

ACF Community Geelong

Independently organised ACF group

RENEWABLES
NOT GAS
FOR GEELONG

-
- Melinda Kennedy (Wadawurrung Traditional Owner)
 - Sal Fisher (President, ACF Community Geelong) - Campaign background & Our Vision
 - Lauren Dillon (Yr 12 student and Sustainability Leader, Clonard College) - Youth perspective
 - Sarah Hathway (Norlane resident) - Jobs and alternatives
 - Neil Plummer (Climate Scientist) - Climate and GHG emissions
 - Mike Vanderkelen (Geelong resident/communications advisor)
 - Dr. Sanja Van Huet (Bellarine resident/Geologist) - Marine impacts
 - Sal Fisher - Safety concerns and Summary



Welcome to Country

Melinda Kennedy Director Murri:Yul
Wadawurrung Traditional owner



Sal Fisher – President, ACF Community Geelong

Introduction to ACF Community Geelong

Est. 2021 to advocate for strong action on climate change for the Geelong region, including an **URGENT transition away from fossil fuels and towards energy efficiencies and clean energy** so that present and future generations will :

- Benefit from the enormous **economic, social and environmental opportunities**, including **more jobs and lower energy costs** generated by renewable energy
- Enjoy a **safer environment** and avoid the worst impacts of Climate Change
- Live in a future with **cleaner air and water, less waste, greater equality and respect for diversity and inclusion.**
- Aligned with the ACF National organisation.

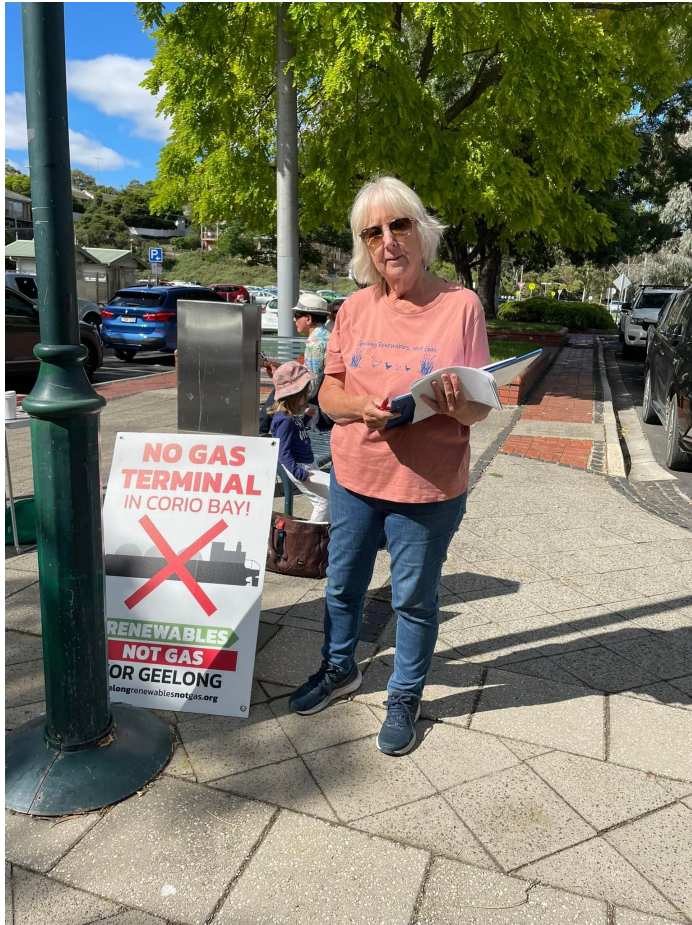
Why we oppose this terminal

1. Gas is highly flammable and many locals are concerned about safety
2. Gas is a dangerous and polluting fossil fuel that contributes to the energy crisis.
3. We are at an energy crossroads - we need to act now to transition our homes and businesses away from fossil fuels
4. The floating gas terminals are a threat to marine life and fishing
5. Geelong should be a Hub for Renewables, Not Gas.

Our campaign has grown - Launch February 2021



Community awareness raising : Events, markets, letter boxing



Geelong Energy Futures Forum - April 2021



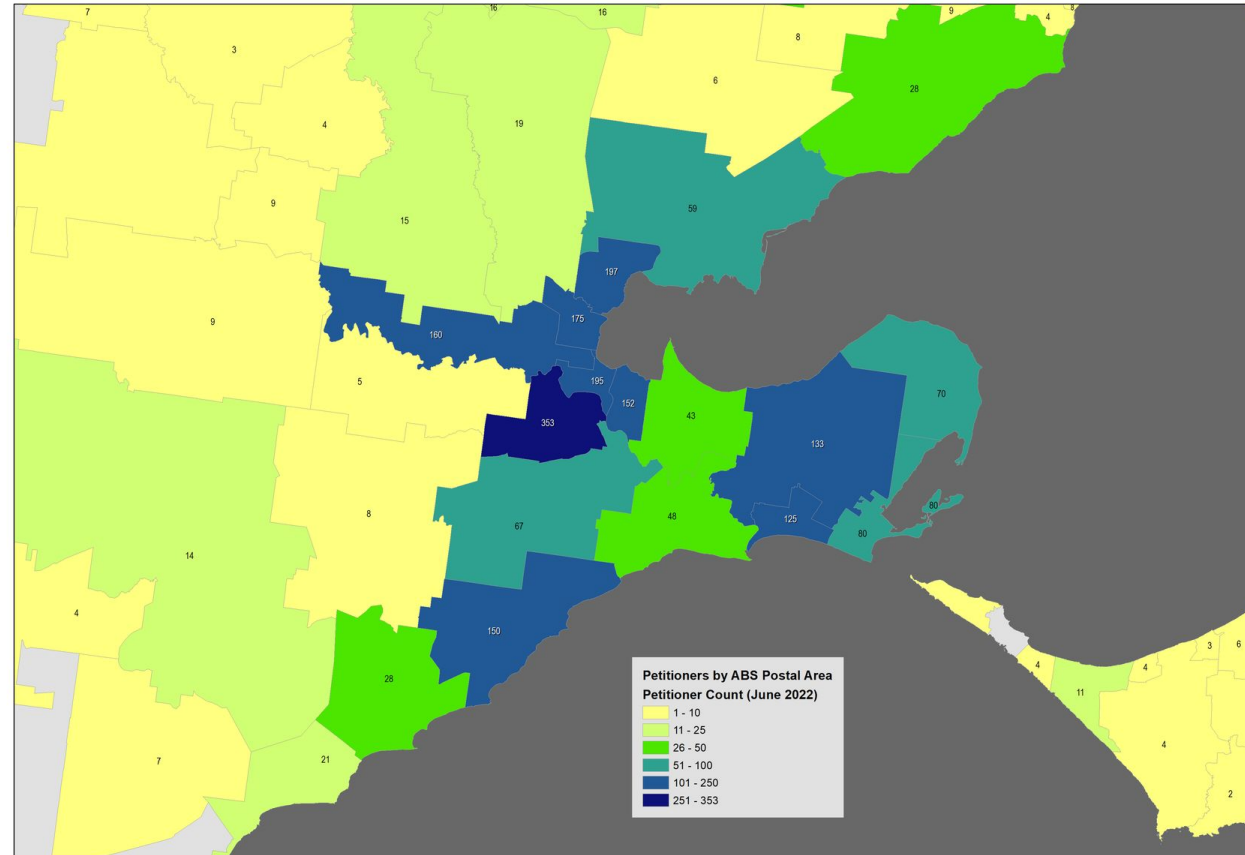
Numerous actions and media coverage



Concern spans the generations -April 2022



Widespread community opposition to the terminal across Geelong and well beyond.



Geelong backs Renewables, Not Gas.

Poll results for postcode 3215

Corio

VIC

Replace gas and coal power with renewable energy and batteries storage is the people's #1 priority solution for greater action on climate change this decade.

71%

of people believe benefits they receive from greater action on climate change outweigh any costs involved.

71%

of people believe greater action on climate change will strengthen the Australian economy.

66%

of people believe greater action on climate change by the federal government would be good for their health.

81% residents want CoGG to do more to help residents & business to reduce emissions. (Geelong Community Survey, 2020)

<https://togetherwecanmovement.org.au/>

NEWS 05

Locals' gas plant worry

JESSICA CORTES

GEELONGADVERTISER.COM.AU WEDNESDAY MARCH 23 2022

edges the proposal location is within a developed port and industrial area, it is also closely located to sensitive uses such as residential housing and schools. The submission read, "The proposal will increase the frequency of heavy vehicles in this area and air pollution. Other concerns were raised about the project's impact on the Geelong waterfront and the Spirit of Tasmania terminal, as well as local businesses and tourism operators."

While Viva is an experienced operator of a major hazard facility, there has been considerable community feedback regarding safety. "This includes increased risk of collision, massive explosion, frequency of gas container shipping in shipping exclusion zones, possible terrorist attacks, and consequent armed and close protection of gas containers."

The submission also detailed "substantial added risks" to nearby neighbours, businesses, ferries and other shipping. "While Viva is an experienced operator of a major hazard facility, there has been considerable community feedback regarding safety. This includes increased risk of collision, massive explosion, frequency of gas container shipping in shipping exclusion zones, possible terrorist attacks, and consequent armed and close protection of gas containers."

analysis was undertaken," it read. CoGG said it welcomed "major investments" in Viva's recent announcement. "While we welcome investment, the community is aware that the current proposals do not have a significant long-term impact on local employment levels," it read. "Geelong through Viva and other investments, is well placed to be a leading energy hub with a long-term focus on renewable energy with consequential substantial increase in local renewable energy industries and employment."

Viva said it "had engaged in extensive community consultation on the project, including on all of the items highlighted in the letter, and each of these matters has been addressed in the comprehensive EES documentation."

"Viva Energy looks forward to continuing the EES process, working with Geelong council and continuing to provide safe and reliable operations as a key part of Geelong's community."

Geelong Advertiser

GAS RELIANCE DANGEROUS

VICTORIA is facing what has been reported as a "frightening" lack of new gas supply projects, which comes as the world is in the grip of an energy supply crisis and soaring prices. Resource companies, including Santos boss Kevin Gallagher, are complaining about a "decade of energy policy failure that has stopped the industry from developing more supply in a timely manner."

Of course, companies with skin in the game and gas fields to ravage for easy profit would say this. But if we are really going to tackle climate change, and not just talk about it, we need to start to rapidly reduce our reliance on gas. Not seek out more of it.

Geelong Advertiser, June 3, 2022

Youth concerns – Lauren Dillon, Sustainability Leader, Clonard College, Geelong



Video of student concerns

https://drive.google.com/file/d/1l3XdujEdFkdXuNMAaDvM5C_sAdRW2kvY/view

Norlane/North Shore local concerns – Sarah Hathway

Greater Geelong: *A Clever & Creative Future*

From September 2016 to May 2017, over 16,000 people told us what they value about the region, how they rate it against the recognised elements of a successful community, and shared ideas about how to address challenges now and in the future.



Roadmap to Zero Emission Geelong Jobs Analysis report

24K jobs over 5 years (1FTE for 1 year = 1 job)

Breakdown of temporary vs ongoing jobs

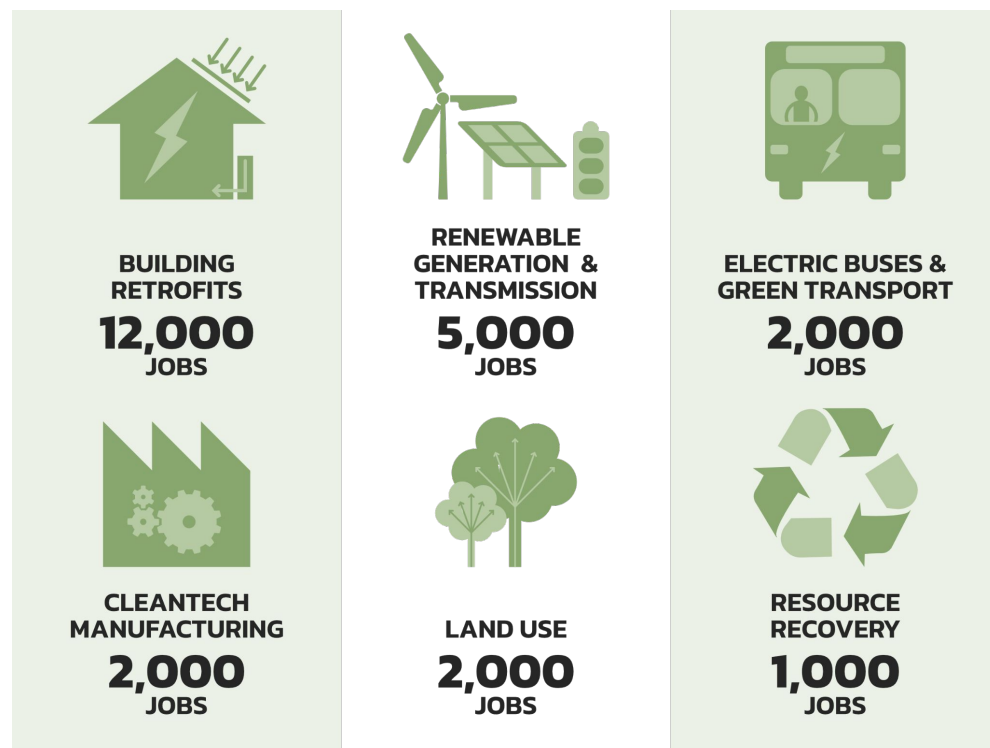
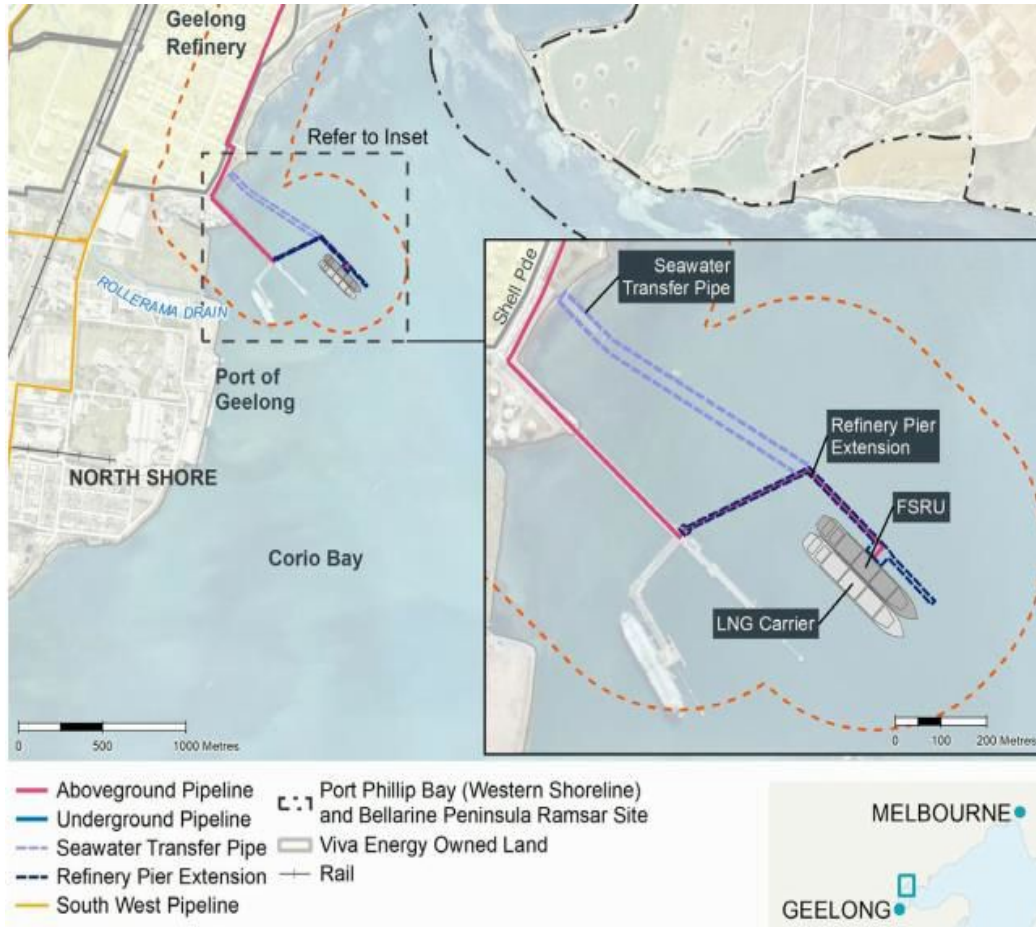


Table 2. Total Zero Emissions job years in the Geelong Region by sector

Sector	Ongoing job years	Temporary job years	Zero Emissions job years
Buildings (Social Housing)	2,496	9,924	12,420
Renewables	1,814	3,168	4,982
Transport	1,577	342	1,919
Cleantech manufacturing	1,708	131	1,839
Land Use	1,752	0	1,752
Recycling and circular economy	1,003	0	1,003
Education, training and research	111	0	111
Total	10,461	13,565	24,027

Viva Geelong Gas Import Terminal proposal



Viva Energy Gas Terminal Project, Environment Effects Statement (EES), Aecom, March 2022, Chapter 11, page 5, Figure 11-1

Geelong Port ammonia berth for Hydrogen Hub proposal



Figure 2-4 : Illustration of ammonia berth at Refinery Pier for GeelongPort Hydrogen Hub

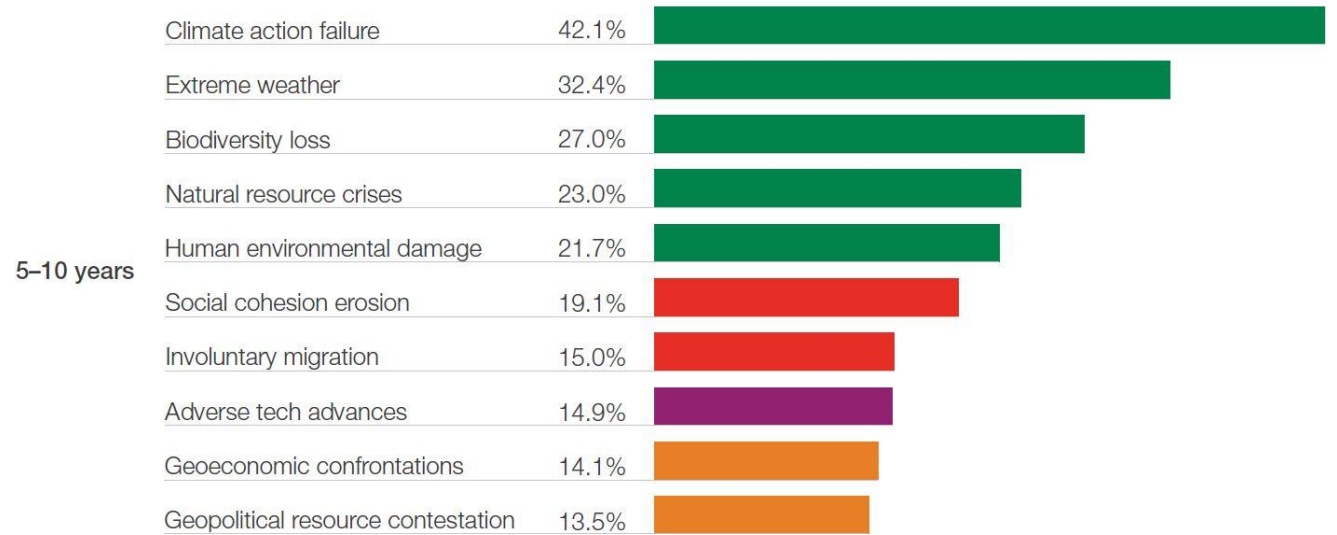
Climate/Greenhouse – Neil Plummer, Climatologist

Clean energy transition and reducing climate risks

Key messages

- Higher the emissions, the worse Victoria's climate risks
- Delaying or slowing the energy transition also increases climate risks
- Victorian Government has already committed to reducing gas consumption
- There are inconsistencies with "Sustainability is at the core of Viva Energy's Business Principles"

Global Risks Horizon: When will risks become a critical threat to the world?



The World Economic Forum, 2021

... Clean energy transition and reducing climate risks

Key messages

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- There are inconsistencies with "Sustainability is at the core of Viva Energy's Business Principles"



“Beyond projects already committed as of 2021, there are **no new oil and gas fields approved for development in our pathway, and no new coal mines or mine extensions are required**. The unwavering policy focus on climate change in the net zero pathway results in a **sharp decline in fossil fuel demand ...**”

International Energy Agency, 2021



... Clean energy transition and reducing climate risks

Key messages

- Higher the emissions, the worse Victoria's climate risks
- Delaying or slowing the energy transition also increases climate risks
- Victorian Government has already committed to reducing gas consumption
- There are inconsistencies with "Sustainability is at the core of Viva Energy's Business Principles"

3:02 p.m. ET, November 2, 2021

Around 100 nations pledge to cut methane emissions by 30% by 2030

From CNN's Vasco Cotovio

Approximately 100 countries have signed on to a **global pledge to cut methane emissions** by 30% by 2030, led by the United States and the European Union.

CNN, 2021

In 2015, 196 countries adopted the Paris Agreement

... strengthen ... response to the threat of climate change by keeping a global temperature rise this century **well below 2°C** above pre-industrial levels and to pursue efforts to limit the temperature increase **even further to 1.5°C**

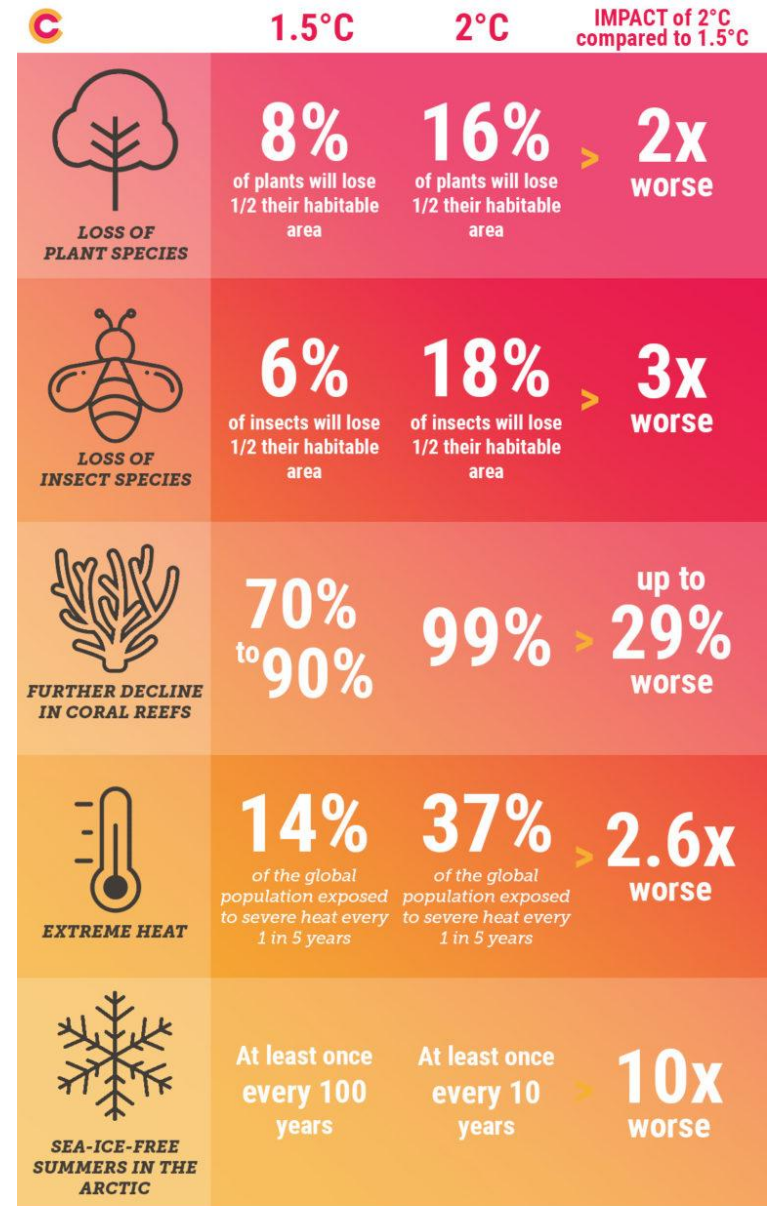
BUT ...

“the world is likely to **pass 1.5°C in the early 2030s**, in the absence of rapid emissions mitigation”

AND ...

“The world is unlikely to warm more than 2°C in either of the deep mitigation scenarios. In the other three scenarios examined, however, the best estimate is that the world will **pass 2°C somewhere between the early 2040s and early 2050s**”

<https://www.carbonbrief.org/analysis-what-the-new-ipcc-report-says-about-when-world-may-pass-1-5c-and-2c/>



Higher the emissions, the worse Victoria's climate risks

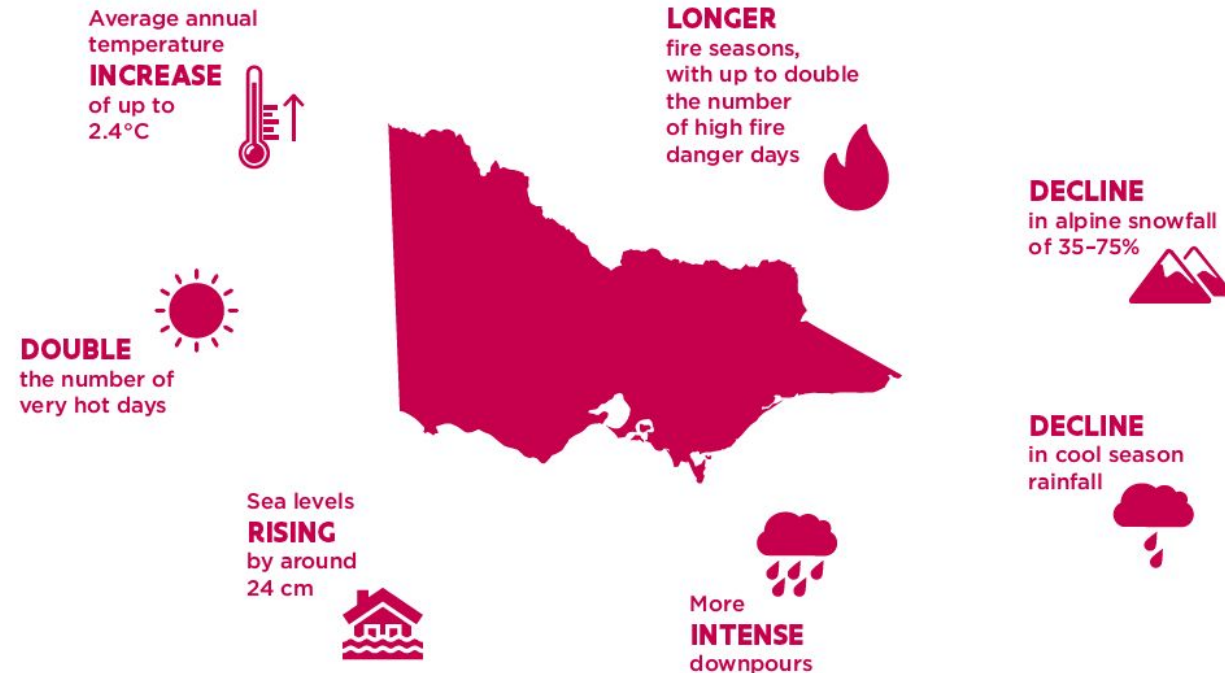
Victoria's climate has changed

Temperature **INCREASE** of 1.2°C since 1910

DECREASE in average rainfall

Significant **INCREASE** in fire danger in spring

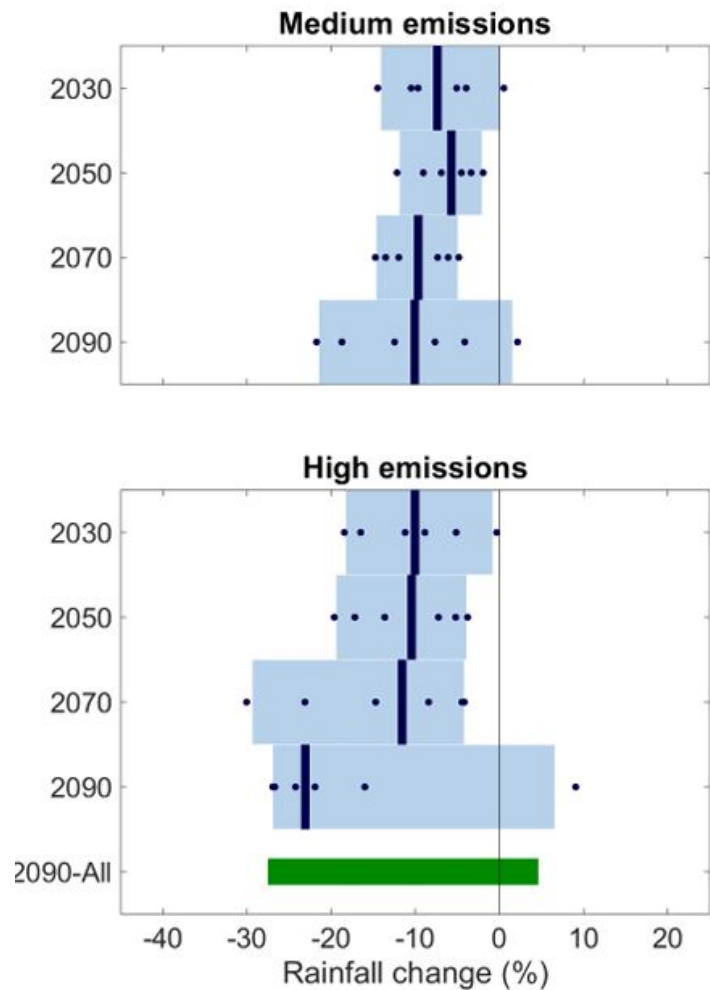
If global emissions continue to increase, in the 2050s Victoria may experience...



Under high emissions, compared to 1986-2005. Updated from Victoria's Climate Science Report 2019

<https://www.climatechange.vic.gov.au/victorias-changing-climate>

... Higher the emissions, the worse Victoria's climate risks



Town	Days/year above 35°C	
	1981–2010	2040–2059
Geelong	6.4	RCP4.5 10.9 (7.7 to 12.6)
		RCP8.5 12.6 (9.1 to 15.6)
Colac	7.4	RCP4.5 12.9 (8.9 to 14.0)
		RCP8.5 14.4 (11.1 to 20.6)

“... there is high confidence that the number of fire days where the **[extreme] Forest Fire Danger Index** ... for 1986–2005 is **projected to increase at Geelong** by a median value of **9 days per year by the 2050s under high emissions (or a 49% increase)**”

Emissions reductions targets were hard fought and challenging enough

National

Cut carbon emissions **by 43%** from 2005 levels **by 2030**, up from the previous government's target of between 26% and 28%

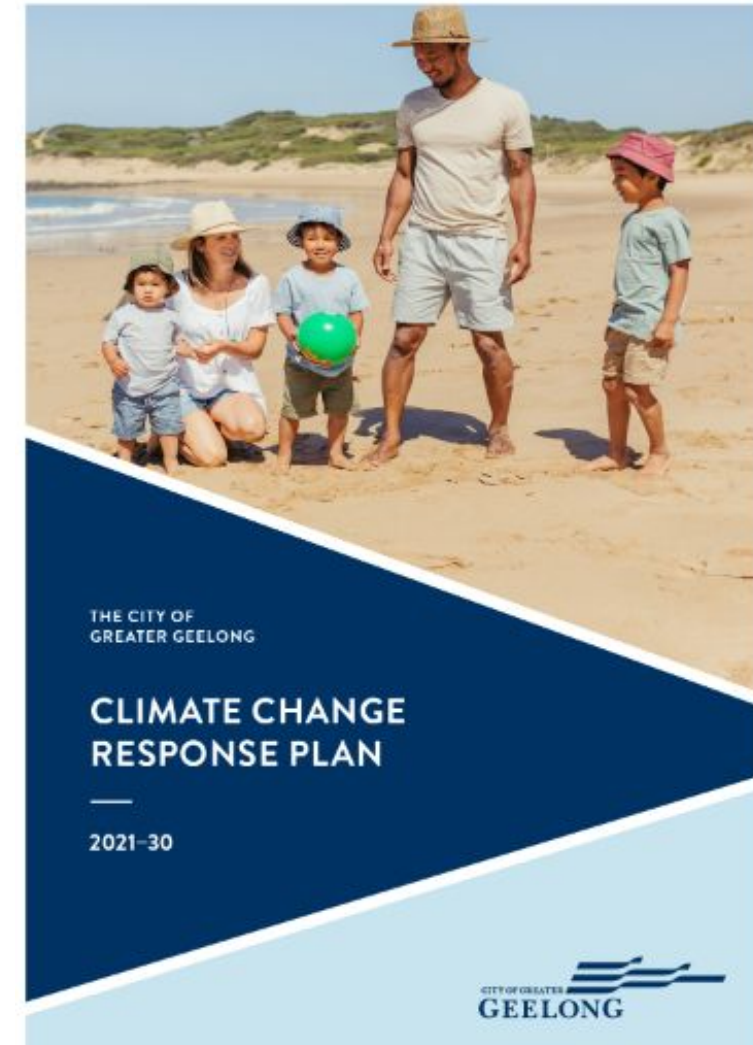
Victoria

Cut carbon emissions **by 45–50%** below 2005 levels by the end of **2030**

Cut carbon emissions **by 28–33%** below 2005 levels by the end of **2025**

Geelong (COGG and Council agreed)

"**We listened when the community told us** to set an ambitious target and responded with a goal of **net zero emissions** Greater Geelong-wide by **2035**."



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Business backs bigger 2030 target to put us in decarbonisation box seat

15 October 2021

Director sentiment has fallen amid global economic uncertainty. Labour shortages top the economic challenges for directors, while economic management and climate change are the top concerns for directors ahead of the May federal election.

[Source: Australian Institute of Company Directors](#)

InvestorDaily

First for investment industry news

[News](#) [Markets](#) [Regulation](#) [Super](#) [M&A](#) [Tech](#) [Appointments](#) [Analysis](#) [Video](#) [Podcast](#) [Part](#)

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Central banks warn 25% GDP loss without climate action

By Sarah Simpkins — 1 minute read

26 June 2020



A coalition of central banks, including the RBA, has prepared its first set of standardised climate scenarios for future climate risk assessment, revealing limited climate action could lead to around a quarter or more of global GDP being shed by 2100.

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Energy Crisis: Support the vulnerable, boost energy efficiency and speed transition to clean energy

MEDIA RELEASE

Climate change is a health emergency

Published 3 September 2019



The AMA has joined other health organisations around the world – including the American Medical Association, the British Medical Association, and Doctors for the Environment Australia – in recognising climate change as a health emergency.

APRA warns banks will face lawsuits if they fail to account for climate risks

[Michael Mazengarb](#) 22 April 2021



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[Renew Economy](#)

Delaying or slowing the energy transition also increases climate risk

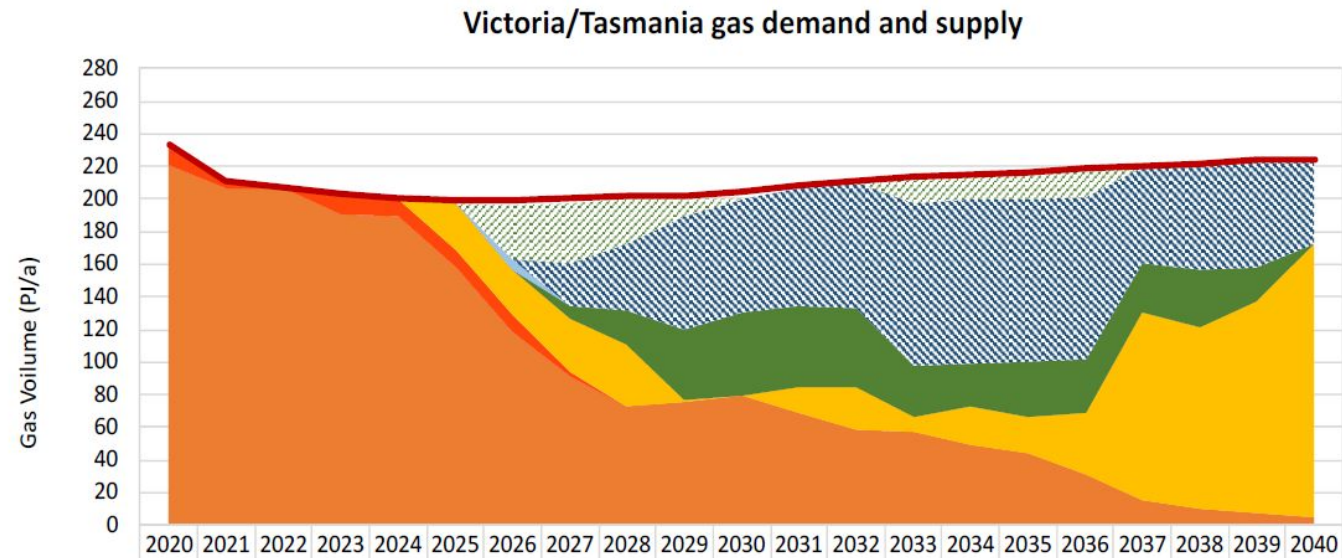
Viva projects gas demand **increasing** from mid-2020s to 2040

Inconsistent with the Victorian Government's **projections**

If realised this **could put Victoria's** emissions reduction **targets well out of reach**

Further concerns from

- **Not including transport emissions** in sourcing LNG, which would not exist without the project
- **Heavy reliance on offsets** which have efficacy and legitimacy concerns
- **LNG process consumes** more than **9% of gas**
- **Leaks** will potentially underestimate methane emissions
- Research found that 12% of **childhood asthma** is associated with indoor gas use
- **Volatile and high gas prices** continuing



Viva Energy and EnergyQuest, 2021 (with overall demand shown by red line)

Victorian government has already committed to reducing gas consumption

The **Gas Substitution Roadmap** (GSR) is the Victorian Government's plan to **decarbonise the gas sector**

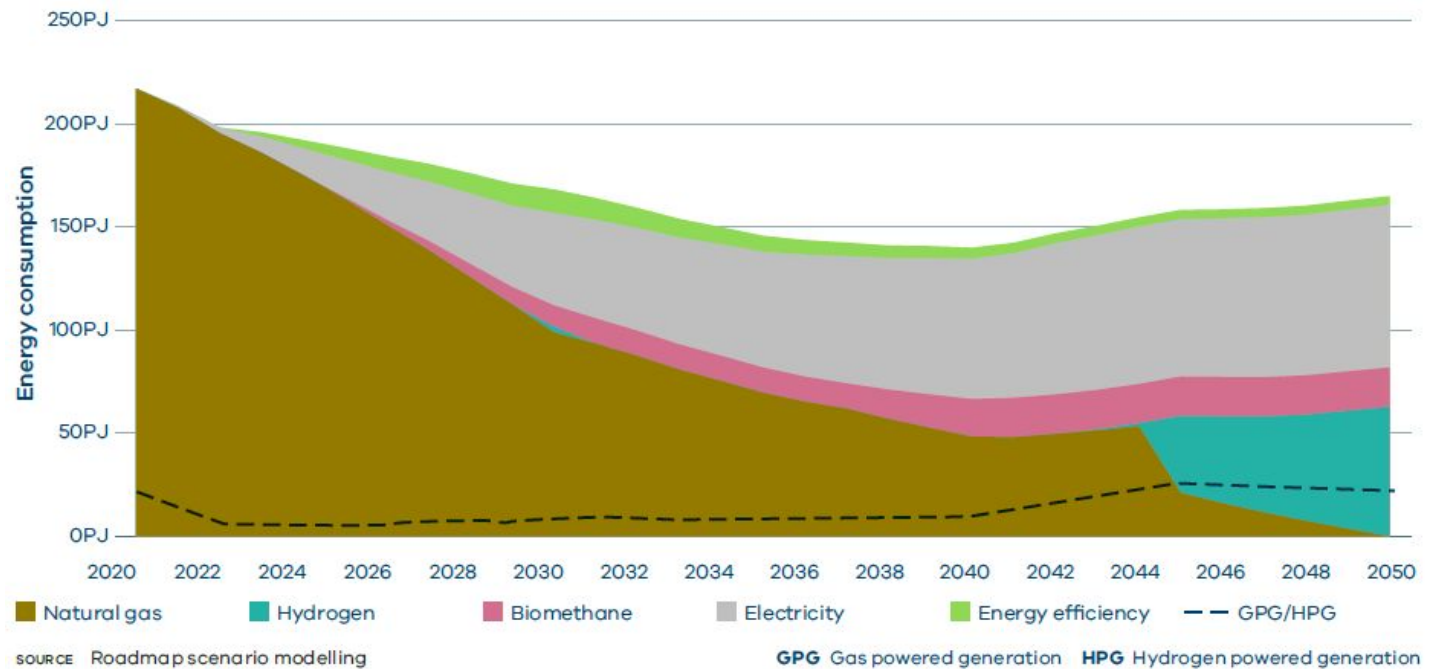
More than **60%** of Victoria's **gas used** is used in space **heating, cooking** and for **hot water** and only 8.5% for electricity generation

Significant **cost and emissions savings** for households in shifting from **gas to all electric**

Additional gains through **supporting energy efficiencies and gas demand reduction**

Planning and plumbing **regulations updated to stop mandatory gas connections to new homes & businesses**

FIGURE 7 **Energy consumption** RAPID TRANSITION SCENARIO



Victorian Government GSR, 2022

Challenging “Sustainability is at the core of Viva Energy’s Business Principles”

Sustainability Claim

“In the coming decades, **Australia’s economy needs to shift to a lower carbon intensity.**” (p15-6)

“...This would provide reliable and affordable energy, ... while acknowledging the **need to transition away from fossil fuels in the long-term.**” (p15-9)

“The company **supports** the objectives of the **Paris Agreement** on climate change **and Australia’s commitment** to it ...” (p15-6)

Reference : Viva Energy Environmental Effects Statement (EES), March 2022, Ch 15

Comment

Actual carbon emissions (not carbon intensity) must be significantly reduced within this decade. Unfortunately, **Viva’s aim** to lower carbon intensity **can be achieved while increasing their overall emissions** but decreasing their intensity. The transition away from fossil fuels is **needed urgently with large emissions reductions required this decade.**

Signatories of the **Paris Agreement have committed to keeping global warming ‘well below 2°C’**, which **requires emissions reductions of at least 50% by 2030.** Viva is not committed to reductions anywhere close to these targets.

... Challenging “Sustainability is at the core of Viva Energy’s Business Principles”

Sustainability Claim

Viva “**supports the policies and action** that will help Australia meet its emissions reduction commitments.” (p15-6)

“Sustainable procurement ensures that **ESG considerations are addressed within the supply chain**, but also aims to identify and maximise potential sustainability benefits through **responsible purchasing**.” (p15-14)

“Viva Energy’s annual sustainability reporting **aligns with the Global Reporting Initiative Standards ...**” (p15-4)

Reference : Viva Energy Environmental Effects Statement (EES), March 2022, Ch 15

Comment

Viva’s reductions **ambitions are not aligned with any of our national, state and city-wide targets.**

Viva’s project will see **LNG transported over long distances and without taking accountability for the very high carbon emissions** associated with this transport.

Transitioning to a low-carbon economy **requires organisations to set emissions targets that are consistent with the** goal of limiting global warming to well below 2°C under the **Paris Agreement**. This requires emissions reductions by 2030 and Viva is not committed to these.

Summary

The **clean energy transition** is well underway, but its **pace needs to accelerate**

Further delaying the transition has considerable costs, including **increasing** already unacceptable **climate risks**

Geelong is primed for a climate and energy transition - If not now then when?

Expanding Geelong's carbon footprint will delay our transition and send the **wrong signal at the wrong time** to our businesses and communities



Climate Rally 2019, Photographer: Centre for Climate Safety

Mike Vanderkelen

- business journalist and communications advisor
- extensive fishing and diving experience
- 10 years in Geelong
- protect Corio Bay



Action to raise public understanding of

- fossil fuels and climate change

- threats to people and environment from gas

Viva's one-sided argument

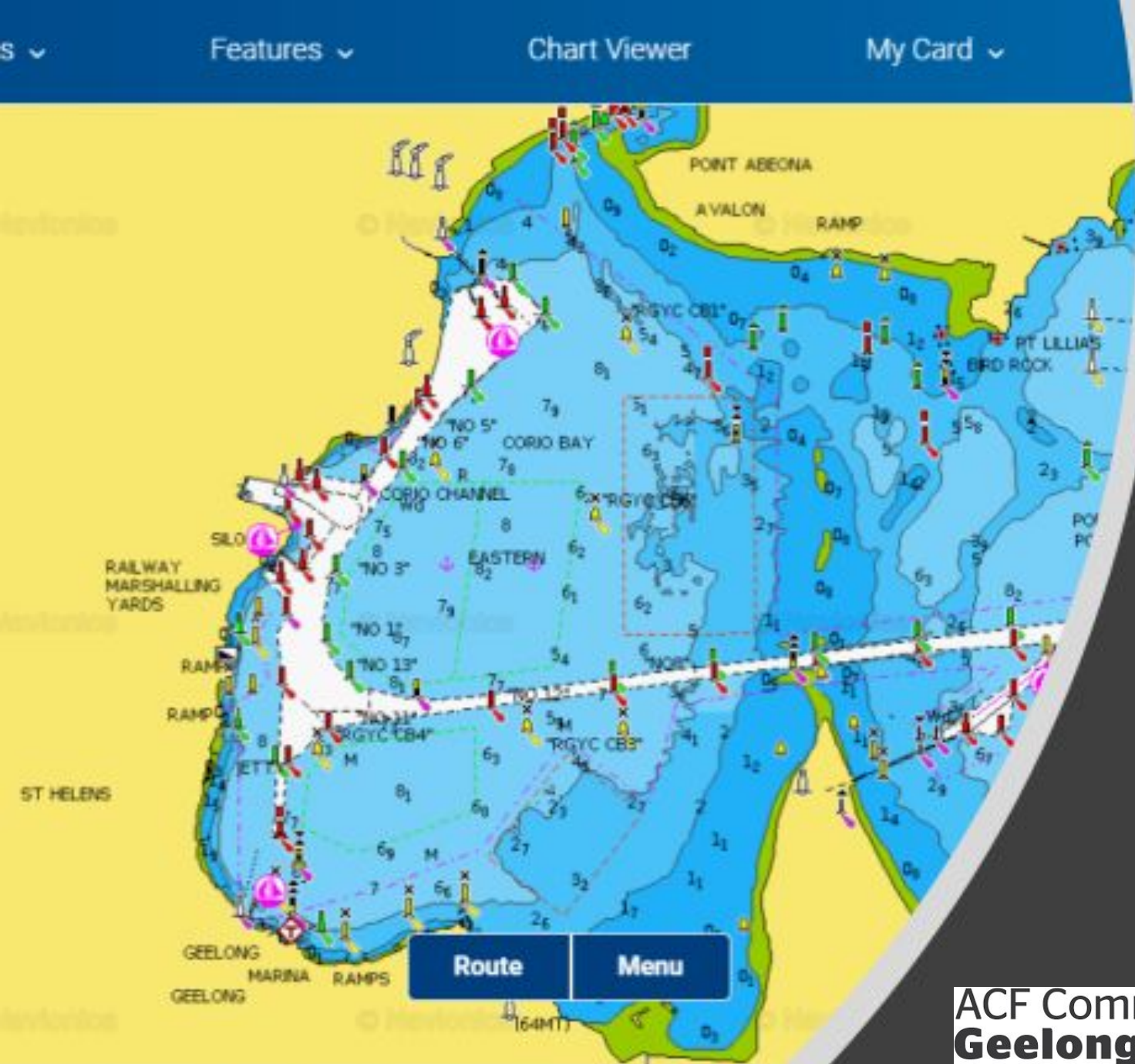
- own version of the truth

- poor community consultation

- no contingency plan for accidents

- leveraged Geelong's media outlets with ads and sponsorship

Make Geelong a renewables centre



Concern - Impacts on Marine
Biology in Corio Bay

VIVA FSRU Proposal

Dr Sanja van Huet

<https://www.fishing-victoria.com/viewtopic.php?t=21757>

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Dredging – Corio Bay

Significant dredging of Corio Bay (CB) to deepen channels / berth for larger ships

Corio/Limeburners area and seagrass beds have major RAMSAR significance (DWELP 2018)

Project will remove approx. 30/ha of seagrass beds
These are 'persistent' beds * protected from waves and westerly winds

*<https://stateofthebays.vic.gov.au/sotb/chapter/seagrass>

Turbidity through tug movement - VIVA EES assessed that no impact would occur = 2mm scour

Potentially disturb contaminated buried sub-marine sediments - organochlorines and hydrocarbons (since the 1970s). Cadmium, lead, mercury, zinc and copper historically measured in shellfish.

Metabolite impact from low level toxicity has not been addressed.

Seagrass beds: Corio and Port Philip Bays

“8-35 The central area of Corio Bay was generally muds (a mixture of clays and silts, with very low sand content), while the seabed around the perimeter was more variable with sandy muds, muddy sands and sand with shell.” (VIVA EES Ch8)

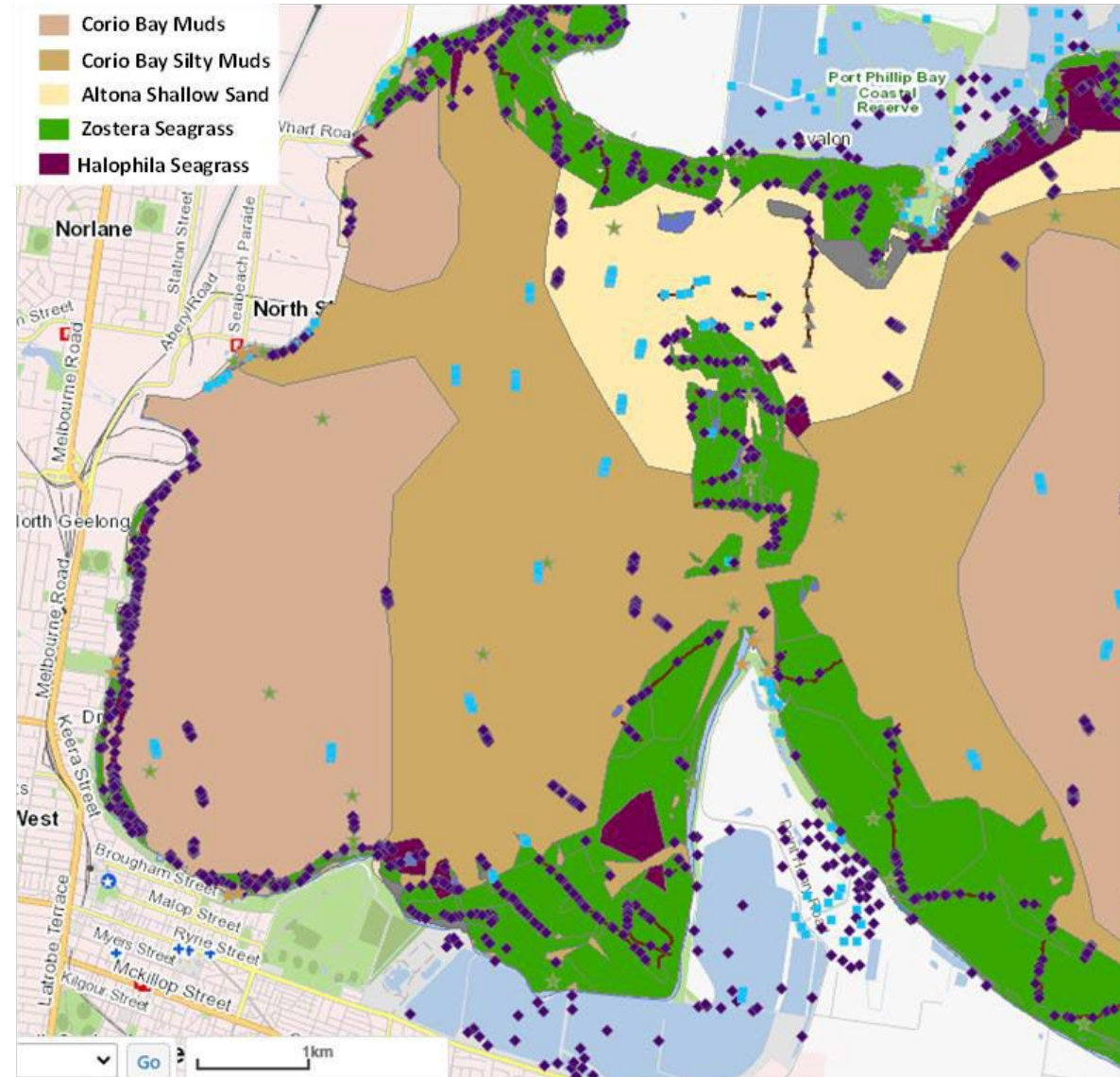
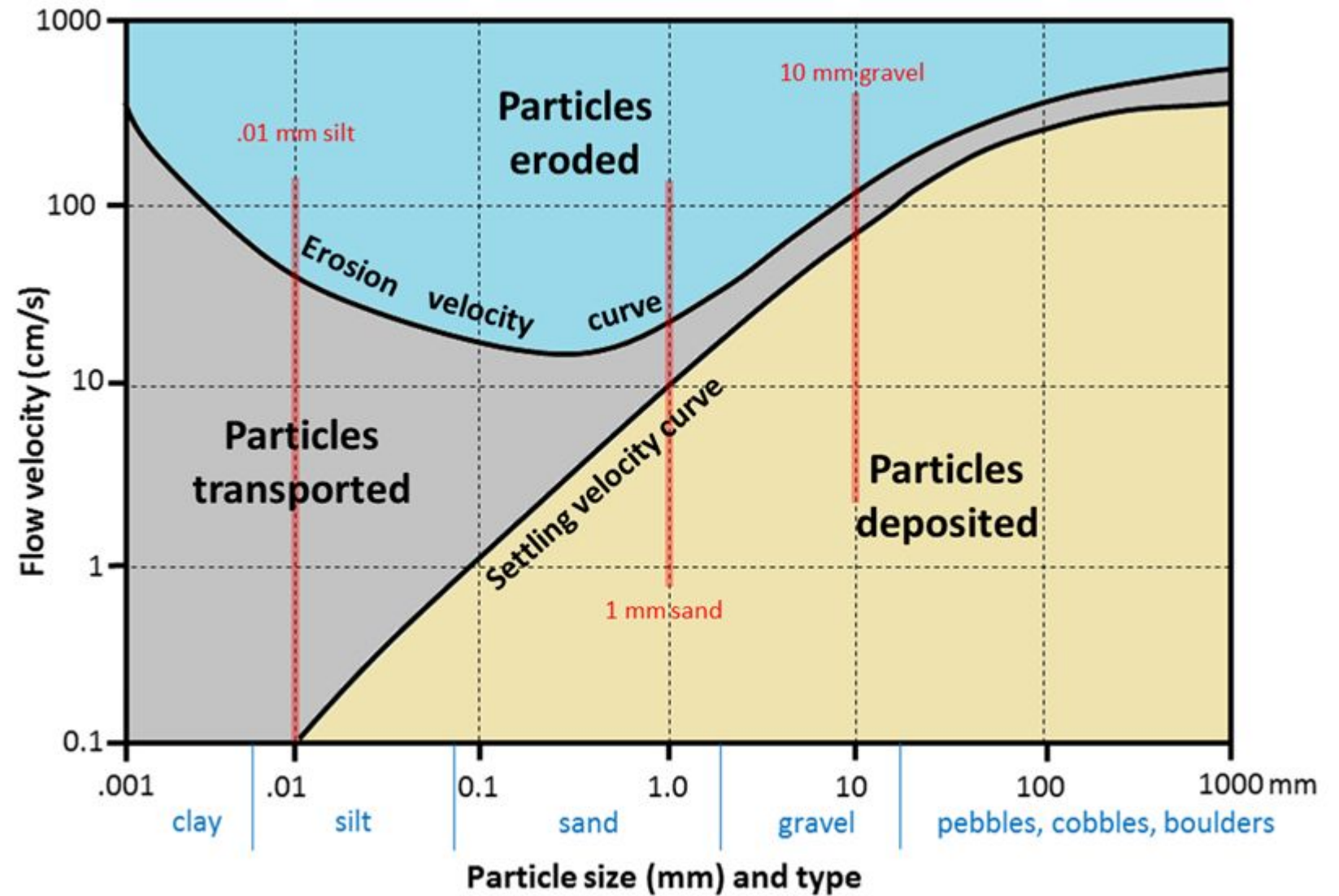


Figure 8-31
Biomes in Corio Bay
(VIVA EES Ch8)

0.01 mm silt particle needs a velocity of 0.1 cm per second (cm/s) to remain in suspension,



<https://opentextbc.ca/physicalgeology2ed/chapter/13-3-stream-erosion-and-deposition/>

Corio Bay seagrasses form the original genetic material for all Port Philip Bay seagrass populations (Deakin Blue Carbon Lab)

Sediment smother due to dredging – increased turbidity, suspension of clays, reduction in sunlight. Can hinder reestablishment/regeneration of beds if settling of muds is delayed.

Due to the local turbidity of the waters in China, a depth of 4 m led to sufficient light deprivation (reduced to 6.48–10.08% of surface irradiance) to negatively affect seagrass shoot density and clonal reproduction. In addition, reproductive shoot density also tended to decline with water depth and light deprivation (...in Zostera marina).

<https://www.frontiersin.org/articles/10.3389/fpls.2020.582557/full>

Coastal urbanisation and nearshore developments have resulted in declines in water quality affecting seagrasses. Such activities, in recent decades, have resulted in increased nutrient loading and turbidity in nearshore systems dominated by seagrasses, affecting the distribution and composition of seagrass meadows <https://www.nature.com/articles/s41598-018-35549-3>

Increased turbidity may have a significantly negative effect on permanently subtidal populations of Z. muelleri, however, morphological adaptations including increased leaf growth could offset this issue

Seagrasses are susceptible to marked changes in the water column, including altered salinity regimes, increased turbidity and changes in temperature

(Vermaat et al., 1997, Walker et al., 1999; Short et al., 2001 cited in From chrome

extension://efaidnbmnnnibpcajpcgclclefindmkaj/https://vuir.vu.edu.au/32318/3/STAFFORD-BELL%20Richard-thesis_nosignature.pdf

Page 8.38 (VIVA EES Ch8)

Figure 8_36 and 8_37 discuss the relative decreases and increases of *Zostera* seagrasses over 2009, 2013, 2016, 2017, 2020-21. These are explained as natural occurrences, but actual probable causes for seagrass variation were not offered.

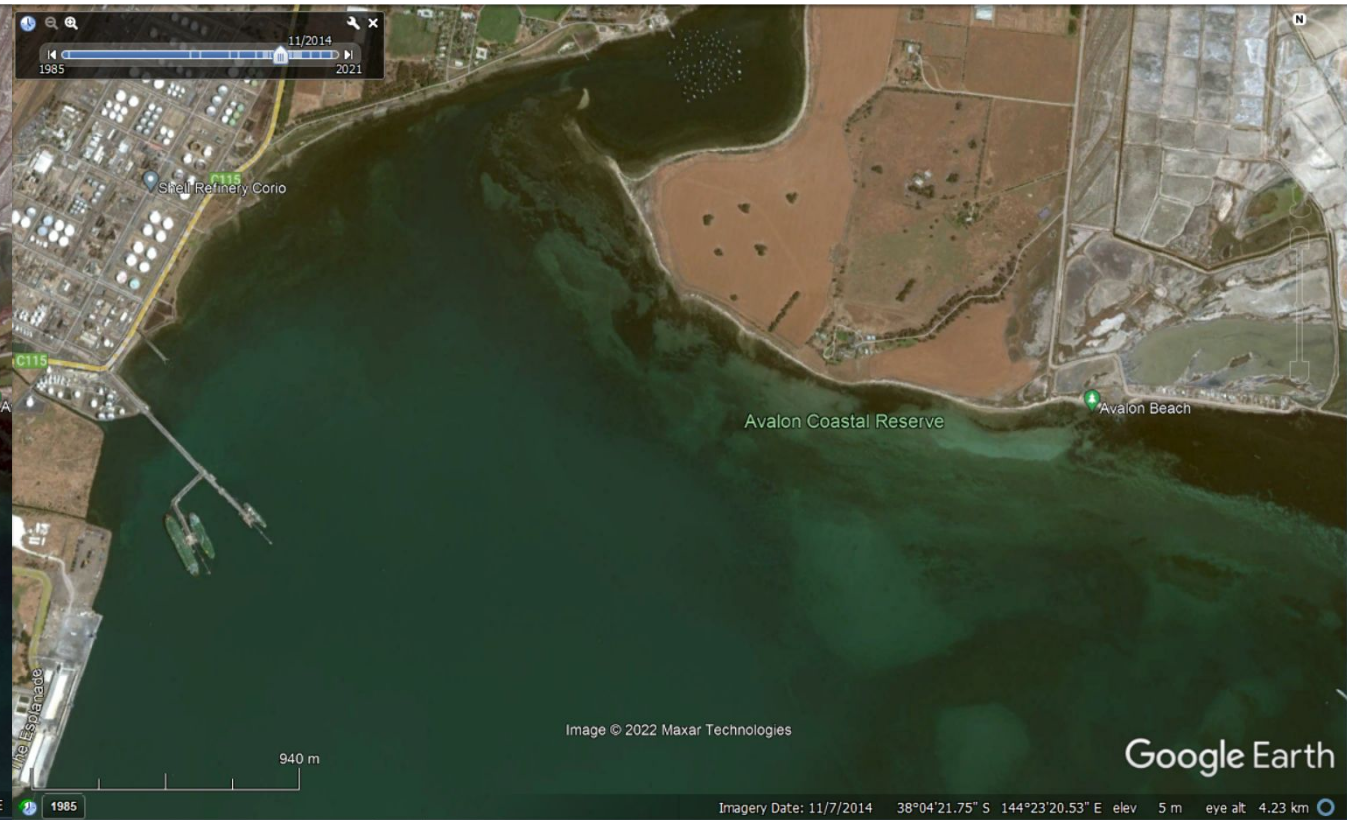
2009 was the millennial drought which has been acknowledged to affect sea grasses. This period likely affected the density and health of the beds.

2013 was the then 3rd warmest year on record for Victoria.

Omission - there was no discussion or assessment of the sea grass beds in the period after the VIVA/Shell chemical spill of August 2014.



March 2014.



November 2014 (MM-ME02
states Sept Oct Nov key growth
periods for seagrasses)

Legacy pollutants and introduced chlorine

Port Philip Bay study on legacy pollutants – disturbance of polluted sediments and flushing out of the Bay >400 days turnover.

Low levels of “legacy pollutants (such as PCBs, OCs, and PAHs) toxicants were not a concern... except in a few localised areas including Corio Bay (inputs predominantly through shipping and refinery operations) ... “

The health of fish collected from urban/industrialised areas (Corio Bay, Hobsons Bay, and Mordialloc) was compromised in comparison to fish sampled from less developed areas. sand flathead from urban/industrialised areas exhibit indications of pollution stress.”

Metabolites 2020, 10, 24; doi:10.3390/metabo10010024 www.mdpi.com/journal/metabolites

In view of this, table 8.17 (VIVA EES Ch8) effect on Ramsar wetlands should be revisited.



Safety concerns - Sal Fisher

1. Viva has inadequately described the risk posed by the FSRU and LNG tankers to the community.
2. Inadequate risk mitigation measures such as moving safety exclusion zones around LNG carriers. This may have implications for the amenity of Corio Bay.
3. Not adequately considered the risks associated with the narrow channel width in Corio Bay (SIGTTO suggests channel should be x5 width of LNG tanker)
4. Inadequate risk assessment modelling and processes regarding loss of LNG containment.
5. Underestimated the potential threat and risk posed by terrorist activity
6. Underestimated the potential threat for multiplying risks caused by the nearby MHFs.
7. Insufficiently documented safety and risk assessments in the EES.

Corio Bay is not compatible with LNG tankers and terminals

- ✗ “**Navigable depths** (for most LNG carriers) should generally not be less than 13 m below the level of chart datum”
- ✗ “**Channel width** should be about five times the beam of the ship (approx 250m)”
- ✗ “**Turning area** should have a minimum area of 2-3 times the ship’s length (approx 600-900m)”
- ✗ “**Short approach channels are preferable** to long inshore routes which carry more numerous hazards”
- ✗ “**Jetty location should be remote** from populated areas and **should also be well removed from other marine traffic and any port activity** which may cause a hazard.”
- ✗ “The **maximum credible spill and its estimated gas-cloud range** should be carefully established for the jetty area.”
- ✗ “River bends and **narrow channels should not be considered as appropriate** positions for LNG carrier jetties.”

SIGTTO (2004) Information Paper No. 14 (Appendix) “Site Selection and Design for LNG Ports and Jetties”
https://my.lwv.org/sites/default/files/4_-_sigtto_information_paper_no._14_clean_copy_-_19_apr_2019.pdf

LNG Tanker: Sandia Laboratory HAZARD ZONES

Zone 1 (outer heat flux of 37.5kW/m²)

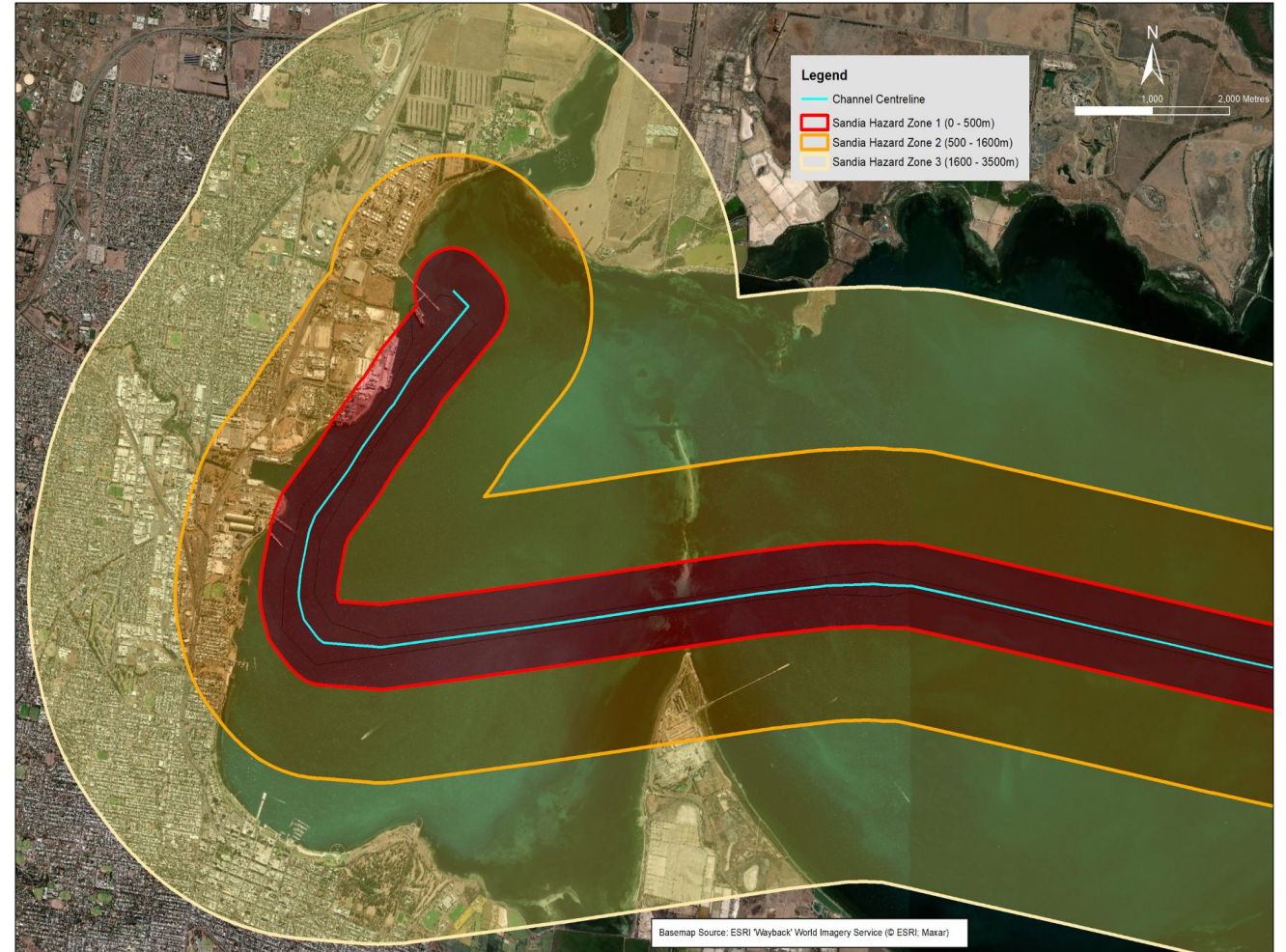
- Significant chance of fatality for people with instantaneous exposure.
- Flammable structures ignite spontaneously.
- Fire-resistant structures suffer damage after short duration.
- Metal fatigue after short to medium exposure.

Zone 2 (outer heat flux of 5kW/m²)

- Extended exposure results in fatality; there is a chance of fatality for instantaneous exposure
- Buildings that are not fire resistant will suffer damage after short exposures

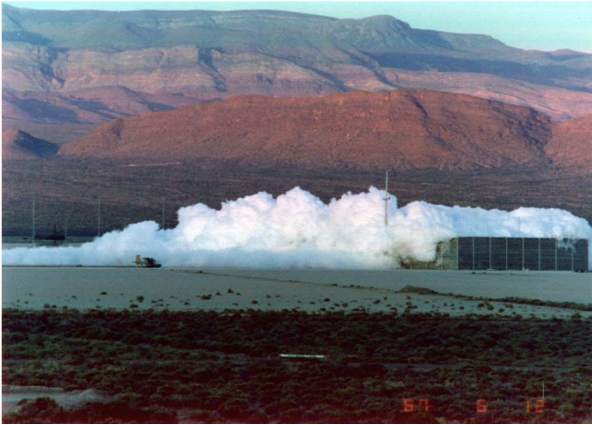
Zone 3 (less than 5kW/m²):

- Will cause pain in 15-20 seconds and injury (second degree burns after 30 seconds)
- In the unlikely event that 3 cargo tanks were breached, a flammable vapour cloud if not ignited in Zone 1 or Zone 2 would disperse into Zone 3



Reference : Sandia Laboratories (2004) <https://www.osti.gov/biblio/882343/>

LNG Vapour Clouds : Flammable, Asphyxiating



Falcon LNG vapor barrier experiments
Nevada Test site, 1987



LNG Spill during unloading of FUWAIRIT, Barcelona Port, 2015
Note: Ship dimensions are W: 43m, L:279m



LNG Test 2 – 83m diameter spill and pool fire
(US Department of Energy, 2012)

When spilled onto water, LNG produces a negatively buoyant vapor cloud, and if not immediately ignited, it drifts downwind a considerable distance. Sandia testing and modelling indicates that in an accidental breach, flammable **vapour cloud can drift over 1500m from the release with only one tank breached**. LNG Vapour clouds are asphyxiating and can result in suffocation of people who happen to be within its path (North Shore houses ~220m from the Corio Channel) and Port workers. **Pool fires can be intense.**

Table 11: Dispersion Distances to LFL for Accidental Spills

HOLE SIZE (m ²)	TANKS BREACHED	POOL DIAMETER (m)	SPILL DURATION (min)	DISTANCE TO LFL (m)
1	1	148	40	1536
2	1	209	20	1710

Table 10: Effect of Parameter Combinations on Pool Diameter in an Accidental Breach

HOLE SIZE (m ²)	TANKS BREACHED	DISCHARGE COEFFICIENT	BURN RATE (m/s)	SURFACE EMISSIVE POWER (kW/m ²)	POOL DIAMETER (m)	BURN TIME (min)	DISTANCE TO 37.5 kW/m ² (m)	DISTANCE TO 5 kW/m ² (m)
1	1	.6	3X10 ⁻⁴	220	148	40	177	554
2	1	.6	3X10 ⁻⁴	220	209	20	250	784
2	3	.6	3X10 ⁻⁴	220	362	20	398	1358

Recent LNG incidents: Freeport LNG (Texas, USA) June 9, 2022

Explosion in over pressurized pipes that transfer LNG from storage tank to the dock.

LNG Vapour cloud ignited

90 day shut-down of the plant to find cause & address it.

LNG prices to rise further as a result of shortage.

Cause uncertain - ?Russian cyber attack

<https://www.reuters.com/markets/commodities/freeport-lng-ends-outage-after-fire-targets-year-end-full-operations-2022-06-14/>

Explosion at US natural gas plant raises risk of shortages in Europe

Freeport LNG to shut down for at least three weeks after incident at Texas Gulf coast facility



A screengrab of the explosion at the Freeport LNG facility. Photograph: Quintana Beach County Park/Facebook

Deliberate attack: larger holes, bigger impacts

Table 15: Dispersion Distances to LFL for Intentional Spills

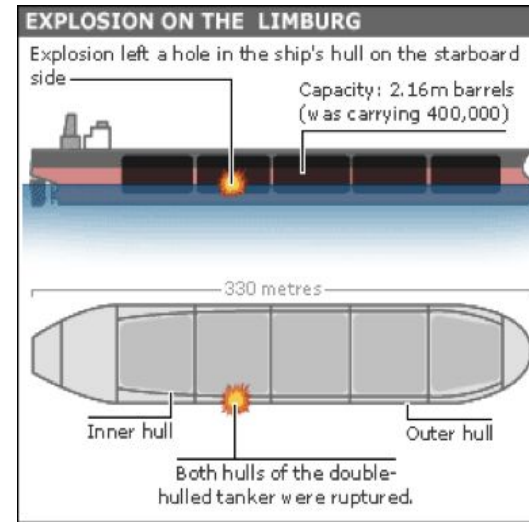
HOLE SIZE (m ²)	TANKS BREACHED	POOL DIAMETER (m)	SPILL DURATION (min)	DISTANCE TO LFL (m)
5	1	330	8.1	2450
5	3	572	8.1	3614

Table 14: Intentional Breach — Effect of Parameter Combinations on Pool Diameter

HOLE SIZE (m ²)	TANKS BREACHED	DISCHARGE COEFFICIENT	BURN RATE (m/s)	SURFACE EMISSIVE POWER (kW/m ²)	POOL DIAMETER (m)	BURN TIME (min)	DISTANCE TO 37.5 kW/m ² (m)	DISTANCE TO 5 kW/m ² (m)
2	3	.6	3×10^{-4}	220	209	20	250	784
5	3	.6	3×10^{-4}	220	572	8.1	630	2118
5*	1	.6	3×10^{-4}	220	330	8.1	391	1305
5	1	.9	3×10^{-4}	220	405	5.4	478	1579
5	1	.6	2×10^{-4}	220	395	8.1	454	1538
5	1	.6	3×10^{-4}	350	330	8.1	529	1652
12	1	.6	3×10^{-4}	220	512	3.4	602	1920

*nominal case

Reference : Sandia Laboratories (2004) <https://www.osti.gov/biblio/882343/>



<http://wwwz.cedre.fr/en/Resources/Spills/Spills/Limburg>

Safe LNG Transit – Boston USA (The BW Everett)

*“...the **Coast Guard coordinates an armada of protection for each trip** — a helicopter, police divers, marine patrol, environmental police, firefighting tugs, city police boats, Coast Guard vessels. **The Tobin Bridge, a major commuter pass, is closed as the tankers move below its 135-foot-high span.**” – NBC News 17 February, 2004*

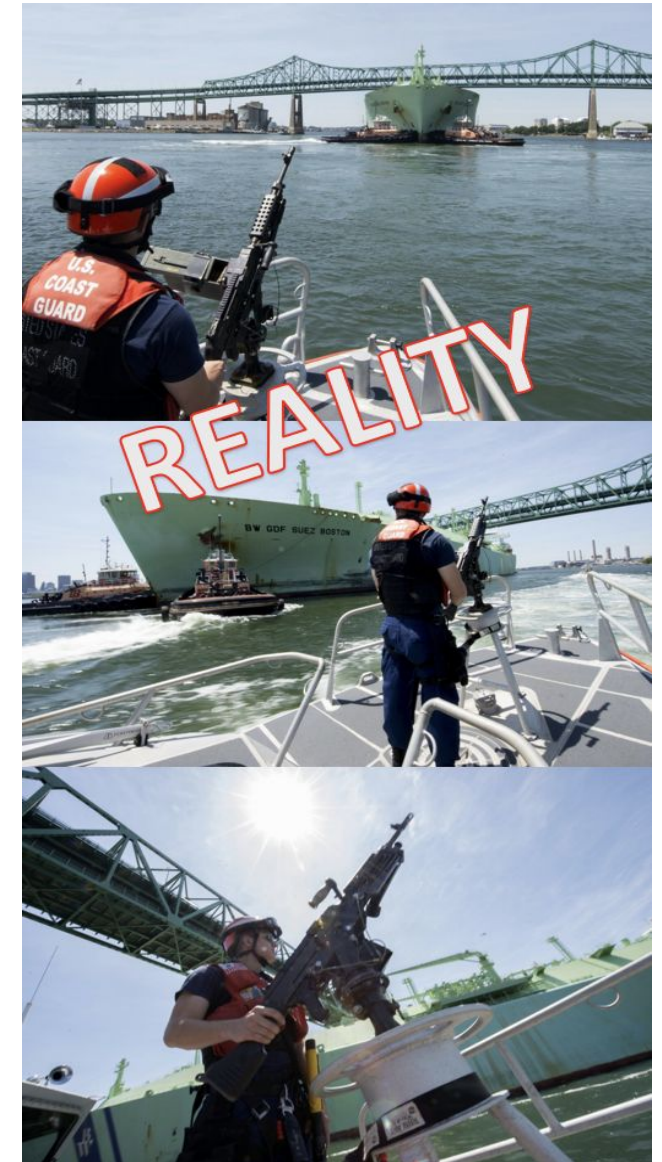
“Suspension of overflights by commercial aircraft at Logan airport”...“Posting of sharpshooters on nearby rooftops” - Liquefied Natural Gas (LNG) Infrastructure Security: Issues for Congress, September 9, 2003 – May 13, 2008 RL32073

Australia’s current threat level is PROBABLE

“Any attacks planned in Australia for at least the next 12 months are likely to use weapons and tactics that are low-cost and relatively simple. These include basic weapons, explosives and firearms.

“**Explosives** remain a favoured terrorist weapon; but **firearms can be acquired by terrorists** through both legal and illicit channels and have previously been used in Australian terrorist attacks.”

<https://www.nationalsecurity.gov.au/national-threat-level/current-national-terrorism-threat-level#:~:text=Australia's%20general%20terrorism%20threat%20level,a%20terrorist%20attack%20in%20Australia>



Exclusion zones around transiting vessels must be enforced

Snapper lure Port Phillip Bay amateur anglers into path of big ships



By Adam Carey

October 19, 2014 – 3.14pm

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The beginning of snapper season in Port Phillip Bay this month has created a surge in "near misses" between small fishing boats and huge freight vessels moving to and from the port.

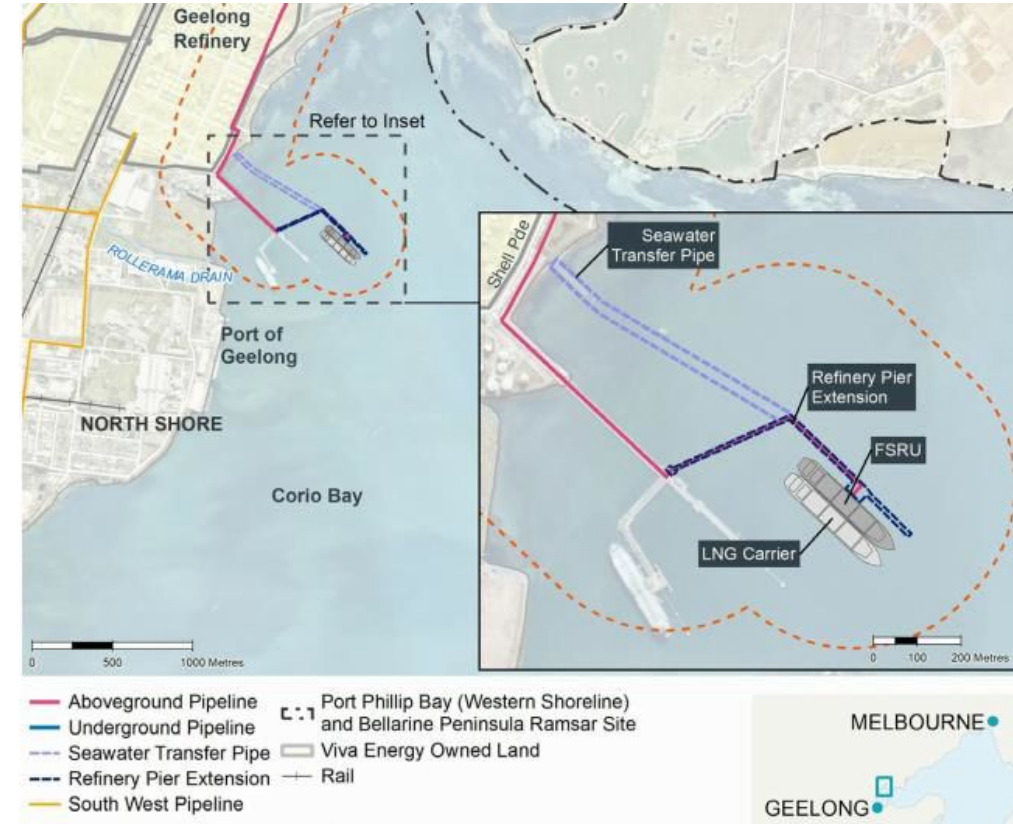
Transport Safety Victoria, which patrols the state's waterways, has recorded eight dangerously close calls in the past month between a big ship and a recreational boat that had dropped anchor in one of the bay's shipping channels. There were none recorded in winter.



There have been several near misses recently as snapper fishermen anchor in shipping lanes. JASON SOUTH

Safety concerns of expert witness (Martin Mannion)

1. New **Berth 5** is too close to **Berth 1** (only 100m separation when occupied).
2. A **complete navigational simulation** has not been carried out at the pier nor throughout the channel.
3. There is **no mooring study** to prove that the FSRU and LNGC can be safely moored in extreme weather.
4. The **unloading of the LNG carriers to the FSRU** are **omitted** from the safety risks and hazards analysis. This is a significant omission in the EES



Viva Energy Gas Terminal Project, Environment Effects Statement (EES), Aecom, March 2022, Chapter 11, page 5, Figure 11-1

Safety concerns of expert witness (Dr. Anand Pillay)

1. **Lack of consideration of major accident events.** It ignores events on the LNGC carrier, loss of mooring, extreme weather etc.
2. **Navigation and marine risk for the LNGC carrier** along the channel from Port Philip Heads haven't been discussed/analysed
3. **Insufficient input and involvement from stakeholders** to identify hazards and minimise risk
4. Risk assessment has not included events at other berths.
5. **Risk scenarios are optimistic** & only focus on the FSRU and pier and not the LNG carrier.
6. **Lack of description of the emergency response** after an incident
7. **There is a lack of detail re risk mitigation** outlined in the Environmental Management Framework

LNG Tanker Aground In River Plate En Route To Escobar

By Mfame Editor - August 1, 2021

560



Summary of Safety Concerns

Refinery Pier is NOT a safe place for an LNG import terminal due to the Corio Bay's channel features and position.

There are significant risks due to its proximity to residents, other Port users and businesses which are not fully considered or mitigated in the EES.

Securing the LNG tankers and FSRU may require measures which are NOT in line with community expectations.

Overall summary

This proposal **lacks social licence** from our community.

It carries **significant risks for the community and environment and little to no community benefit.**

We call on the Panel to reject this proposal.

Thank you.