affirm our strong commitment to a safe and stable climate in which temperature rise is limited to under 2 degrees Celsius.

2015

The Paris Agreement is adopted.

2017

Assessing ExxonMobil's Climate Change Communications

Exhibit "J," Supran, G. and Oreskes, N. (23 August 2017), Assessing ExxonMobil's Climate Change Communications (1977–2014), available at https://iopscience.iop.org/article/10.1088/1748-9326/aa815f/pdf (last accessed on 12 September 2019).

We conclude that ExxonMobil contributed to advancing climate science—by way of its scientists' academic publications—but promoted doubt about it in advertorials. Given this discrepancy, we conclude that ExxonMobil misled the public. Our content analysis also examines ExxonMobil's discussion of the risks of stranded fossil fuel assets. We find the topic discussed and sometimes quantified in 24 documents of various types, but absent from advertorials. Finally, based on the available documents, we outline ExxonMobil's strategic approach to climate change research and communication, which helps to contextualize our findings.

2018

IPCC accepted and approved Special Report on the impact of global warming or 1.5ºC above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.

2019

Raval, A. and Walker, O. (01 February 2019), BP agrees to greater climate disclosure, Financial Times available at https://www.ft.com/content/60638ece-25b0-11e9-8ce6-5db4543da632 (last accessed on 12 September 2019).

FINANCIAL TIMES

"BP agrees to greater climate disclosure"

2019

Big Oil's Real Agenda on Climate Change InfluenceMap

Big Oil's Real Agenda on Climate Change: An InfluenceMap Report (March 2019), available at https://influencemap.org/report/How-Big-Oil-Continues-to-Oppose-the-Paris-Agreement-38212275958aa21196dae3b76220bddc (last accessed on 12 September 2019).

Respondent Carbon Majors' purported commitments to human rights and climate change are inconsistent with their business models.

2019

ConocoPhillips

February 19 2019

Mulvey, K. (19 February 2019), ConocoPhillips Mentions "Climate" 28 Times in Its Annual Financial Report, But Fails to Outline How It Will Slash Emissions to Avoid Climate Change's Worst Impacts, Union of Concerned Scientists, available at https://www.ucsusa.org/press/2019/conocophillips-mentions-climate-28-times-its-annual-financial-report-fails-outline-how-it (last accessed on 12 September 2019).

2019

GLENCORE

February 21 2019

Drugmand, D. (21 February 2019), Coal Company Responds to Investors, Vows to Cut Production to Battle Climate Change, Climate Liability News, availableat https://www.climateliabilitynews.org/2019/02/21/coal-mining-glencore-climate-change/ (last accessed on 12 September 2019).

2019

REPSOL

April 9 2019

Reuters (10 April 2019), Repsol, Hellenic sign lease deals to look for oil in western Greece, available at https://uk.reuters.com/article/greece-energy-blocks/repsol-hellenic-sign-lease-deals-to-look-for-oil-in-western-greece-idUKL8N21R1NP (last accessed on 12 September 2019).

2019

SUNCOR ENERGY

April 15 2019

Best, A. (15 April 2019), Can these Colorado governments win lawsuit again fossil fuel companies? Mountain Town News, available at https://mountaintownnews.net/2019/04/15/lawsuit-again-fossil-fuel-companies/ (last accessed on 12 September 2019).

2019

eni

June 4 2019

Shelor, J. (04 June 2019), Natural Gas Key for National Oil Companies Adapting to Climate Change Risk, Moody's Finds, NGIs Daily, available at https://www.naturalgasintel.com/articles/118569-natural-gas-key-for-national-oil-companies-adapti ng-to-climate-change-risk-moodys-finds (last accessed on 12 September 2019).

2019

VATICAN NEWS

June 14 2019

O'Kane, L. (14 June 2019), Pope on climate crisis: Time is running out, decisive action needed, Vatican News, available at https://www.vaticannews.va/en/pope/news/2019-06/pope-declares-climate-emergency.html (last accessed on 12 September 2019).

2019

RWE

June 19 2019

Mining Journal (19 July 2019), RWE defies Germany coal exit, available at https://www.mining-journal.com/energy-minerals-news/news/1367660/rwe-defies-germany-coal-exit (last accessed on 12 September 2019).

2019

ExxonMobil

June 26 2019

Savage, K. (26 June 2019), Exxon Continues to Fund 'Science' Group Steeped in Climate Denial and Delay, Climate Liability News, available at https://www.climateliabilitynews.org/2019/06/26/exxon-climate-denial-american-council-science-health/ (last accessed on 12 September 2019).

Exxon Continues to Fund 'Science' Group Steeped in Climate Denial and Delay

2019

July 5 2019

Aronoff, K. (05 July 2019), The PowerPoint That Got a Climate Scientist Disinvited from a Shell Conference, The Intercept, available at https://theintercept.com/2019/07/05/shell-conference-climate-change/ (last accessed on 12 September 2019).

THE POWERPOINT THAT GOT A CLIMATE SCIENTIST DISINVITED FROM A SHELL CONFERENCE

2019

Chevron

July 22 2019

Bagchi, A. (23 July 2019), Chevron Climate Change Suit Returns to Rhode Island State Court, Bloomberg Environment, available at https://news.bloombergenvironment.com/environment-and-energy/chevron-climate-change-suit-returns-to-rhode-island-state-court (last accessed on 12 September 2019).

Chevron Climate Change Suit Returns to Rhode Island State Court

2019

BHP

July 23 2019

Buckley, T. (23 July 2019), BHP to link executive compensation to reductions in emissions generated from the use of its products, PV Magazine, available at https://www.pv-magazine-australia.com/2019/07/23/bhp-to-link-executive-compensation-to-reductions-in-emissions-generated-from-the-use-of-its-products/ (last accessed on 12 September 2019).

BHP to link executive compensation to reductions in emissions generated from the use of its products

2019

OMV

July 30 2019

McNeilly, H. (30 July 2019), Oil giant OMV urged to consider 'obligations to humanity' before drilling off NZ coast, Stuff, available at https://www.stuff.co.nz/business/114602919/austrian-oil-company-omv-proceeding-with-plans-to-drill-off-otago-coast (last accessed on 12 September 2019).

Oil giant OMV urged to consider 'obligations to humanity' before drilling off NZ coast

2019

August 2019

https://www.ipcc.ch/report/srccl/

The IPCC approves and accepts Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems.

2019

TOTAL

August 6 2019

Guthrie, C. (06 August 2019), Total sticks to its guns on exploration and transition, Petroleum Economist, available at https://www.petroleum-economist.com/articles/corporate/company-profiles/2019/total-sticks-to-its-guns-on-exploration-and-transition (last accessed on 12 September 2019).

Total sticks to its guns on exploration and transition

2019

August 16 2019

Cairns, P. (16 August 2019), Special report: Sasol's lack of accountability, MoneyWeb, available at https://www.moneyweb.co.za/in-depth/features/special-report-sasols-lack-of-accountability/ (last accessed on 12 September 2019).

Special report: Sasol's lack of accountability

The company has never met its own emissions targets, and shareholders don't seem to have noticed.

2019

August 16 2019

Carlson, A. (12 August 2019), Why Big Oil fears being put on trial for climate change, Los Angeles Times, available at https://www.latimes.com/opinion/story/2019-08-10/climate-change-lawsuits-oil-companies-state-courts (last accessed on 12 September 2019).

Los Angeles Times

Op-Ed: Why Big Oil fears being put on trial for climate change

2019

September 6 2019

CarbonTracker, (05 September 2019), No major oil company invests to support Paris goals of keeping well below 2˚C, https://www.carbontracker.org/oil-and-gas-companies-approve-50-billion-of-major-projects-that-undermine-climate-targets-and-risk-shareholder-returns/ (last accessed on 12 September 2019).

No major oil company invests to support Paris goals of keeping well below 2˚C

LONDON/NEW YORK | September 6

Oil and gas companies have approved $50 billion of investment since 2018 in major projects that undermine climate targets and threaten shareholder returns, Carbon Tracker finds in a report released today.