NSW INDEPENDENT PLANNING COMMISSION

Email: ipcn@ipcn.nsw.gov.au prior to 5.00pm

RE: RUSSELL VALE COAL MINE EXPANSION

INTRODUCTION

According to the Departments related report on the Russell Vale Coal Mine Expansion project there have already been two hearings which rejected further expansion due to the following…

> *'economic benefits of the Preferred UEP were most likely outweighed by the magnitude of impacts to the environment.'* Pg. 5 of the report

Eighty submissions for the proposal were said to outline climate change and 'greenhouse gas' concerns: pg. 5 of the report. The response in the report was as follows:

> '*Unwelt, considered that the project, in isolation, is unlikely to influence global emissions*

These issues remain unresolved because you cannot take the emissions from the Russell Vale Coal Mine Expansion in isolation to a dynamic integrated system. The mine has also been suggested to be gassy. Any methane emissions are a concern since methane has 84 times the global warming potential of carbon dioxide over a 20 year time period.

ENVIRONMENTAL PLANNING AND ASSESSMENT ACT

The related report on the Russell Vale Coal Mine Expansion also states that:

> *'64. The consent authority must consider the objects of the EP&A Act when making decisions under the Act.*
>
> *The Department has updated its consideration of the relevant provision of the objects of the EP&A Act (see section 1.3 of the Act). Appendix D – Table D1 summarises how the Department considers that the project can be undertaken in a manner that is consistent with these objectives, including Ecologically Sustainable Development (ESD).'*

When we're talking about ecologically sustainable development (ESD), we know that it's encompassed within the legislation that we're looking at, the *Environmental Planning and Assessment Act*: see Appendix. We have to go through to the *Protection of the Environment Administration Act* to actually obtain an overview of what that means. And we know that includes the precautionary principle and the intergenerational equity issue. This relates to facilitating ESD within the objects of the *Environmental Planning and Assessment Act*. It is not possible that a proposal, such as the Russell Vale coal mine expansion project, that produces a product that the fossil fuel industry itself predicted would have a significant impact on the climate could be considered ecologically sustainable development. Nor that the precautionary principle has been considered.

Matters for consideration relate to any submissions and the public interest: see Appendix. It is in the public interest to reject this proposal and any proposal relating to fossil fuels. We have already seen the Rocky Hill Coal Mine decision. In short, it's ratio decidendi (reasoning for the decision) included the 'wrong place' at the 'wrong time'. The transcript of the case states…

> '*Wrong time because the GHG emissions of the coal mine and its coal product will increase global total concentrations of GHGs at a time when what is now urgently needed, in order to meet generally agreed climate targets, is a rapid and deep decrease in GHG emissions. These dire consequences should be avoided. The Project should be refused.*'
> [Gloucester Resources Limited v Minister for Planning [2019] NSWLEC 7, Para 6.99]

The Russell Vale expansion proposal and its coal product will also increase global total concentrations of GHG's and so it should also be refused.

Concerns were raised during the Russell Vale coal mine expansion hearing regarding climate change, economic, biodiversity, water and social impacts from the expansion proposaL The matters of consideration are known under the legislation, along with the underpinnings of climate decisions such as the Rocky Hill Coal Mine, which creates a precedent allowing Commissioners to reject this proposal.

Due to locked in climate crisis impacts there is a need to focus on emergency plans that include an employee in every council dedicated to disaster risk reduction to investigate vulnerabilities and how to deal with them. Funds also need to be directed towards this along with educational opportunities and other measures.

Above all, there is a need for a far reaching, accelerated transition away from fossil fuels and a plan to institute this. There is also a need to promote the United Nations Making Cities Resilient Campaign.

There is a need to make sure there is a liveable planet for future generations. This is a intergenerational equity issue.

INTERGENERATIONAL EQUITY OPPORTUNITY COSTS

Major concern exists regarding the intergenerational equity opportunity cost of even deliberating over new fossil fuel ventures instead of focusing on adaptation, mitigation and prevention. Particularly after the last two bushfire seasons that led to so much loss that was attributed to climate change.

There should be a focus on the younger generations and their needs in terms of education and implementation of disaster risk reduction measures due to locked-in impacts still to come. We are past the point of efficient pollution or triggering some precautionary principle that we already know exists, or even discussing foreseeability, because we can already foresee what is happening with the bushfires. We know that the burning of fossil fuels impacts on the climate due to global warming through increased levels of atmospheric carbon dioxide.

AGENDA 2030

Australia is one of 193 countries that signed Agenda 2030 (Transforming Our World: The 2030 Agenda for Sustainable Development) which includes Climate Action under sustainable development goal 13 (SDG 13): https://sustainabledevelopment.un.org/post2015/transformingourworld/publication. We pledged that no one would be left behind. There is an intergenerational equity issue that should be paramount regarding the climate crisis. In addition to SDG 13 Agenda 2030 also includes the Sendai Framework for Disaster Risk Reduction which calls for four priorities which mean that we need to understand the disaster risk before us and Build Back Better.

PARIS AGREEMENT

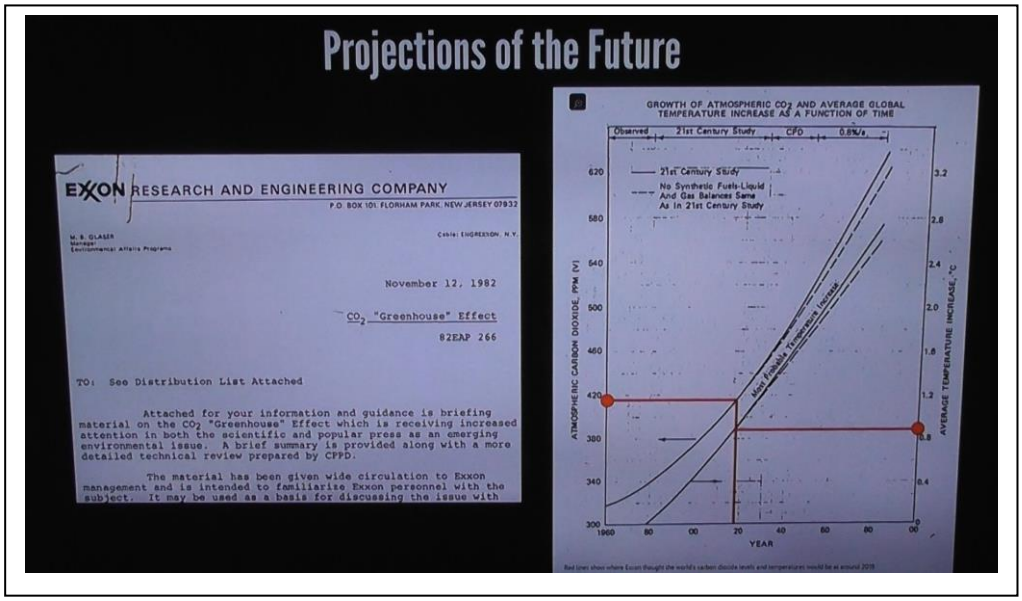
Under the Paris Agreement developed countries, such as Australia, are meant to lead the way towards keeping temperature rise under 2 degrees, while aiming for 1.5 degrees. The 2019 United Nations GAP Report indicates that we are headed for a 3.2 degree warming under current commitments by countries. It further states that Australia is only meeting its 2020 commitments through Kyoto carryovers and is unlikely to meet its 2030 commitments. The World Meteorological Organisation has stated that there is a 20% chance that one of the next 5 years will reach 1.5 degree warming. According to the Bureau of Meteorology 2019 was *'Australia's warmest year on record, with the annual national mean temperature 1.52 °C above average'*: http://www.bom.gov.au/climate/current/annual/aus/.

These trajectories are a concern due to the impacts that will occur even at a 1.5 degree global warming. Such impacts were outlined in a 2018 United Nations Special Report. It indicated 70-90% loss of global corals at 1.5 degree warming and over 99% loss at 2 degree warming.

The fossil fuel industry itself researched, understood, and predicted global warming impacts decades ago. The following outlines information from EXXON and SHELL.

EXXON KNEW (CATASTROPHIC IMPACTS)

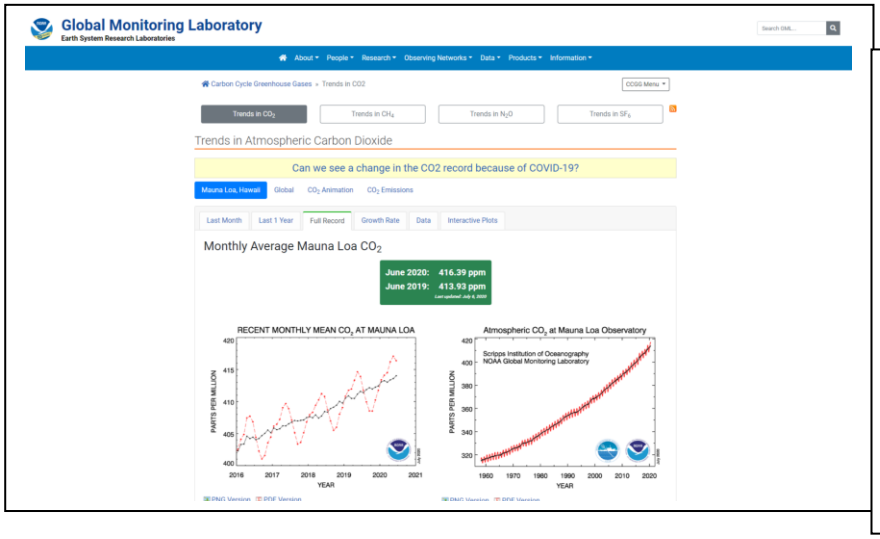
How do we know that there is a global warming disaster that can prevail? Because the industry itself predicted it. EXXON's website states that it has undertaken 40 years of climate research and that the 'climate change risks warrant action':



https://www.exxonmobil.com.au/Energy-and-environment/Environmental-protection/Climate-change.

A 1982 EXXON document stated that 'The **greenhouse effect' is not likely to cause substantial climatic change until the average global temperature rises at least 1 degree'** (which has now happened)**.** It explained that global warming would **not be uniform and the polar caps** would see high temperatures. It also outlined impacts on the **low end on agricultural growth and rainfall patterns** while on the **high end flooding of some coastal land masses** as a result of seal level rise due to Antarctic ice sheet melting.

The document also showed the prediction of what we are seeing now coming to fruition in terms of the level of carbon dioxide concentrations in the atmosphere compared to temperature rises, as you can see from the above diagram on the right.



We know this because carbon dioxide concentrations are monitored and indicate that as of June 2020 it was 416.39 parts per million (left diagram above). September 2020 data can be found at https://www.esrl.noaa.gov/gmd/ccgg/trends/mlo.html. An EXXON employee (a physicist) was noted in an

internal EXXON document to be reluctant to state that the magnitude was well short of catastrophic. Maybe in 2030, but not beyond 2030. He stated that:

> *'Whereas I can agree with the statement that our best guess is that observable effects in the year 2030 are likely to be 'well short of catastrophic', it is distinctly possible that the CPD scenario will later produce effects which will indeed be catastrophic'*
> *'This is because the global ecosystem in 2030 might still be in a transient, headed for much more significant effects after time lags perhaps of the order of decades.'*
> *'Climate modeling, may provide strong evidence for a delayed C02 effect of a truly substaintial magnitude'*

SHELL KNEW

Shell also undertook a documentary style video that was entitled Climate of Concern, which discussed the interaction between fossil fuels and a warming planet (right diagram above).

The 1991 documentary discussed the 'greenhouse effect' and outlined a small but significant warming trend over the century with computer modelling showing the possibility of ***warming in the range of 1.5 degrees to 4 degrees by 2050*** explaining that the rate of change could be faster than at any other time since the end of the ice ace. The concern being ***'change too fast perhaps for life to adapt without severe dislocation'.*** They explained that scientists were foreseeing not a steady even warming overall but ***'alterations to familiar pattens of climate':*** see https://www.youtube.com/watch?v=vTlYYlRN0LY.

EXXON KNEW, SHELL KNEW, THE INDUSTRY KNEW.

BUSHFIRES – NOT POSSIBLE TO ADAPT TO CATASTROPHIC & ESCALATING CONDITIONS

So what is the catastrophe or disasters are we actually looking at? Greg Mullins stated in his submission to the bushfire inquiry that…

> ***'Irrefutable empirical scientific data****, reinforced by observations of veteran firefighters and people on the land, confirm that a* ***warming climate, proven to be caused by the burning of coal, oil and gas****, is resulting in worsening and more frequent extreme weather events such as those that spawned the 2019-20 bushfires in NSW, Qld, SA, Victoria, WA and Tasmania.* ***It is not possible to "adapt" to such catastrophic and escalating conditions, and they can only be partially mitigated'.***
>
> [Submission 36 to Bushfire Inquiry from Emergency Leaders for Climate Action, pg.2]

This should be listened to. These are natural disasters that we're already seeing increase in intensity and frequency and will continue to do so into the future without adaptation, mitigation and prevention.

REPORT by SENIOR OFFICALS FROM KEY AGENCIES - ARMY, DEFENSE INTELLIGENCE AGENCY, AND NASA

INFERS SOCIAL/ECONOMIC AS WELL AS MILITARY COLLAPSE POSSIBLE OVER THE NEXT TWO DECADES

The catastrophic disasters could be so dire that senior officials from the U.S. Army, Defence Intelligence Agency and NASA contributed to a report which, basically infers a social and economic collapse. This is indicated through the following citation:

> *'According to a new U.S. Army report, Americans could face a horrifically grim future from climate change involving blackouts, disease, thirst, starvation and war. The study found that the US military itself might also collapse. This could all happen over the next two decades, the report notes.*

The senior US government officials who wrote the report are from several key agencies including the Army, Defense Intelligence Agency, and NASA. The study called on the Pentagon to urgently prepare for the possibility that domestic power, water, and food systems might collapse due to the impacts of climate change as we near mid-century'.'

[https://www.vice.com/en_au/article/mbmkz8/us-military-could-collapse-within-20-years-due-to-climate-change-report-commissioned-by-pentagon-says]

The climate crisis is therefore something that we need to address now. As already stated, Exxon Mobil states on its website,

"*We believe that climate change risks warrant action and it's going to take all of us — business, governments and consumers — to make meaningful progress.*". [https://www.exxonmobil.com.au/Energy-and-environment/Environmental-protection/Climate-change]

It warrants action, not inaction.

FURTHER INFORMATION:

If the owners of the Russell Vale mine and the Government did fully consider the climate risk then its proposed expansion would be rejected.

Companies Duty of Care and Governments Duty to Protect the Community are outlined by Senior Council and Martjin Wilder as follows:

Senior Counsel:

'We indicated that in our view, company directors who fail to consider climate change risk now could be found liable for breaching their duty of care and diligence in the future. Indeed, we considered then that the negligence allegation against a director who had ignored climate risk was likely to be only a matter of time.'

https://cpd.org.au/wp-content/uploads/2019/03/Noel-Hutley-SC-and-Sebastian-Hartford-Davis-Opinion-2019-and-2016_pdf.pdf

Martijn Wilder, who is noted as chairperson on the government appointed Climate Change Council:

'[It's] only a matter of time before we see litigation against a director who has failed to perceive, disclose or take steps in relation to a foreseeable climate-related risk.

it was just a matter of time when people could sue over the impacts of climate change with a strong chance of success as governments 'have a duty of care to protect the community'

[https://lsj.com.au/articles/the-mainstreaming-of-climate-litigation/]

Sonya McKay, *LLB, GradDipLegPrac, BA (Psychology, Politics).*
Currently: Master of Environmental Law.
Fridays 4 Future Online (F4FO),
International Community and Environment Connection (ICEC)

Encl: Power Point Slides utilised at the hearing with minimal change.

APPENDIX:

Ecologically Sustainable Development encompasses precautionary principle/intergenerational equity Environmental Planning and Assessment Act 1979 No 203, s.1.3(b) to definitions Protection of the Environment Administration Act 1991 No 60, s.6(2)

Objects of the Environmental Planning and Assessment Act 1979

> 1.3*(b)* ***to facilitate ecologically sustainable development*** *by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,*

ESD definition directs to *Protection of the Environment Administration Act 1992*

> *6(2) For the purposes of subsection (1) (a), ecologically sustainable development requires the effective integration of social, economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:*
>
> ***the precautionary principle****—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*
>
> *In the application of the precautionary principle, public and private decisions should be guided by:*
>
> *careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
>
> *an assessment of the risk-weighted consequences of various options,*
>
> ***inter-generational equity****—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*
>
> *conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*
>
> *improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:*
>
> *polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
>
> *the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
>
> *environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

Matters for Consideration under Environmental Planning and Assessment Act (NSW) 1979

4.15 Evaluation(cf previous s 79C)

(1) Matters for consideration—general In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application—

(a) the provisions of—

(i) any environmental planning instrument, and

(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and

(iii) any development control plan, and

(iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and

(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),

(v) (Repealed)

that apply to the land to which the development application relates,

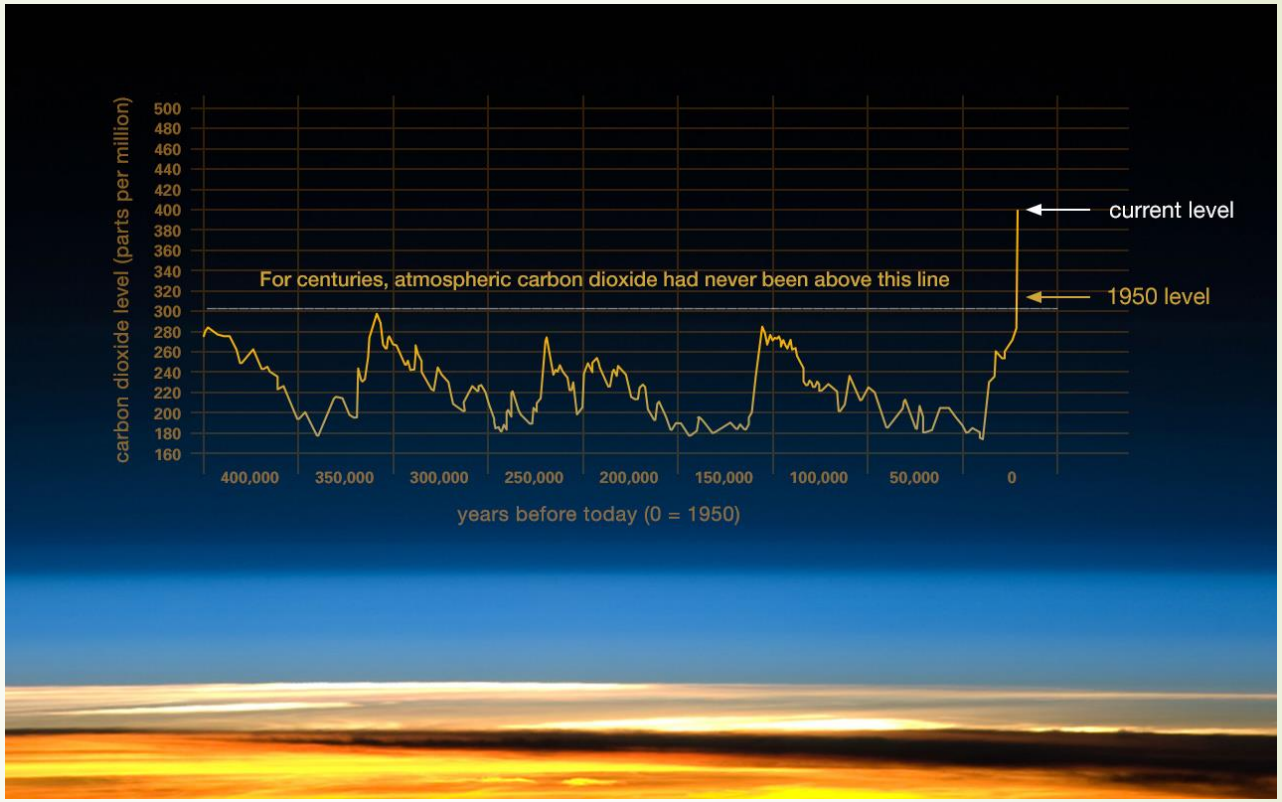
(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

(c) the suitability of the site for the development,

(d) any submissions made in accordance with this Act or the regulations,

(e) the public interest.

Russell Vale Coal Mine Expansion



Climate Change & GHG

Sonya McKay, LLB, GradDipLegPrac,
BA (Psychology, politics), Wollongong University
currently Master of Environmental Law

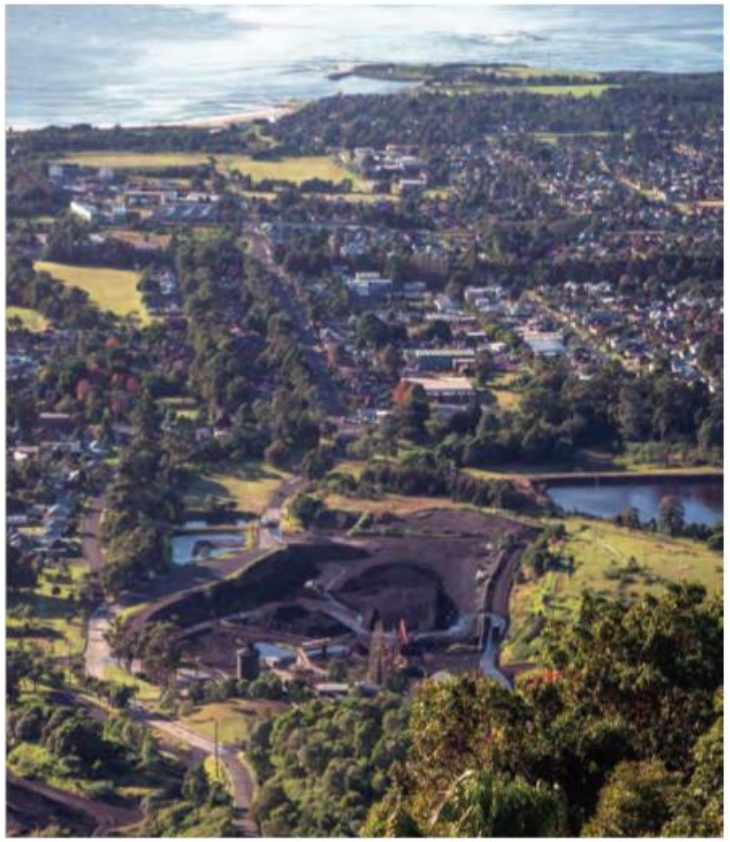
EXXONMOBILE state on their website
'We believe climate change risks warrant action'
https://www.exxonmobil.com.au/Energy-and-environment/Environmental-protection/Climate-

Russell Vale Revised Underground Expansion Project

State Significant Development (MP09_0013)

Planning Secretary's Final Assessment Report

September 2020



NSW Department of Planning, Industry and Environment | dpie.nsw.gov.au

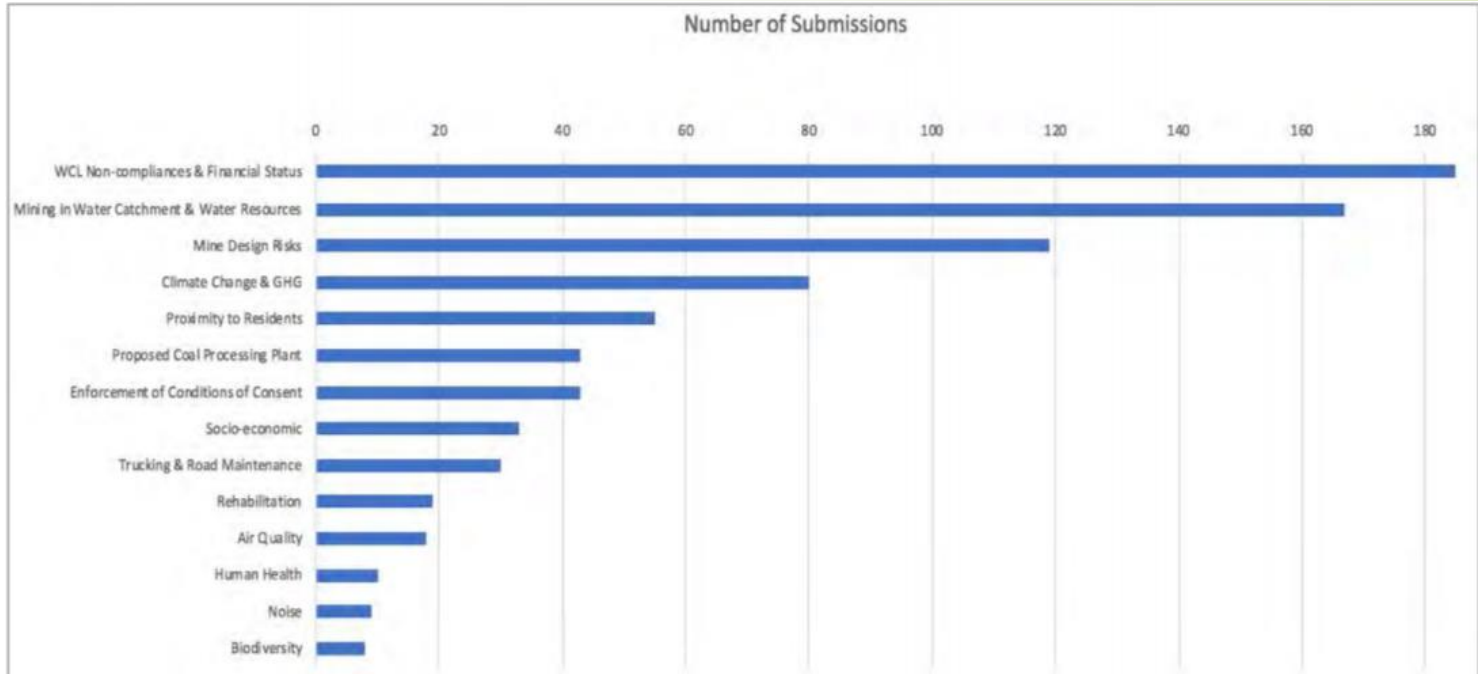
Departments Report states -

*'**Two public hearings** were held by the Planning Assessment Commission on the PPR with reports completed **in 2015 and 2016** with the **Commission concluding** after the second review that the social and **economic benefits of the Preferred UEP were most likely outweighed by the magnitude of impacts to the environment**. This conclusion was largely due to uncertainty associated with subsidence and groundwater impacts as a result of proposed longwall mining in the multi-seam mining environment present at Russell Vale'. Pg. 5*

Number of Submissions and Key Concerns mentioned

80 submissions were concerned with

Climate Change & GHG



Departments Report - states

'Unwelt, considered that the project, in isolation, is unlikely to influence global emissions'

Greenhouse Gas Emissions	• Umwelt prepared a Greenhouse Gas and Energy Assessment (GHGEA) for the Revised UEP (refer to Appendix 8 of the RPPR). Greenhouse gas emissions and climate change were key issues raised in public and special interest group submission on the project. • The GHGEA predicted that the project would generate approximately 1,523,000 t CO2-e of Scope 1 and 2 emissions primarily from the combustion of diesel, release of fugitive emissions and the use of electricity over the 5-year mine life. The project is also forecast to be associated with approximately 9,624,000 t CO2-e of Scope 3 emissions, which would be generated by third parties who transport and consume the project's coal products. • The GHGEA indicated that the forecast project-related emissions would contribute to 0.0005% of annual global GHG emission estimates. Based on this estimate, Umwelt considered that the project, in isolation, is unlikely to influence global emissions and climate change trajectories. • Further, the GHGEA noted that for Australia to achieve its commitment under the Paris Agreement, it would need to achieve a 28% (ie. 762,000,000 t CO2-e) reduction in GHG emissions by 2030. The forecast project-related emissions would increase the required national mitigation effort by approximately 0.19%. This increase is unlikely to affect Australia achieving its national mitigation targets in any material way. • The Department notes that coal produced from the Revised UEP would most likely be used for steel-making in India which is a signatory of the Paris Agreement. • In accordance with the Mining SEPP, the Department considers that the coal resource associated with the Revised UEP is significant based on the high quality of the coal and the overall socio-economic benefits of the project. • The Department has recommended that WCL be required to prepare and implement an updated Air Quality and Greenhouse Gas Management Plan to detail measures to minimise GHG emissions during both the construction and operational phases of the project.

You can't take emission impacts in isolation in an integrated dynamic system

'there are threats of serious or irreversible environmental damage'

Development Consent

Section 4.38 of the Environmental Planning and Assessment Act 1979

The Independent Planning Commission of NSW (the Commission), as the declared consent authority under clause 8A of the *State Environmental Planning Policy (State and Regional Development) 2011* and section 4.5(a) of the *Environmental Planning and Assessment Act 1979*, approves the development application referred to in Schedule 1, subject to the conditions in Schedule 2.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development.

SCHEDULE 2

PART A - ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

A1. In addition to meeting the specific performance measures and criteria established under this consent, the Applicant must implement all reasonable and feasible measures to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.

Consent conditions mentions minimizing adverse environmental impacts and an obligation to minimize 'harm' to the environment

IPC & Departments – Matters for Consideration under Environmental Planning and Assessment Act (NSW) 1979

4.15 Evaluation(cf previous s 79C)

(1) Matters for consideration—general In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application—

(a) **the provisions of—**

(i) any environmental planning instrument, and

(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and

(iii) any development control plan, and

(iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and

(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),

(v) (Repealed)

that apply to the land to which the development application relates,

(b) **the likely impacts** of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,

(c) the suitability of the site for the development,

(d) any submissions made in accordance with this Act or the regulations,

(e) the public interest.

Departments Report – Consideration of Objects of the EP&A Act

		region.
(b)	*to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment;*	The Revised UEP is consistent with ecologically sustainable development principles as it would: • result in negligible subsidence-related risks and impacts to built or natural features, including the Cataract Reservoir or upland swamps; • not require clearing of any native vegetation; • provide employment and business opportunity in the local/ regional area using an existing/ upgraded infrastructure area; • provide a high quality metallurgical coal resource for steel making while contributing to royalties to the NSW Government; • have no impact on Aboriginal cultural heritage or historic heritage.

*64. The **consent authority must consider the objects of the EP&A Act** when making decisions under the Act.*

*The Department has updated its consideration of the relevant provision of the objects of the EP&A Act (see section 1.3 of the Act). Appendix D – Table D1 summarises how the **Department considers that the project can be undertaken in a manner that is consistent with these objectives, including Ecologically Sustainable Development (ESD).***

THIS IS NOT POSSIBLE

Ecologically Sustainable Development encompasses precautionary principle/intergenerational equity

Environmental Planning and Assessment Act 1979 No 203, s.1.3(b) to definitions Protection of the Environment Administration Act 1991 No 60, s.6(2)

Objects of the Environmental Planning and Assessment Act 1979

(b) **to facilitate ecologically sustainable development** by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,

ESD definition directs to *Protection of the Environment Administration Act 1992*

6(2) For the purposes of subsection (1) (a), **ecologically sustainable development requires the effective integration of social, economic and environmental considerations in decision-making processes**. **Ecologically sustainable development can be achieved through the implementation of the following principles and programs:**

(a) **the precautionary principle**—namely, that if **there are threats of serious or irreversible environmental damage**, **lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.**

In the application of the precautionary principle, public and private decisions should be guided by:

(i) **careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment**, and

(ii) an assessment of the risk-weighted consequences of various options,

(b) **inter-generational equity**—namely, that the **present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations**,

(c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:

(i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

Project: ESD or Precautionary?

- How is a proposal that produces a product that the fossil fuel industry itself predicted would have significant impacts on the climate be considered Ecologically Sustainable Development or utilizing the precautionary principle or considering Intergenerational Equity

EXXON in 1982 on Greenhouse Effect

CO_2 "GREENHOUSE EFFECT" PROPRIETARY

SUMMARY

Atmospheric monitoring programs show the level of carbon dioxide in the atmosphere has increased about 8% over the last twenty-five years and now stands at about 340 ppm. This observed increase is believed to be the continuation of a trend which began in the middle of the last century with the start of the Industrial Revolution. Fossil fuel combustion and the clearing of virgin forests (deforestation) are believed to be the primary anthropogenic contributors although the relative contribution of each is uncertain.

The carbon dioxide content of the atmosphere is of concern since it can affect global climate. Carbon dioxide and other trace gases contained in the atmosphere such as water vapor, ozone, methane, carbon monoxide, oxides of nitrogen, etc. absorb part of the infrared rays reradiated by the earth. This increase in absorbed energy warms the atmosphere inducing warming at the earth's surface. This phenomenon is referred to as the "greenhouse effect".

Predictions of the climatological impact of a carbon dioxide induced "greenhouse effect" draw upon various mathematical models to gauge the temperature increase. The scientific community generally discusses the impact in terms of doubling of the current carbon dioxide content in order to get beyond the noise level of the data. We estimate doubling could occur around the year 2090 based upon fossil fuel requirements projected in Exxon's long range energy outlook. The question of which predictions and which models best simulate a carbon dioxide induced climate change is still being debated by the scientific community. Our best estimate is that doubling of the current concentration could increase average global temperature by about 1.3° to 3.1°C. The increase would not be uniform over the earth's surface with the polar caps likely to see temperature increases on the order of 10°C and the equator little, if any, increase.

Considerable uncertainty also surrounds the possible impact on society of such a warming trend, should it occur. At the low end of the predicted temperature range there could be some impact on agricultural growth and rainfall patterns which could be beneficial in some regions and detrimental in others. At the high end, some scientists suggest there could be considerable adverse impact including the flooding of some coastal land masses as a result of a rise in sea level due to melting of the Antarctic ice sheet. Such an effect would not take place until centuries after a 3°C global average temperature increase actually occurred.

There is currently no unambiguous scientific evidence that the earth is warming. If the earth is on a warming trend, we're not likely to detect it before 1995. This is about the earliest projection of when the temperature

EC-11-5/A3

A 1982 EXXON document explains **atmospheric carbon dioxide levels had increased due to fossil fuel combustion and deforestation** and that this can affect global climate through the phenomenon known as the 'greenhouse effect'

'There is currently no unambiguous scientific evidence that the earth is warming'

https://insideclimatenews.org/sites/default/files/documents/1982%20Exxon%20Primer%20on%20CO2%20Greenhouse%20Effect.pdf

EXXON in 1982 on Greenhouse Effect

- 2 -

might rise the 0.5° needed to get beyond the range of normal temperature fluctuations. On the other hand, if climate modeling uncertainties have exaggerated the temperature rise, it is possible that a carbon dioxide induced "greenhouse effect" may not be detected until 2020 at the earliest.

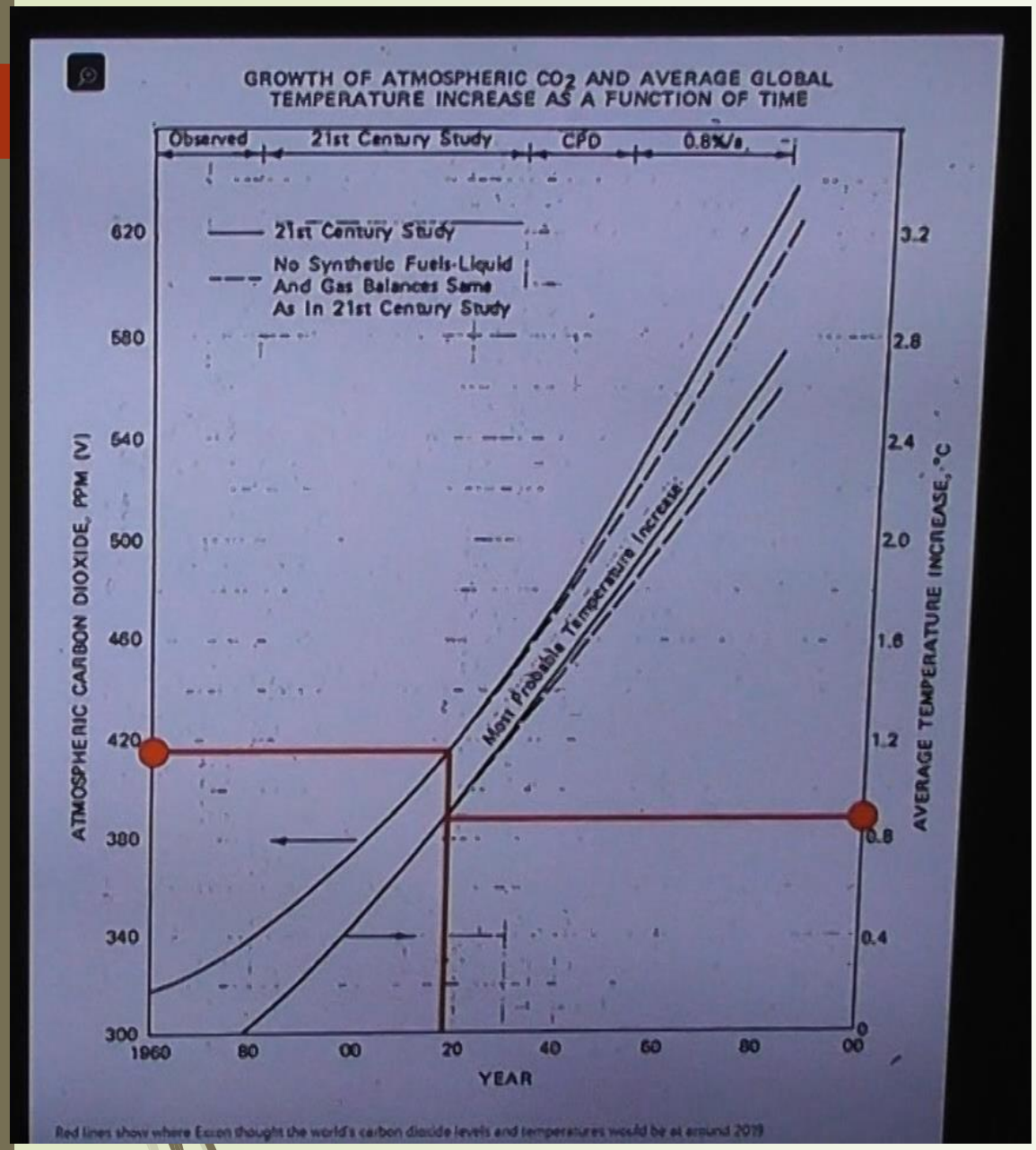
The "greenhouse effect" is not likely to cause substantial climatic changes until the average global temperature rises at least 1°C above today's levels. This could occur in the second to third quarter of the next century. However, there is concern among some scientific groups that once the effects are measurable, they might not be reversible and little could be done to correct the situation in the short term. Therefore, a number of environmental groups are calling for action now to prevent an undesirable future situation from developing.

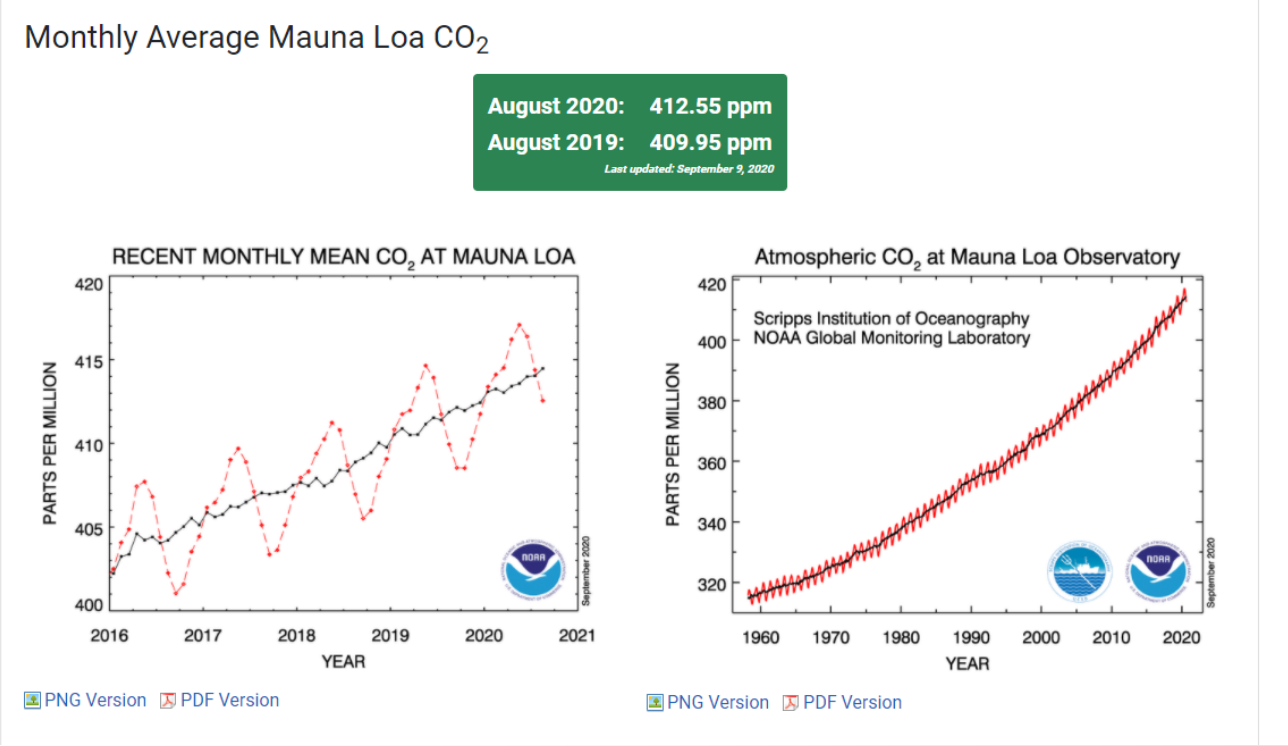
Mitigation of the "greenhouse effect" would require major reductions in fossil fuel combustion. Shifting between fossil fuels is not a feasible alternative because of limited long-term supply availability for certain fuels although oil does produce about 18% less carbon dioxide per Btu of heat released than coal, and gas about 32% less than oil. The energy outlook suggests synthetic fuels will have a negligible impact at least through the mid 21st century contributing less than 10% of the total carbon dioxide released from fossil fuel combustion by the year 2050. This low level includes the expected contribution from carbonate decomposition which occurs during shale oil recovery and assumes essentially no efficiency improvements in synthetic fuels processes above those currently achievable.

Overall, the current outlook suggests potentially serious climate problems are not likely to occur until the late 21st century or perhaps beyond at projected energy demand rates. This should provide time to resolve uncertainties regarding the overall carbon cycle and the contribution of fossil fuel combustion as well as the role of the oceans as a reservoir for both heat and carbon dioxide. It should also allow time to better define the effect of carbon dioxide and other infrared absorbing gases on surface climate. Making significant changes in energy consumption patterns now to deal with this potential problem amid all the scientific uncertainties would be premature in view of the severe impact such moves could have on the world's economies and societies.

The 1982 EXXON document stated that 'The **greenhouse effect' is not likely to cause substantial climatic change until the average global temperature rises at least 1 degree'.** It explained that global warming would **not be uniform and the polar caps** would see high temperatures. It also outlined impacts on the **low end on agricultural growth and rainfall patterns** while on the **high end flooding of some coastal land masses** as a result of seal level rise due to Antarctic ice sheet melting.

https://insideclimatenews.org/sites/default/files/documents/1982%20Exxon%20Primer%20on%20CO2%20Greenhouse%20Effect.pdf





EXXON research predictions released in a 1982 document (left graph) ties in with NOAA's data of 412.55ppm carbon dioxide concentration in the atmosphere (right graphs) and the United Nations IPCC advice that we are already seeing the consequence of a 1 degree celsius rise in global temperatures.

EXXON further predicted that we would reach over 430ppm carbon dioxide atmospheric concentration and a 1.5 degree warming around 2030.

See:
https://insideclimatenews.org/sites/default/files/documents/1982%20Exxon%20Primer%20on%20CO2%20Greenhouse%20Effect.pdf
https://www.esrl.noaa.gov/gmd/ccgg/trends/mlo.html
https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/

File | D:/narrabri%20hearing/_Catastrophic_%20Effects%20Letter%20(1981).pdf

'EXXON INTEROFFICE DOCUMENT BY PHYSICIST: 'Whereas I can agree with the statement that our best guess is that observable effects in the year 2030 are likely to be 'well short of catastrophic', it is distinctly possible that the CPD scenario will later produce effects which will indeed be catastrophic'

GENERAL – 154-1-1B

INTER-OFFICE CORRESPONDENCE

DATE August 18, 1981

TO W. Glass

FROM R. W. Cohen

REFERENCE

SUBJECT

I have looked over the draft of the EED reply to the request from O'Loughlin. The only real problem I have is with the second clause of the last sentence in the first paragraph: "but changes of a magnitude well short of catastrophic..." I think that this statement may be too reassuring. Whereas I can agree with the statement that our best guess is that observable effects in the year 2030 are likely to be "well short of catastrophic", it is distinctly possible that the CPD scenario will later produce effects which will indeed be catastrophic (at least for a substantial fraction of the earth's population). This is because the global ecosystem in 2030 might still be in a transient, headed for much more significant effects after time lags perhaps of the order of decades. If this indeed turns out to be case, it is very likely that we will unambiguously recognize the threat by the year 2000 because of advances in climate modeling and the beginning of real experimental confirmation of the CO_2 effect. The effects of such a recognition on subsequent fossil fuel combustion are unpredictable, but one can say that predictions based only on our knowledge of availability and economics become hazardous.

I would feel more comfortable if the first paragraph concluded with a statement to the effect that future developments in global data gathering and analysis, along with advances in climate modeling, may provide strong evidence for a delayed CO_2 effect of a truly substantial magnitude, a possibility which increases the uncertainty surrounding the post-2000 CPD scenario.

ROGER W. COHEN

RWC:tmw

Attachment

cc: H. N. Weinberg
A. J. Callegari

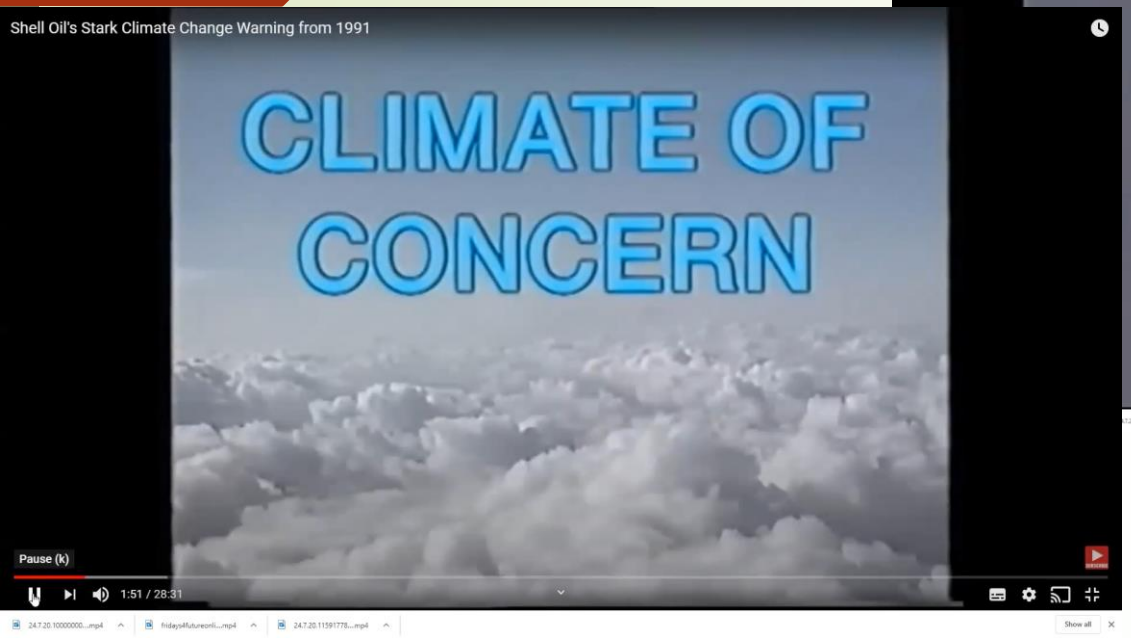
'This is because the global ecosystem in 2030 might still be in a transient, headed for much more significant effects after time lags perhaps of the order of decades.'

Climate modeling, may provide strong evidence for a delayed C02 effect of a truly substaintial magnitude'

'EXXON INTEROFFICE DOCUMENT BY PHYSICIST: Whereas I can agree with the statement that our best guess is that observable effects in the year 2030 are likely to be 'well short of catastrophic', it is distinctly possible that the CPD scenario will later produce effects which will indeed be catastrophic'

IF YOUR NOT PERSUADED BY SCIENTISTS THEN…

Shell released a documentary in 1991 while EXXON notes on their internet site that they have 40 years of climate science research



Climate of Concern - Royal Dutch Shell (1991)

Shell's 1991 documentary (Climate of Concern) also discussed the 'greenhouse effect' and outlined a small but significant warming trend over the century with computer modelling showing the possibility of ***warming in the range of 1.5 degrees to 4 degrees by 2050*** explaining that the rate of change could be faster then at any other time since the end of the ice ace. The concern being ***'change too fast perhaps for life to adapt without severe dislocation'.*** They explained that scientists were foreseeing not a steady even warming overall but ***'alternations to familiar pattens of climate'.***

Shell undertook a documentary style video that was entitled 'Climate of Concern' which discussed the interaction between fossil fuels and a warming planet. See:https://www.youtube.com/watch?v=0VOWi8oVXmo

Global Warming of 1.5°C, an IPCC special report on the impacts of global warming of 1.5°C 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, IPCC (2018)

*"**One of the key messages that comes out very strongly from this report is that we are already seeing the consequences of 1°C of global warming through more extreme weather, rising sea levels and diminishing Arctic sea ice, among other changes**," said Panmao Zhai, Co-Chair of IPCC Working Group I.*

*The report highlights a number of climate change impacts that could be avoided by limiting global warming to 1.5°C compared to 2°C, or more. For instance, by 2100, global sea level rise would be 10 cm lower with global warming of 1.5°C compared with 2°C. The likelihood of an **Arctic Ocean free of sea ice** in summer would be once per century with global warming of 1.5°C, compared with at least once per decade with 2°C. **Coral reefs would decline by 70-90 percent with global warming of 1.5°C, whereas virtually all (> 99 percent) would be lost with 2°C**.*

***Limiting global warming would also give people and ecosystems more room to adapt** and remain below relevant risk thresholds, added Pörtner. The report also examines pathways available to limit warming to 1.5°C, what it would take to achieve them and what the consequences could be. - 2 –*

"The good news is that some of the kinds of actions that would be needed to limit global warming to 1.5°C are already underway around the world, but they would need to accelerate," said Valerie Masson-Delmotte, Co-Chair of Working Group I.

***The report finds that limiting global warming to 1.5°C would require "rapid and far-reaching" transitions in land, energy, industry, buildings, transport, and cities.** Global net human-caused emissions of carbon dioxide (CO2) would need to fall by about 45 percent from 2010 levels by 2030, reaching 'net zero' around 2050. This means that any remaining emissions would need to be balanced by removing CO2 from the air.*

[https://www.ipcc.ch/site/assets/uploads/2018/11/pr_181008_P48_spm_en.pdf]

***"Every extra bit of warming matters, especially since warming of 1.5°C or higher increases the risk associated with long-lasting or irreversible changes, such as the loss of some ecosystems**," said Hans-Otto Pörtner, Co-Chair of IPCC Working Group II.*

Limiting global warming would also give people and ecosystems more room to adapt and remain below relevant risk thresholds, added Pörtner.'

https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/

The United Nations World Metrological Organisation (WMO) indicated in July 2020 that ‘there is a 20% chance that one of the next 5 years will be 1.5 degree warmer

- https://public.wmo.int/en/media/press-release/new-climate-predictions-assess-global-temperatures-coming-five-years

Department of Defense (DoD) 2014 Climate Change Adaptation Roadmap

- *Today, the Department of Defense (DoD) released its 2014 Climate Change Adaptation Roadmap, which focuses on various actions and planning the DoD is taking to increase its resilience to the impacts of climate change.*

  "Among the future trends that will impact our national security is climate change," said Secretary of Defense Chuck Hagel. ***"Rising global temperatures, changing precipitation patterns, climbing sea levels, and more extreme weather events will intensify the challenges of global instability, hunger, poverty, and conflict.*** *By taking a proactive, flexible approach to assessment, analysis, and adaptation, the Defense Department will keep pace with a changing climate, minimize its impacts on our missions, and continue to protect our national security."*

[https://www.defense.gov/Newsroom/Releases/Release/Article/605221/]

Army, Defense Intelligence Agency, and NASA

'According to a new U.S. Army report, Americans could face a horrifically grim future from climate change involving ***blackouts, disease, thirst, starvation and war****. The study found that the* ***US military itself might also collapse****. This could all happen over the next two decades, the report notes.*

The senior US government officials who wrote the report are from several key agencies including the Army, Defense Intelligence Agency, and NASA. ***The study called on the Pentagon to urgently prepare for the possibility that domestic power, water, and food systems might collapse due to the impacts of climate change as we near mid-century'.'***

https://www.vice.com/en_au/article/mbmkz8/us-military-could-collapse-within-20-years-due-to-climate-change-report-commissioned-by-pentagon-says, 25 October 2019

[*'Implications of Climate Change for the U.S. Army'*, was launched by the U.S. Army War College in partnership with NASA in May]

https://climateandsecurity.files.wordpress.com/2019/07/implications-of-climate-change-for-us-army_army-war-college_2019.pdf

Paris Agreement

Under the Paris Agreement developed countries, such as Australia, are meant to lead the way towards keeping temperature rise under 2 degrees, while aiming for 1.5 degrees.

- Article 2(a) of the Paris Agreement indicates that Australia is to enhance the convention, including 'its objective, by
  - Holding temperatures below 2 degrees and pursuing a limit of 1.5 degrees.
- The parties to the agreement also recognize '*the fundamental priority of safeguarding food security and ending hunger, and the particularly vulnerabilities of food production systems to the adverse impacts of climate change.*'
- The parties also acknowledge climate change as a common concern and that when taking action to address it respect, promote and consider respective obligations that include intergenerational equity.
- Article 4 (4). **Developed country Parties should continue taking the lead by undertaking economy-wide absolute emission reduction targets**. Developing country Parties should continue enhancing their mitigation efforts, and are encouraged to move over time towards economy-wide emission reduction or limitation targets in the light of different national circumstances.
- Article 10 (6) *Support, including financial support, shall be provided to developing country Parties for the implementation of this Article, including for strengthening cooperative action on technology development and transfer at different stages of the technology cycle, with a view to achieving a balance between support for mitigation and adaptation. The global stocktake referred to in Article 14 shall take into account available information on efforts related to support on* ***technology development and transfer for developing country Parties***.

Issue: UN Gap Report 2019

- *'G20 members account for 78 per cent of global GHG emissions.* ***Collectively, they are on track to meet their limited 2020 Cancun Pledges****, but* ***seven countries are currently not on track to meet 2030 NDC commitments****, and for a further three, it is not possible to say.'*

- *'**Australia is carrying forward their overachievement from the Kyoto period to meet their 2020 Cancun Pledge** and counts cumulative emissions between 2013 and 2020. With this method, the Australian Government projects that the country will overachieve its 2020 pledge. However, **if this 'carryforward' approach is not taken, Australia will not achieve its 2020 pledge**.': pg. 6.*

- *'In contrast, **seven G20 members require further action of varying degree to achieve their NDC: Australia**, Brazil, Canada, Japan, the Republic of Korea, South Africa and the United States of America.' p.g 7.*

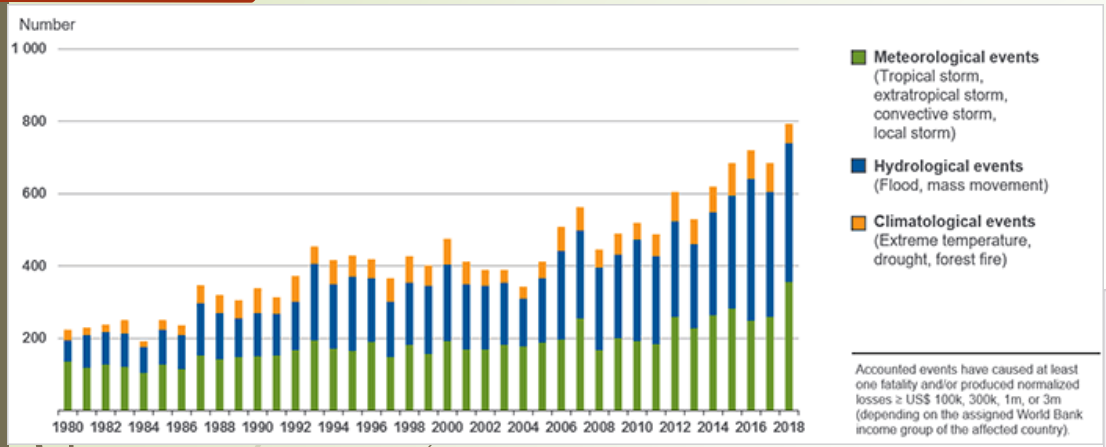
- *'The UNEP Emissions Gap Report 2019 finds that* ***even if all unconditional Nationally Determined Contributions (NDCs) under the Paris Agreement are implemented, we are still on course for a 3.2°C temperature rise****', pg. X111*

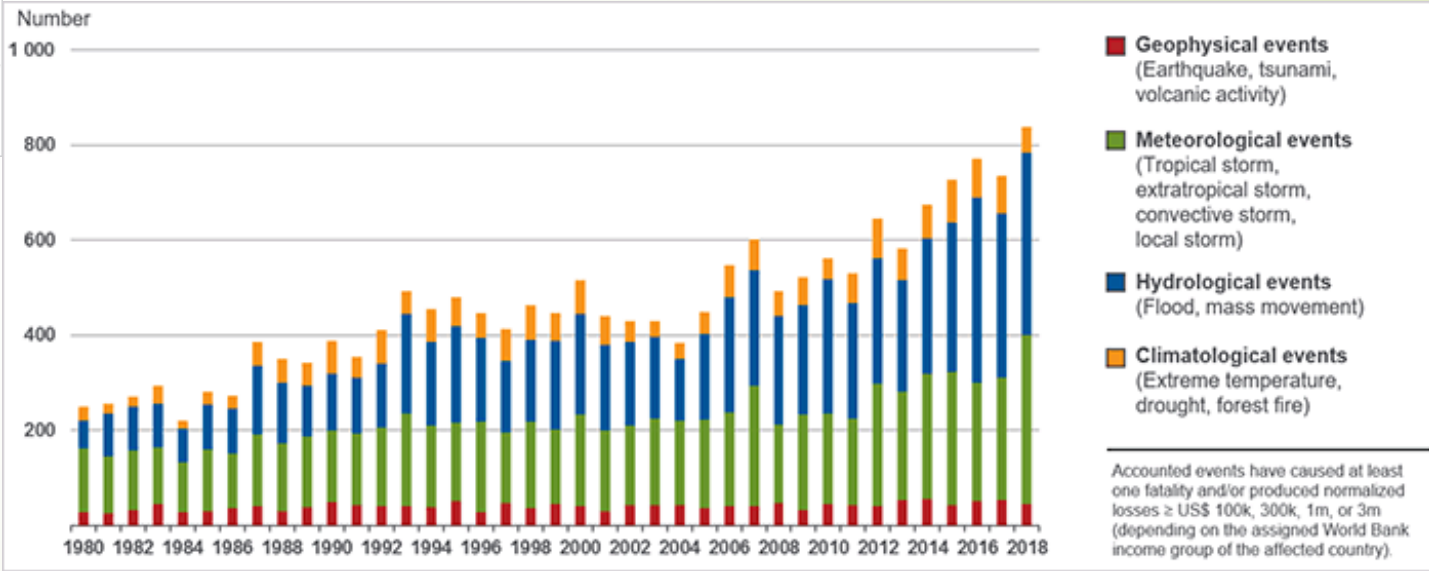
- https://www.unenvironment.org/resources/emissions-gap-report-2019

- https://wedocs.unep.org/bitstream/handle/20.500.11822/30798/EGR19ESEN.pdf?sequence=13

Worldwide Catastrophes

Source: © 2019 Munich Re, Geo Risks Research, NatCatSERVICE. As of March 2019.





- https://www.gccapitalideas.com/2020/04/21/protecting-our-planet-and-the-public-purse-climate-models-uneven-impact/
- https://www.iii.org/fact-statistic/facts-statistics-global-catastrophes

NATURAL DISASTER COSTS TO REACH $39 BILLION PER YEAR BY 2050
Deloitte Report on Australia from 2017

'The total costs of natural disasters in Australia are forecast to more than double in real terms to $39 billion per year by 2050, according to a new report released today by the Australian Business Roundtable for Disaster Resilience and Safer Communities (the Roundtable).

The report, Building Resilience to Natural Disasters in our States and Territories, prepared by Deloitte Access Economics, examines the costs of natural disasters in each state and territory over the last decade and the estimated costs to 2050.

The report found the total economic cost of natural disasters in Australia over the 10 years to 2016 averaged $18.2 billion per year, equivalent to 1.2% of average Gross Domestic Product (GDP).

In real terms, the total economic cost of natural disasters is forecast to grow by 3.4% per year, double by 2038 and by 2050 reach $39 billion per year in real terms.

More than nine million Australians have been impacted by a natural disaster or extreme weather event over the last 30 years.'

http://australianbusinessroundtable.com.au/assets/reports/media-release-nov-11.pdf

https://www.iag.com.au/natural-disaster-costs-reach-39-billion-year-2050

Climate Change observable impacts

GREAT BARRIER REEF:

'Climate change is the greatest threat to the Great Barrier Reef and coral reefs worldwide' – without mitigation over 60,000 jobs and over $6 billion to the economy are at risk. There have been multiple coral bleaching episodes that include back-to-back bleaching in 2016/2017.

- http://www.gbrmpa.gov.au/our-work/threats-to-the-reef/climate-change#:~:text=Climate%20change%20is%20the%20greatest,)%2C%20agriculture%20and%20land%20clearing.
- https://whc.unesco.org/en/news/1676
- *'The Great Barrier Reef has a economic, social and icon asset value of $56 billion. It supports 64,000 jobs and contributes $6.4 billion to the Australian economy': https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Economics/deloitte-au-economics-great-barrier-reef-230617.pdf*
- *'Minister for Environment and the Great Barrier Reef Leeanne Enoch said that the Great Barrier Reef is a world heritage listed icon that contributes $6 billion to the Australian economy every year and supports over 60,000 jobs.' https://statements.qld.gov.au/statements/90026*
- *https://www.aims.gov.au/docs/research/climate-change/coral-bleaching/bleaching-events.html*

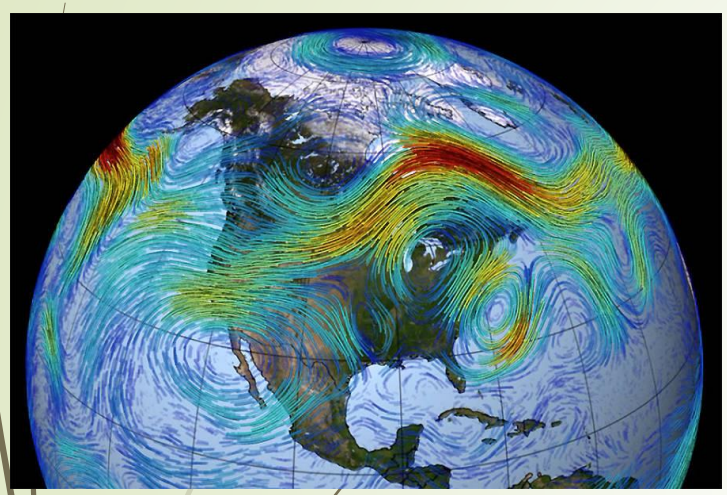
UNPRECEDENTED FIRES/FLOODS

- Unprecedented fires and floods in Queensland over the 2018/2019 summer.
  - Included over 600,000 cattle losses. https://theconversation.com/catastrophic-queensland-floods-killed-600-000-cattle-and-devastated-native-species-120753
- Unprecedented fires along the east coast over the 2019/2020 summer.
  - Almost three billion species lost including 30% Koalas who are suggested to go extinct in NSW by 2050

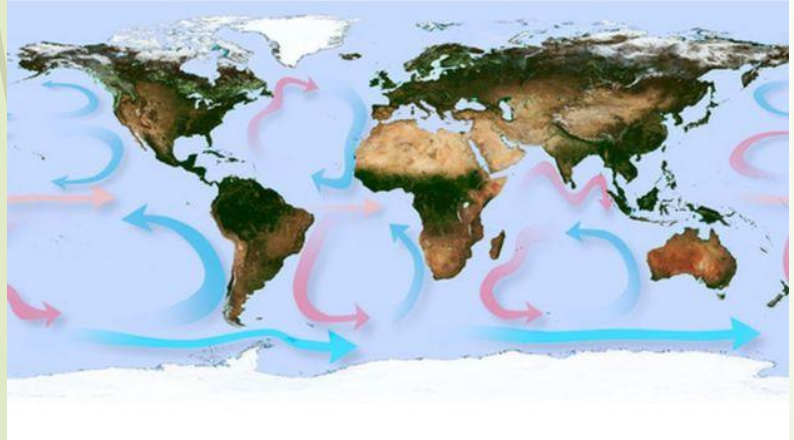
    https://www.theguardian.com/australia-news/2019/dec/27/australias-environment-minister-says-up-to-30-of-koalas-killed-in-nsw-mid-north-coast-fires

    https://www.theguardian.com/environment/2020/jul/28/almost-3-billion-animals-affected-by-australian-megafires-report-shows-aoe?fbclid=IwAR2L3Uha5PPfBQc5fWQmrZ1y2vyH8HiPm_RVJ7KU6hmPeqe_HckEIzzC1Js
- Fires in areas that have never burnt before in Australia (Greg Mullins)
  - https://www.smh.com.au/national/nsw/fires-are-burning-where-they-never-used-to-burn-20190909-p52pnn.html

Climate Crisis Impacts



Jet Stream



Gulf Stream

Impacts to the Gulf Stream and Jet Stream

JET STREAM (Extreme Pattern)

- *'Greenhouse gases are increasingly disrupting the jet stream, a powerful river of winds that steers weather systems in the Northern Hemisphere. That's causing more frequent summer droughts, floods and wildfires, a new study says.'*
- *'The study identifies how the faster warming of the Arctic twists the jet stream into an extreme pattern that leads to persistent heat and drought extremes in some regions, with flooding in other areas.'*
  - *https://insideclimatenews.org/news/31102018/jet-stream-climate-change-study-extreme-weather-arctic-amplification-temperature*

GULF STREAM (Slowing Down)

- *'Visible from the air as a ribbon of cobalt blue water a few miles off the coast, the Gulf Stream forms part of a clockwise system of currents that transports warm water from the tropics up the east coast and across the Atlantic to northwestern Europe. In the frigid climate near Greenland, the water cools, sinks and flows south again, rolling through the deep ocean toward the tropics.'*
- *'This marine circulatory system has reached its weakest point in 1,600 years, recent studies show, having lost about 15% of its strength since the mid-20th century. Scientists disagree on whether climate change or natural cycles account for the slowdown. But a consensus has emerged that climate change will lead to a slower Gulf Stream system in the future, as melting ice sheets in Greenland disrupt the system with discharges of cold fresh water. A weaker Gulf Stream would mean higher sea levels for Florida's east coast.'*
  - *https://phys.org/news/2019-08-gulf-stream-seas-hotter-florida.html*
  - *https://www.bbc.com/news/science-environment-44875508*

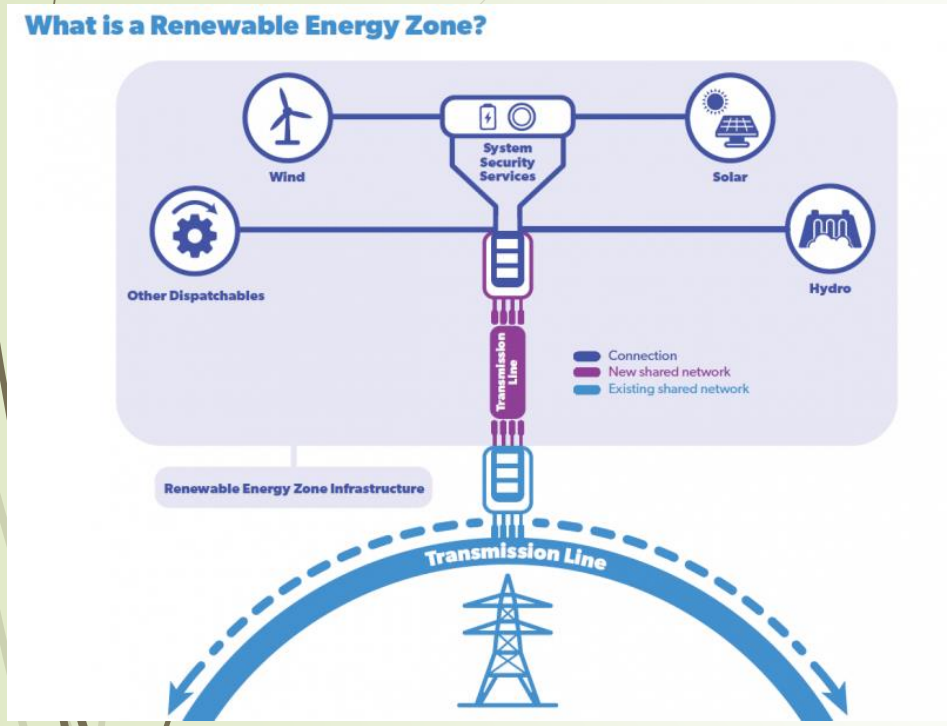
ICE MELT

- Antarctica: https://www.pik-potsdam.de/en/news/latest-news/stability-check-on-antarctica-reveals-high-risk-for-long-term-sea-level-rise?fbclid=IwAR0_DA6mGY-jFLQABZQK0oyh3Cq4wCtx1FmChCf55As5bXom9YJ-NWniQsE'
- Greenland glacier: 'Scientists say the incident is evidence of rapid climate change.' https://www.abc.net.au/news/2020-09-14/chunk-of-greenlands-ice-cap-has-broken-off/12663510

- *'In real terms, the total economic **cost** of natural **disasters** is forecast to grow by 3.4% per year, double by 2038 and by **2050** reach **$39** billion per year in real terms.'*
  - *https://www.iag.com.au/natural-disaster-costs-reach-39-billion-year-2050*

- Over 1 million species at risk of Extinction
  - https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/#:~:text=The%20Report%20finds%20that%20around,20%25%2C%20mostly%20since%201900.
  - https://ipbes.net/news/how-did-ipbes-estimate-1-million-species-risk-extinction-globalassessment-report

Solutions



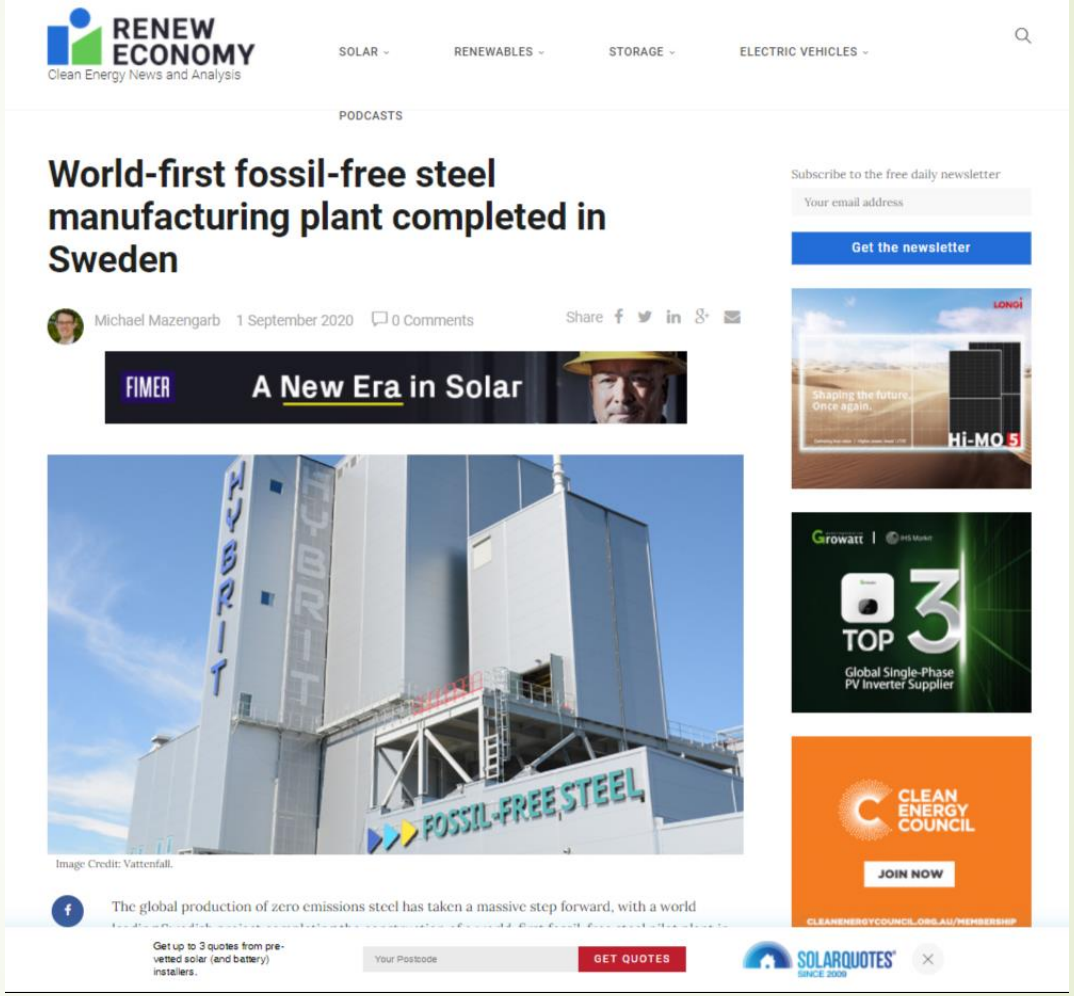
States now have

- **Renewable Energy Zones (NSW and Qld)**
  - https://energy.nsw.gov.au/renewables/renewable-energy-zones
  - https://www.theguardian.com/australia-news/2020/sep/07/renewable-revolution-queensland-to-put-500m-into-clean-energy-fund
  - https://arena.gov.au/blog/funding-announced-to-kickstart-nsw-renewable-energy-zone
  - https://www.dnrme.qld.gov.au/energy/initiatives/queensland-renewable-energy-zones
- **Zero Emission Targets** and/or
- **100% Renewable Energy Targets**

- Carbon price to aid financially with solutions

- Beyond Zero Emissions **Million Jobs Plan**
  - https://millionjobs.org.au/
- Climate Council Clean Jobs Plan
  - https://www.climatecouncil.org.au/resources/clean-jobs-plan/

Renewable hydrogen for Steel plant



https://reneweconomy.com.au/world-first-fossil-free-steel-manufacturing-plant-completed-in-sweden-36577/

This is your moment in time.

This is Our Moment in Time

We cannot afford
fossil fuel projects