**11 June 2020**

# SUBMISSION TO TASMAN DISTRICT COUNCIL : WHAT IS YOUR VISION FOR THE FUTURE OF THE TASMAN DISTRICT?

## INTRODUCTION

The submission of Zero Carbon Nelson Tasman (ZCNT) is submitted on their behalf by A. Munro, 113 Awa Awa Road, Upper Moutere, Tasman 7173.

ZCNT, a non-governmental organisation, welcomes the opportunity to participate in the pre-engagement phase for the Council's Long term Plan 2021-2013 (LTP) and to comment on our vision for the future of the Tasman District.

ZCNT has the primary objective of building awareness of the challenges posed by climate change and encouraging suitable responses to mitigate and adapt to these, particularly in Nelson Tasman, with the aim of maintaining a stable climate, and building and supporting sustainable human communities in resilient ecosystems.

ZCNT promotes the conservation and restoration of the natural environment and the sustainable management of natural resources and the built environment while at all times having regard to future generations;

Further, ZCNT aims to support local and national government, industry and community groups to (i) reduce net and gross greenhouse gas emissions, and (ii) justly and deeply adapt our communities and ecosystems to a changing climate.

This submission is made in light of the above objectives.

CONTEXT

1.0 **Council's 2020 vision document** notes that the pre-engagement document was created prior to COVID-19 impacting New Zealand and that as a result of the pandemic and the response to it there will be "long lasting implications for Tasman District and the way we work going forward. It is not business as usual." The changes wrought by COVID19 therefore must provide a key lens for planning the 2021-2031 LTP and require a fundamental recasting of previous planning. Similarly, Climate Change has not stopped during the pandemic and must feature top of mind during the recasting of the LTP.

2.0 **Council's signing of the Local Government Leaders' Climate Change Declaration in 2017 and adoption of the TDC Climate Action Plan in 2019 are** commendable first steps and provide further context to Long Term Plan considerations in recognizing the urgency, nature and scale of the challenges we are facing. The Plan acknowledges that actions under it need "to be reviewed and updated regularly". Again the severity, urgency and scope of climate change must now be front and centre of Council's 2021-2031 LTP process.

2.1 This is especially so given the foreshortened time now available for effective Climate Action. As Christiana Figueres, head of the UN climate change response that led to the Paris Agreement in 2015 explains it is "now or never": the 10 years we thought we had to make decisive decisions on climate change have now been shrunk into basically anywhere between three to 18 months because by the end of those 18 months all the important decisions about investment in the achievement of a low-carbon economy will have been made.

3.0 **Growth assumptions** and projections central to the 2020 Vision document must be called into question by the impact of Covid 19 and the altered social and economic outlook. These assumptions and

projections must be revisited critically in the LTP process. As Council recognizes "Business as usual" no longer applies.

4.0 **Impact of Energy Descent** - this refers to the situation where due to factors such as the declining ratio of available energy to energy employed in its production. Contrary to common assumptions, we must prepare for a future with much less rather than more energy resources available as this may happen within the next few decades. We include in this submission a section outlining in detail the relevance of Energy Descent for the Tasman LTP.(Refer Section 7 below and Appendix 1 for fuller detail).

5.0 These factors together make it imperative that any 'Business as Usual' approach is abandoned by Council and totally fresh thinking across the board be applied to the LTP planning process to protect the well-being and resilience of the Tasman community. In other words, there needs to be a reordering of priorities and restructuring of desired outcomes to emphasize resilience, community preparedness, mitigation and adaption in relation to impacts from Covid 19 and Climate Change in addition to facilitating required innovative economic responses towards sustainability.

## KEY ASPECTS REGARDING TO CLIMATE CHANGE WHICH MUST BE TAKEN INTO ACCOUNT IN LTP

6.0 This is a very demanding and restrictive decade to plan for. Demanding because there is a lot that is nice to have, but restrictive because we need to plan to reduce our carbon emissions 50% by 2030. To emphasize the importance of this: the IPPC 1.5 Report in 2018 stated that we have to reduce our greenhouse gas (GHG) emissions 50% by 2030 to have a 60% chance of keeping global warming to 1.5% above pre-industrial levels. The current global increase of 1.1 degrees Celsius has already increased the intensity and frequency of extreme weather events, including droughts and fires, and increased the rate of sea level rise (SLR).

6.1 The Zero Carbon Act has a 2030 target of a methane reduction of 10% less than 2017 emissions, and we expect the Climate Change Commission to set a cascade of targets to meet our 2050 target including one for 2030.

6.2 It is imperative that we prioritize any spending and construction on adaptation for sea level rise, floods, storms, droughts, fires and plan for the Alpine Fault magnitude 8 event. Actually, energy decline (see Appendix1) means we don't have the capacity to build seawalls and slowly adapt to the steeper curve of SLR , but should be starting a managed retreat and not spending rates and fossil fuel intensive construction on short term structures. Let's make the hard decisions now, and prepare this region for future generations.

6.3 We understand that in July the Statistics Dept is expected to provide a carbon footprint baseline for each region. In the meantime we can use the NZ Greenhouse Gas Emission Inventory of Energy 40.7% including transport at 17.9%, and 48% from agriculture methane and nitrous oxide.

6.4 Coal is the most dense source of CO2, with 1gm coal producing nearly 4gms of CO2 which operates as a greenhouse gas in the atmosphere for 100s of years. The quickest way to reduce GHG from energy is to phase out coal, over say 5 years. The Government agency EECA has subsidies for residents, schools, and industry to change from coal to renewable sources of energy. Council can encourage and advise this.

6.5 To halve transport emissions we need a behavior change, so people share private or public transport, use active transport modes i.e. biking, walking, scooters, with Council providing more safe routes. EVs should be encouraged with more Fast Charge stations in the rural areas, to be ready for farm vehicles becoming available as EVs.

6.6 Coal provides the heat used by industry, i.e. some glasshouses, hop kilns, milk factories, and yet, if the heat required is less than 300 degrees Celsius it is efficient to use wood, which is plentiful and a renewable resource in this region. Some schools and homes use coal and this should be phased out as soon as possible which will also reduce the adverse health effects from PM2.5 air pollution from coal.

6.7 To significantly reduce methane we need to reduce the waste to landfill and reduce the number of livestock, particularly dairy. A politically difficult thing to do, but to protect the groundwater from nitrate leaching we need to limit stock units and nitrate fertiliser per hectare. The Nelson City Council's CEMARS study showed methane emissions from landfill at around 85% of the Council's total GHG emissions and similar results are likely for TDC, making this source an important one to target. The waste reduction target set in the 2019 'Joint Waste Management and Minimization Plan' of just 10% reduction in waste per person by 2030 is far too modest and needs to be reviewed, accelerated by a number of means including increasing public awareness and diversion of organic waste, and prioritized.

Ambitious targets should also be set to reduce organic food waste levels - including encouraging composting and collection at the kerb.

**ENERGY DESCENT**

**7**.0 We have included as Appendix 1 a document which outlines the concept of Energy Descent, lays out implications for our district and provides reasons for the recommendation that TDC adopt an energy benefit perspective in its major decisions, with the goal of providing the maximum community benefit from the increasingly scarce energy resources within the region.

7.1 A generally ignored fact is that the surplus or net energy that society has available to do work is declining globally. Over 80% of all energy used globally is currently provided by fossil fuels. In NZ fossil fuel use is still 60% of total energy consumption.

7.2 Most discussions focus on the amount of fossil fuel resources provided, for example on an annual basis rather than the net or surplus energy made available.

7.3 Appendix 1 references many studies confirming a significant decline in the energy available to fuel society. This result has not been widely considered by policy makers who continue to focus on the total amount of energy produced, which has continued to increase, albeit more slowly than in previous decades.

## OTHER SPECIFIC RECOMMENDATIONS

### 8.0 Council and leaders and a Trusted information source

The council needs to be a trusted source of information to all parts of our community. We support their increased efforts in recent years towards clear and accessible information and engagement.

### 8.1 Tasman Climate Action Plan

The actions set out in the plan are significantly under-funded. Of the 37 actions listed for 2019-21 for example, 30 of these are shown as supported only by 'staff time' or 'BAU'. The urgency of climate issues requires far greater emphasis than is suggested by 'business as usual'.

While this is intended for 'Tasman' (i.e. the District) its focus is principally on the Council's own activities. The urgency of climate breakdown requires that the TCAP be expanded to give greater focus, leadership and sense of direction to the whole District. Council's actions or inactions have an impact on the entire District (e.g. approval of subdivisions without public or active transport solutions).

### 8.2 Carbon Emission Targets

The Council should complete the baseline survey of GHG emissions for the Council's own operations urgently; to estimate emissions for the whole District; and then to set targets for reductions in these urgently. It should also estimate emissions for the whole Tasman District and set reduction targets urgently. The mandatory 2050 targets are too far out to signal the urgency required. Emissions from the Council and the District need to halve by 2030. Examples of other councils which have already done this are:

- Dunedin City Council: Carbon neutral by 2030, for the City overall
- Christchurch City Council: Carbon neutral for the Council by 2030, and for the City overall by 2045
- Kāpiti Coast District Council: carbon neutral by 2025, for the Council

- Greater Wellington Regional Council: carbon neutral by 2030, for the Council

8.2.1 With regard to specific animal methane reduction targets we recommend the Council closely follow the recommendations from the Climate Change Commission and be prepared for significant goal-post changes during the next 10 years, especially in agriculture and forestry. We also recommend that TDC actively use the Nelson Tasman Climate Forum to explore issues and solutions regarding emissions reduction targets generally, and animal methane targets in particular.

## 9.0 Water Use

With increasing frequency and severity of droughts likely in future, together with increasing population and other demands, water will always be a scarce commodity in Tasman – even if this reality is obscured for a few years when the Waimea Dam comes on stream. There will be advantages in continuing to encourage savings, discouraging water-dependent crops and land uses, and promoting increased harvesting and storage of rainwater by private landowners.

## 10.0 Collaboration with other Councils essential

NCC and TDC must work closely together on climate issues to their mutual benefit. Initiatives such as the Nelson Tasman Climate Forum will be important and both councils are urged to continue to grow their relationship in this sphere.We urge the council to work more closely with the NCC and MDC on all matters, especially to meet environmental, climate and transport goals.

## 11.0 Climate Forum

We encourage the council to more than just “participate” in the Climate Forum. We thank the council in its support and role it has taken so far in the forum. The council should be a partner that works closely with the forum and its members to the mutual benefit of our communities. Support should also come in the form of adequate funding contribution.

## 12.0 Council Controlled Organisations

TDC is part owner (with NCC) of two CCTOs, Port Nelson and Nelson Airport. Both of these have significant carbon emissions. Port Nelson's are growing and Nelson Airport has committed to net carbon neutrality. TDC should work closely with NCC to ensure the emissions from these are minimised and that targets are in place to attain 'net zero' at an early date.

## 13.0 Transport

13.1 A resilient transport network is vital for our community's wellbeing and economy. Recent cyclone events have highlighted its fragility. Such extreme events are costly and will recur. It is vital that Council plans for them by building more resilience into the network and not merely rebuild after each event. Tough decisions will need to be made.

13.2 Transport emissions in our region must fall. We commend Council installing and supporting electric vehicle recharge stations and support more throughout our District. Car Share apps can be adopted by Councils to reduce emissions, congestion, infrastructure wear and tear and demand for additional parking spaces.

13.3 We need public transport in our District. We strongly support trials of new routes and public engagement. We support the new Richmond bus ring route.

13.4 An active transport strategy is sorely needed. We commend Council for working on this. Active transport is increasing in our district, especially by bike. The modal shift is hampered by our lack of safe infrastructure. We support projects Council has applied for funding for: the Waka Kotahi (New Zealand Transport Agency) Innovating Streets for People Pilot Fund. We also support finding resources for these projects if funding is not granted. We would like to see more of these projects throughout our region, working with NCC, as part of a wider active transport and liveable streets strategy. Many people used our streets as public spaces during the lockdown presenting an opportunity to Council to improve our streets and active transport more quickly. We urge Council to look at low cost temporary solutions to test ideas so as not lose this opportunity. Modal shift to walking and cycling is one of the best ways to reduce our emissions, improve health and enable a safer and more

connected community. There is a wealth of examples and momentum within New Zealand and overseas. We urge Council to put significant resources and staff time into this, be creative and take risks.

13.5 Active Transport. Build in safety and connectivity. Many Richmond residents have enjoyed biking and walking during the lockdown due to reduced car traffic and cleaner air. The streets were much safer for children. We would encourage that car speed be reduced to 30km/hr in residential areas to make it safer for cyclists, scooters and pedestrians. We would like to see education for car drivers so they maintain at least 1.5m distance when they overtake cyclists to ensure their safety. If conditions don't allow drivers should then wait until the distance is safe. We would like more pedestrian crossings and safer junctions in many of our townships in addition to closing side streets to through traffic to allow low traffic neighbourhoods. Cyclists should be given priority, not drivers. If we are to commit to reducing emissions from transport in our region then education is a good place to start

**14.0 Urban and Rural Planning**

In order to prevent the need for high emissions commuting and costly infrastructure the future direction of planning needs to be 'inwards and upwards' (higher housing intensity, less sprawl). Development where permitted away from main centres must integrate from the outset opportunities for active transport and access to public transport hubs need to be integral to the development.

**15.0 Re-use centre**

In addition to the creation of Waste Reduction Targets already mentioned we would also like to see the re-establishment of a Re-use Drop-off Centre & Shop adjacent to the Richmond Transfer Station

**16.0 Tourism**

What is the council's role in supporting tourism in our district and supporting and encouraging a sustainable rebuild to meet our climate and ecosystem/biodiversity goals, as well as part of our sustainable regional

economy? An informed study of the realistic prospects in this regard would appear to be essential for meaningful planning.

## 17.0 Agriculture and forestry

Agriculture and forestry is at the heart of our region and is a key part our economy and our communities' identity and wellbeing. The council has a challenging role in both supporting it and regulating/policing it. We support a collaborative supportive approach that goes beyond the minimum government required enforcement. This includes:

- Take a collaborative supportive approach where possible with the various government environment changes. Look for opportunities to bring in the wider community to help landowners face the changes. The council is already doing this and it should be expanded, such as with the Moutere Catchment group. The Climate Forum has the potential to become a close partner to the TDC and landowners for involving various community groups and individuals wanting to improve both climate and environment goals. It has the potential to increase community cohesion wellbeing.
- Support the industries and landowners to adapt to Climate Change and to mitigate their emissions
- We support the pragmatic approach Council plans for Kingsland Forest and commend the leadership role it has taken. We encourage the council to continue to look for opportunities in their own forest management and work with private landowners to diversify and mitigate risks where possible.
- Explore and support opportunities and initiatives to sequester carbon in our region, through trees, soils and wetlands, both on public and private land. We suggest working with the Climate Forum and other community groups and landowners.
- The Council has a role in supporting and publicising the good work many of our businesses and landowners do to increase biodiversity, reduce emissions and provide food, fibre and wood. More could be done to highlight and publicise this, facilitate learning and encourage other landowners to improve their practices.
- Furthermore the council could help the peer to peer learning and sharing of ideas and solutions locally, by providing coordination, venues and some resources for on farm/forestry workshops.

## 18.0 Infrastructure and Facilities

It is vital that we are able to maintain current infrastructure and facilities. Much of our infrastructure and public facilities are very vulnerable to climate change impacts and repairs after such events are costly such as from the recent cyclones and fire. There needs to be an increasing amount of contingency funds, beyond the disaster budget set aside for such events, with a clear set of processes in evaluating our physical assets and what to do during such events. This process has been started for sea level rise and should be expanded across the whole region, for fires, all flooding, droughts, slips etc. and linking this with earthquake preparedness too. It is very important not to swap one set of risks with another. We encourage the council to be adaptive and look at all its infrastructure facilities, assess their increasing risks from climate change and then assess the options available along with the community. We must make hard decisions on what should be repaired and rebuilt after events and what should be moved or not rebuilt elsewhere. The council has very limited funds and it must use them wisely.

19.0 Thank you for your consideration of this submission.

END

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Appendix 1 follows next page.

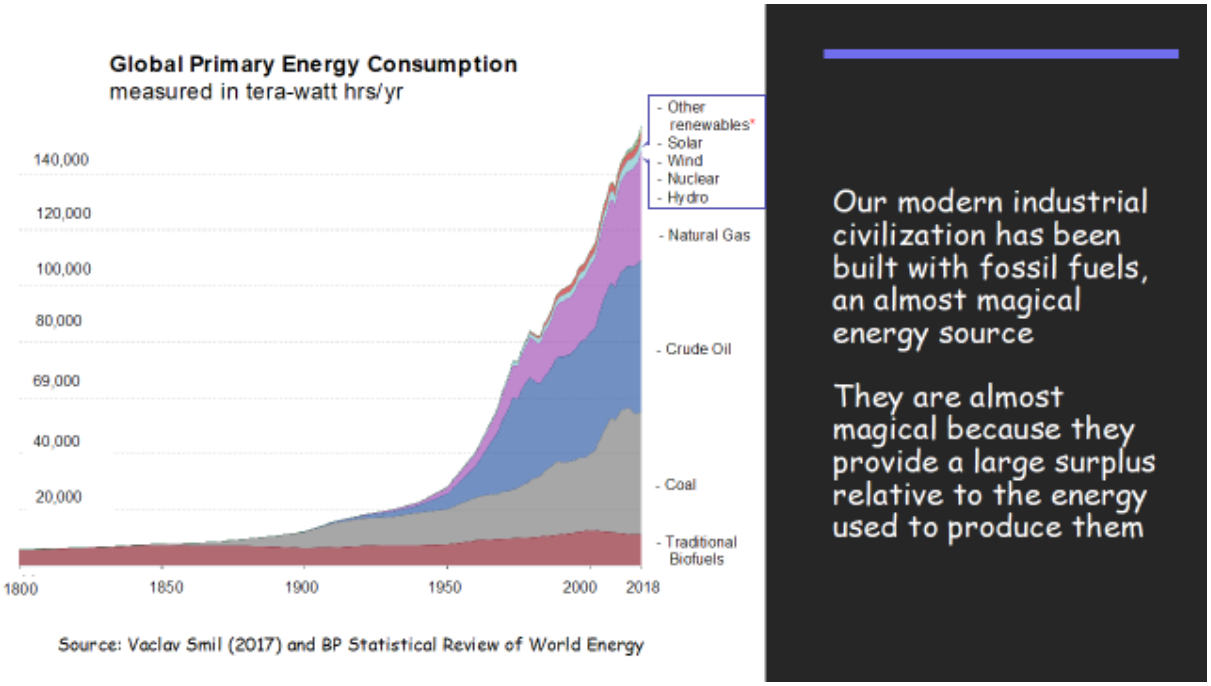
APPENDIX ONE

ENERGY DESCENT

**RECOMMENDATION**: That TDC adopt an energy benefit perspective in its major decisions, with the goal of providing the maximum community benefit from the increasingly scare energy resources within the region.

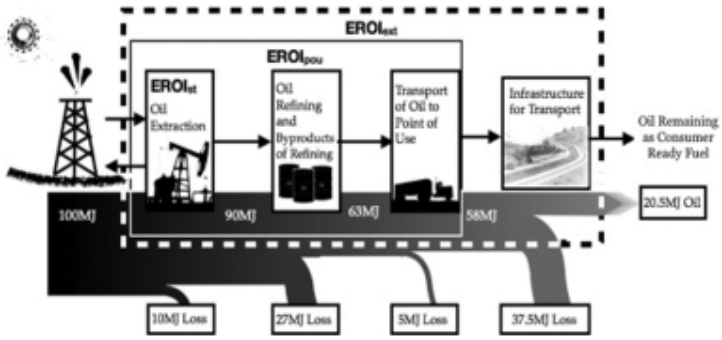
**Reason for this recommendation**:

A generally ignored fact is that the surplus or net energy that society has available to maintain the economic activities is rapidly declining globally. Over 80% of all energy used globally is currently provided by fossil fuels. In NZ fossil fuel use is still 60% of total Most discussions focus on the amount of fossil fuel resources provided, for example on an annual basis as in the figure below, rather than the net or surplus energy made available.



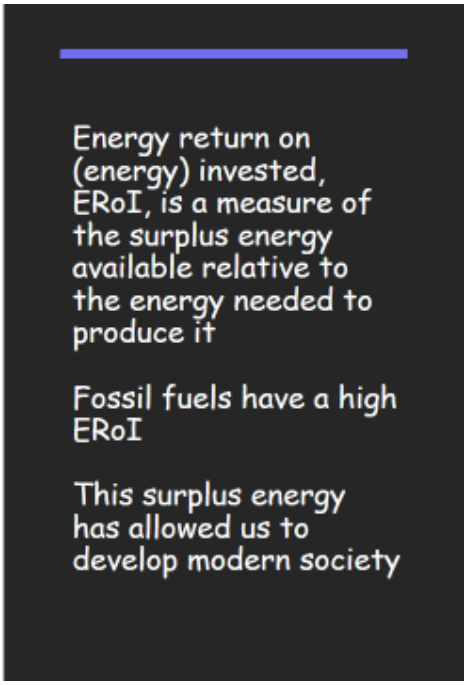

The issue of net or surplus energy is rarely acknowledged or considered by decision makers. This was a reasonable approach when very little energy was required to provide the energy used in society. For example, at the beginning of the last century, about 99% of the total energy provided by the fossil fuel industry was available to carry out economic activities in society. The ratio of the surplus energy (or energy output) to energy required to produce the

energy (energy input) was 100:1.




**Energy is required to get oil from the ground into useable form for use by society**

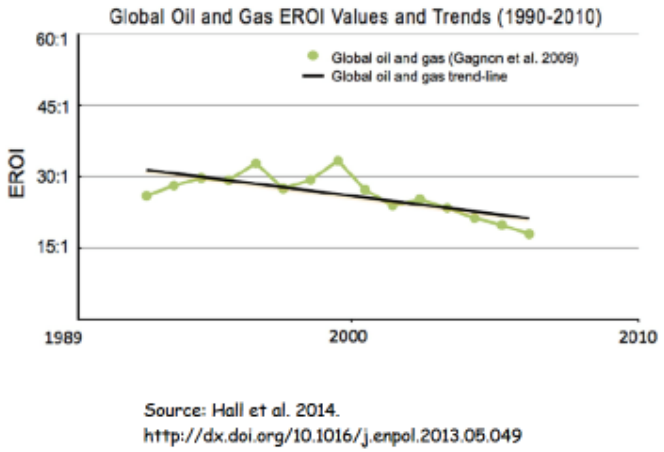
Source: Charles A.S.Hall,Jessica G.Lambert,Stephen B.Balogh https://doi.org/10.1016/j.enpol.2013.05.049



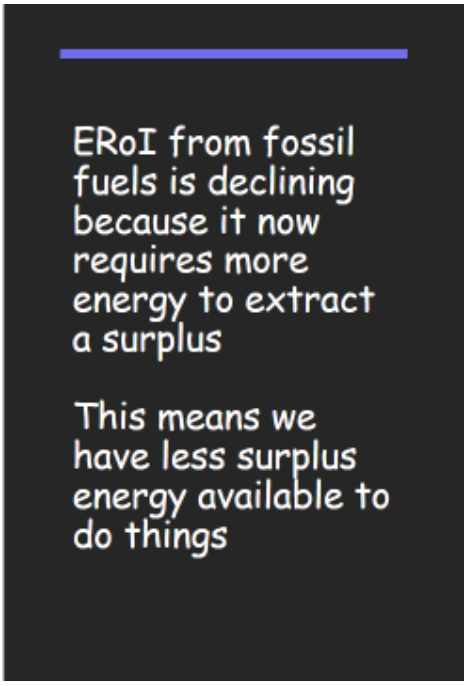

However, the easy to obtain fossil resources which provided such a high net energy were used up over much of the 20th century, leaving the world with much more difficult to extract resources; think of the difference between an old fashion conventional oil well, where the oil was pushed out of the ground by the accompanying gas, with the Canadian tar sands, where the sand infused with a bitumen type resource has to be heated with natural gas to allow it to flow through a pipeline.

With these newer, more difficult to extract resources (such as deep sea oil, oil shale and fracking, and tar sands, etc.), considerably more energy inputs are required to obtain what we can use.

From a global perspective, if all sources of oil, for example, are considered, the net energy is currently less than 20:1 and continuing to decline.




Source: Hall et al. 2014.
http://dx.doi.org/10.1016/j.enpol.2013.05.049




A recent study commissioned by the UK government found that net energy for global oil and gas was 18:1 in the early part of the 21st century.[1]

This same UK commissioned study looked at the relation between net energy and a variety of quality of life indicators. They found a strong relationship between the net energy available in society and such quality of life indicators such as child health, literacy, access to clean water, and gender equality.

An even more recent study reports that the net energy from fossil fuels at final energy stage where it is available to users has declined to approximately 6:1.[2] For the society as we know it to function, it requires a minimum threshold level of EROI ratios of 5:1.

[1] Pg 60 Charlie's group
[2] https://www.sciencedaily.com/releases/2019/07/190711114846.htm

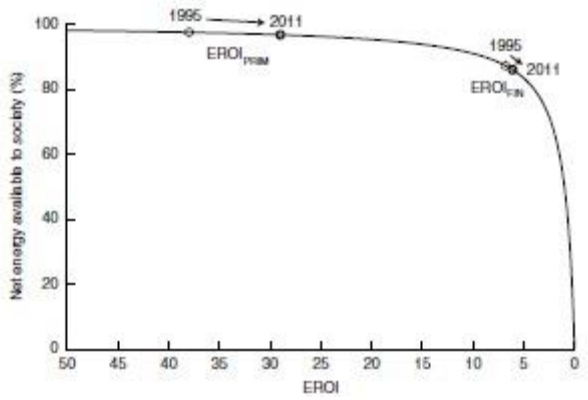



**Fig. 6 | Analysis results superimposed on the 'net energy cliff'.** The *x* axis denotes EROI ratios between 0 and 50. The *y* axis denotes the net energy available to society, as calculated from the EROI ratios. For example, an EROI ratio of 10:1 means 90% of the energy obtained is available to society. Declining EROI ratios below 5:1 have rapidly reducing available net energy, hence the term 'net energy cliff'[28]. The analysis results for 1995 and 2011 are then superimposed on the EROI–available net energy curve. $EROI_{PRIM}$ represents the aggregate fossil fuel EROI at the primary energy conversion stage. $EROI_{FIN}$ denotes the aggregate fossil fuel EROI at the final energy conversion stage.

The authors of this study conclude:

> *"….the average energy return on investment for all fossil fuels at the finished fuel stage declined by roughly 23 per cent in the 16 year period we considered [1995 to 2011]. This decline will lead to constraints on the energy available to society in the not-so-distant future, and these constraints might unfold in rapid and unexpected ways."*

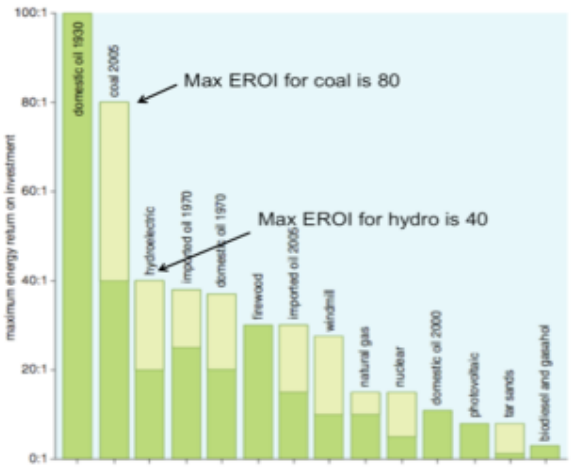
There are many other such studies, all confirming a significant decline in the energy available to fuel society[3]. However, this result has not been widely considered by policy makers who continue to focus on the total amount of energy produced, which has continued to increase, albeit more slowly than in previous decades.

**What About Renewable Energy?**

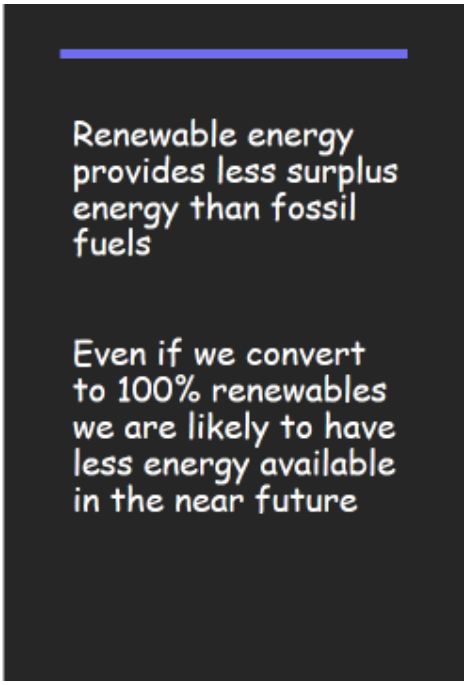
If the available energy to do work in society from our main energy resource, fossil fuels, what about solar and wind and other renewable sources of energy?

From a climate perspective it is essential we make a transition away from fossil fuels to renewable sources of energy quickly. However, when we consider the net or surplus energy available from renewables we find that they are all much lower than historical levels of surplus energy from fossil fuels.

[2] For example, Brockway et al 2019




https://www.esf.edu/efb/hall/2009-05Hall0327.pdf




In addition, the most popular and financially attractive renewables, solar and wind, both have problems related to intermittency and storage. A recent simulation of what the net energy from a 100% renewable system, in which the energy required to deal with the intermittency and storage challenges is considered, results in a net energy surplus of less than 3:1[4].

While the precise magnitude and timing of declining net energy is somewhat uncertain, what is known with some certainty are the following:

- Our primary fossil energy resources are currently providing significantly less surplus energy today than they did a few decades ago
- We will continue to experience declining net energy in the decades to come, perhaps as much as 20 to 30 % by 2050[5]
- All renewable energy resources have a lower net energy return than historical fossil fuels.

[4] MEDEAS: a new modelling framework integrating global biophysical and socioeconomic constraints. ***Energy Environ. Sci.***, 2020, 13, 986

2020, 13, 986
It is important to keep in mind that all modelling is a forecasting exercise, not a prediction of the future. And all modelling is compromised by incomplete scientific data and whatever specific assumptions are made where there are areas of uncertainty.

[5] Soils Norton paper

## IMPLICATION FOR TASMAN DISTRICT COUNCIL

Given the highly significant relation between energy availability and economic activity in general, as well as various quality of life indicators, the reality of declining energy availability will have a profound impact on human society generally. Our region will not be an exception.

We can expand on the specific impacts of declining energy availability on the Tasman region. Learning to use declining energy resources wisely to ensure the wellbeing of our community needs to be a priority.

We believe there are many actions we can take to ensure our resilience and wellbeing if we take this issue seriously. We need not be fearful of declining energy availability, but we should be fearful of ignoring this issue and wasting precious energy resources. Hence our recommendation that TDC integrate a surplus energy perspective into its decision making e.g. encourage and support passive solar buildings, facilitate EV recharging stations, convert Council fleet to EVs, etc.