

JIGSAW TALENT MANAGEMENT

MONTHLY MARKET REPORT

DECEMBER 2020



SYDNEY

Level 43, Australia Square
264-278 George St
Sydney NSW 2000

MELBOURNE

Level 9
2 Queen St,
Melbourne VIC 3000

BRISBANE

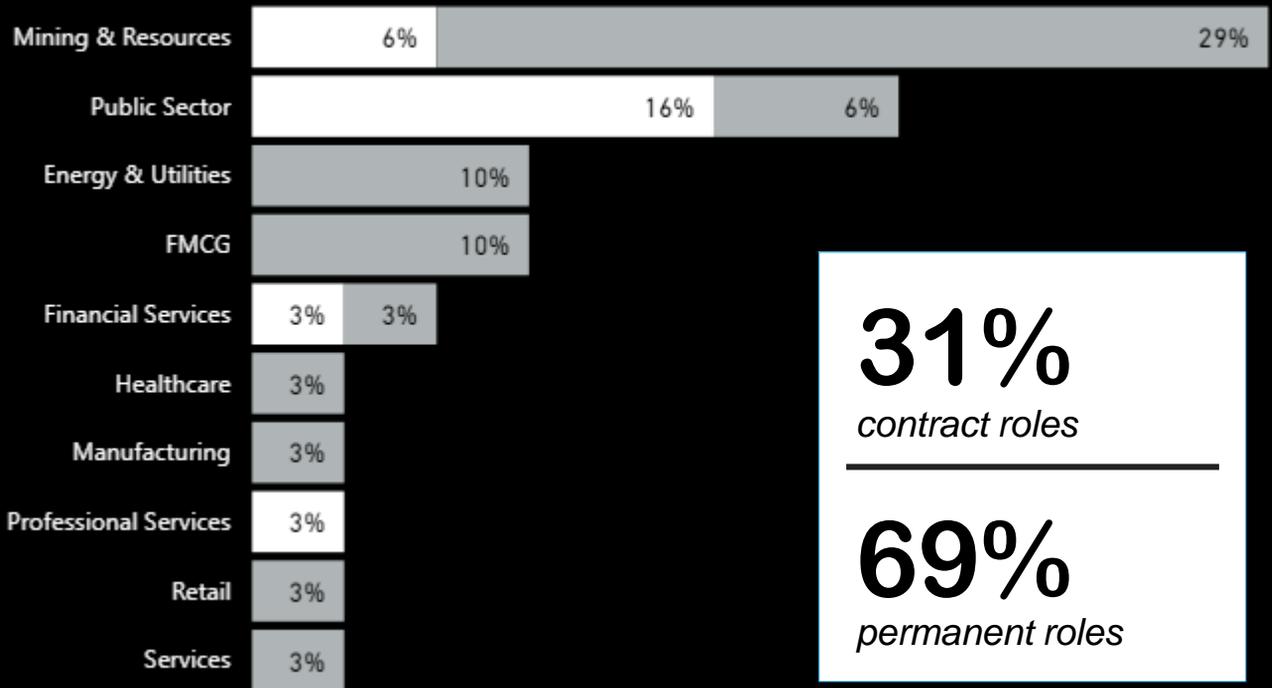
Level 38
71 Eagle St
Brisbane QLD 4000

CURRENT MARKET DEMAND

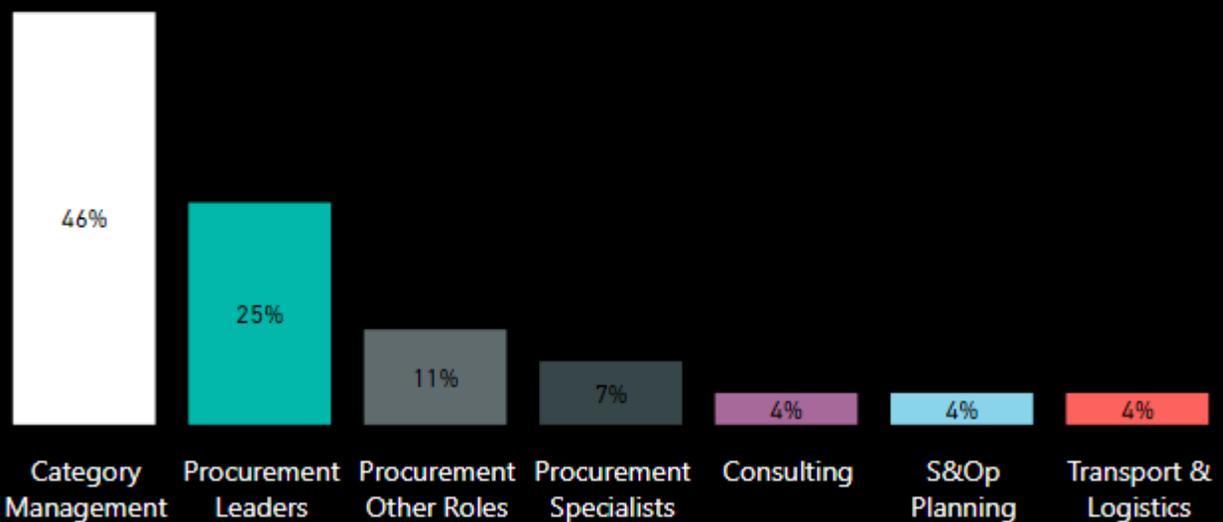
DECEMBER 2020

Live Roles by Industry

Type ● Contract ● Permanent



Live Roles by Job Category



Introduction

December, phew! Here at Jigsaw we are looking forward to spending some quality time with our loved ones and having a much-needed mental holiday from all the noise on the economy, Covid-19 and the US election. We are sure we are not alone in this need and before we get into the nitty gritty of the monthly report, Jigsaw would like to wish all our followers and supporters A MERRY CHRISTMAS and HAPPY NEW YEAR.

We sincerely hope you can manage to put aside any anxieties or frustrations that this year has manifested and take some time to appreciate the simpler things that life is really about like good food, wine, watching your kids open their presents and seeing the faces of loved ones unwrap and appreciate the gifts you have caringly sourced for them. Sometimes we can get so caught up in the machine that we forget to unplug it. This December, we hope no matter what, you make it a priority to unplug it and recharge yourself.

So, what does December look like? The good news is the procurement market is really starting to pick up. For us in Jigsaw, we are seeing a turning point for demand of procurement and supply chain professionals and our financials support this trend with November figures being stronger than the prior 6 months. Industries that require strong supply chain talent include FMCG, Retail, Mining, Finance and Defence. There is still uncertainty in the market, with key issues that are making business strategies hard to cement including the tension between China and Australia, the US election and the apparent corruption of the dominion software and ever increasing global debt that is placing huge pressure on the fiat currencies around the world, with the US \$ experiencing a particularly negative period that looks set to continue into 2021.

Australia is in a very tricky predicament. For better or worse it got into a long-term marriage with China and it seems the divorce will be messy.



On top of the exports already embargoed, it seems wine is the new target with tariffs of up to 200% being placed on Australian product. This announcement crashed the TWE stock by 11%. TWE will likely have to pivot its exports to new markets focussing on Europe and US. Jigsaw are still backing that Iron Ore, wheat, wool and cotton is on borrowed time. Two headwinds that will impact Iron Ore are other providers from Brazil and Indonesia and a push for scrap metal recycling. Iron ore will no doubt create the largest blow to the Australian economy on top of an ever-growing list of export bans including barley, sugar, timber, coal, lobsters and copper.

For December, Jigsaw have focussed on supply shock, rare earth mineral supply chain, minimum wage and potash. Supply shock is an issue that all nations experienced back in March re PPE. Supply shock is a problem that is not going to disappear, and its impacts will be felt to a greater extent in 2021 as global stimulus eases.

A sector that has been particularly impacted is fresh produce and as a result, the world is experiencing a global food shortage. This is not getting too much coverage in the mainstream media as the US election and Covid-19 are sucking up the media attention. Jigsaw attempt to explore the subject this month. Another topic that is not mainstream is the supply threat of rare earth minerals that are critical to our modern-day living. For December, Jigsaw explore the genuine supply risk of rare earths, the myth re their green status and the properties that make us so dependent on them. If you are not fatigued and still with us, we then take a dive into the minimum wage. We try to explore if enforcing a minimum wage has positive or negative impacts to Australia's economy. And finally, for commodity of the month, Jigsaw take a look at Potash, the two main types and why the ever-growing global demand for this commodity.

We hope you enjoy and once again, we at Jigsaw hope you have a very Merry Christmas.



Supply Shock

It is interesting, with news of a vaccine having a 90% success rate, investors quickly flocked to cruise, travel and airline equities on the assumption that global travel would soon be back on the radar. Aside from a vaccine having zero impact to the real issues of the economy, which is a deflationary unravelling of leverage and a resultant currency debasement, employment and in turn monetary velocity cannot easily return, even if people become more mobile.

So, what is supply shock and why does it take so long to recover once production is stopped? A supply shock is simply when supply is constrained for any given reason and output is heavily contracted or stopped entirely. For example, if manufacturing plants are closed due to an event like Covid-19, then the supply of goods to consumers is compromised. If, like with Covid-19, this retardation in production of goods and services is aggregated en masse, we have a global supply shock that heavily distorts the theory of equilibrium between supply and demand (See Jigsaw [September report](#) for Supply and Demand and Oligarchs). As the global economy pulls itself out of lockdown and consumer demand is switched back on, there is a lag in the ability for companies to ramp back up and re-build operations to deliver supply to the market.

The timeline re demand to supply will be heavily dependent on the good or services in question. For many service-based businesses, it could simply be a question of attracting skills (workers) that were previously laid off due to aggregate demand shock from lockdowns. For a complex manufacturing business, it could be a combination of employment, investment in capital, re-structuring entire supply chains due to geopolitical changes etc. It is this delay that can cause inflation for certain products even in a macro deflationary environment.

As the economy slowly heads towards normality, with people mobilising and the cogs of industry starting to churn, a very real issue will be faced by producers and consumers.



Demand can be turned off and on again like a tap. Especially for consumer staple products. Covid-19 and the lockdowns that resulted demonstrated how quickly the demand side of the equation can be instantly switched off, resulting in huge deflationary forces for oil, employment, travel, hospitality and commercial real estate. The impacts of these adjustments were almost immediate resulting in increased stimulus from governments to appease the public, as they enforced policies that were destructive to any business that was not focussed on home living or virtual communications. As society starts to unwind these measures a second reality will bite consumers; Supply shock. Unlike the demand side, the supply side cannot be easily turned back on. Demand shock will have caused inventories to perish, production lines will have been closed, livestock culled, and employment decimated.

The wheels of commerce take time to pick up, for many sectors it will take months if not years to produce pre-Covid-19 outputs. Venezuela was aggressively impacted by the impacts re oil demand, which as that country's key export was the backbone of the country's wealth. Ethiopia's economy was heavily reliant (60%) on tourism which has dried up as international travel contracted to almost zero. These direct impacts on nations economic prosperity are both crippling and long lasting. Forecasting how these sectors of the economy will return once covid-19 is better managed or accepted as a part of normal life is almost impossible.

Combine supply shock (less products/high demand) with ever increasing money supply and the result is stagflation. This, Jigsaw believe is the biggest risk to the working classes. The deflation of assets (bonds, equities, property, land and cars) is a middle/wealthy class issue and only the top 10% of demographics are chasing these assets. Low income demographics do not care about overpriced assets deflating in value. Typically, even assets that present genuine value are outside of these consumers ability to acquire. What low income earners care about is being able to feed, educate and shelter their families, and this is where Covid-19 lockdowns will hit society the hardest.



Whether you are upper, middle or working class, there is consistent demand for food. Sustenance is a critical requirement for human life and social order. Livestock and agriculture products etc are cyclical and even without Covid-19 already volatile to weather patterns and pest hazards (insects and other wildlife). This volatility was already causing food shortage issues prior to the Covid-19 crisis. The issue has now morphed from terrible to catastrophic. As a result of lockdowns, global Agri chains have been heavily disrupted, causing a genuine food crisis for many low and middle income countries, who prior to Covid-19, were classified as poor and on the breadline, now being pushed to starvation and in desperate need of aid from developed nations.

A key area of the economy, a sector critical for millions of people, is the agriculture chain which involves the farming, production, processing and distribution of food. Pre Covid-19, circa 140 million people required food aid across countries including Yemen, Sudan, Congo, Venezuela, Zimbabwe, Cameroon, Burkina Faso, Nigeria and Ethiopia. The number has now escalated to circa 270 million people. Compounding the result of lockdowns impact on world hunger are other natural disasters such as hurricanes (gulf coast) and desert locust (Ethiopia), heavy rains and flooding (Congo) and civil unrest (Syria).

The populations impacted by a food shortage around the world are genuinely shocking. To give the problem some context, let's uncover some statistics. The Congo has 21m+ people in need of aid, Nigeria 9m, Somalia 3.5m, Sudan 10m. The numbers continue across over 50 countries. Aid to these countries is limited and challenging, as global airlines continue to be held in lockdown or are running limited operations. Mass migration also adds to the cost of aid. As people struggle to survive in their homeland countries, they migrate to more developed nations where they predict sustenance is easier to come by and where civil unrest/war is not such a concern. This migration raises the cost of aid from circa US 50c per person per day to between \$50-\$80 per person per day.



As a result of this ever-present threat of increased cost of aid, it is critical that effective aid is delivered quickly to curb such mass migration of populations across Europe.

The problem is not just one for emerging countries. The western nations are also impacted. Of the 22m jobs lost in the US (this number will accelerate in 2021 as the insolvency crisis takes hold), 11m jobs have not been recovered. This has resulted in over 18m Americans not having enough to eat. The gulf coast is particularly vulnerable, as natural disasters (hurricanes) add to the problem. As of November 2020, 1 in 5 adults and 1 in 3 children in America (gulf coast) are going hungry. School closures compound the issue.

The UK too, with no Brexit trade deal being agreed to, is at major risk of food shortages. Heavy good vehicles will be held up at the border as no import policies are cemented. 80% of the UK economy is service based and the economy has already contracted 25% in 2020. Put bluntly, the UK required a lot more planning to exit Europe. A logjam of HGV's could decimate supply of fresh produce into the UK and like many goods and services the world relies on, there is a strong chance the fresh food supply chain is JIT. This means, not just a distribution issue, but also a storage issue, as Jigsaw would logically assume, fresh food storage was never a UK concern in a pre-Brexit world. As we approach Xmas and it seems Covid-19 lockdowns are not going away any time soon, it is genuinely possible that retailers will be focussing on Xmas merchandise and not generic consumer produce. With fiat currencies under pressure, the pound will be weak, making a supply shock due to poorly planned supply chains highly inflationary. A supply shortage of fresh food could add more fuel to an already volatile society that is attempting to reconcile the impacts of government policy re Covid-19.

It seems a global food shortage will impact millions of people across both developed and developing countries. Foodbanks are being utilised more than ever and as always; it is the low-income households who will be impacted the worst.



The Green Illusion

The Paris Agreement. In 2015, United Nations collaborated to curb the use of fossil fuels to tackle global warming. Included in this arrangement are India, China and a further 190+ States signing up to curb emissions and protect the planet. With a Biden presidency the US will no doubt enter back into the Paris agreement which will add immense pressure to Australia, who so far is outside of this agreement. The target is to keep global temperature increases below 2 degrees Celsius. Finance assistance of circa \$100 billion per annum until 2025 will be issued to assist emerging markets make the changes required so that all parties can achieve the desired outcomes.

So, this means a dedicated energy plan is globally underway to transition from our dependence on oil and coal to wind, solar, nuclear, hydrogen and battery powered energy sources. If the transition is successfully achieved, does this mean we have a greener world? Can we all feel smug with our solar panelled roofs and electric cars?

Unfortunately, as with most things in the modern-day world, we have no solutions that meet our idealisms, only choices, and these choices often create further problems. The energy dilemma is one that will not be solved easily. On deeper analysis, it feels like using a saucepan to solve a leaking roof leaving you nothing to cook with. No doubt, the world attempting to be greener, reduce waste and reverse climate change is good news, but we must be careful not to be naïve consumers having a false sense of our own virtue.

The energy shift will mean the world is increasing its reliance on a broader range of the periodic table. Minerals and rare earths that most people can barely pronounce let alone spell are becoming an ever more important ingredient for the modern world. These rare earths and minerals exist in the smallest quantities in unique locations. So, they are not what you would label in abundance.



To get an idea of how rare, Guillaume Pitron, author of “The Rare Metals War” explains it best. If we take a loaf of bread, its ingredients are flour, water, yeast and a pinch of salt. As a comparison, the rock volume would equal the flour, the nickel would equal the yeast and the rare minerals would amount to the pinch of salt. The concentration of rare minerals in the earth’s crust are minute. To give more context, take the rare mineral neodymium, it is 1200 times rarer than iron. The rare earth gallium is 2650 times rarer again. Now consider our consumption of oil, gas and coal has peaked and will likely contract over the next decade. On the flip side our consumption of metals will be at least 10X over the next decade. Our current consumption of iron is over 2 billion tonnes per annum. Our current consumption of rare metals is only 160,000 tonnes per annum. This means rare earths are expensive and in huge demand. As an example of how expensive, gallium is 9000 times more expensive than iron.

So, we know that rare earths live up to their label, they are obviously rare, hard to source and as a society, we are becoming ever more dependent on them, but let’s put our dependence into a real world context. Magnets and electric motors are not as obvious as mega structures that are processed using coal and iron ore, yet they are essential to our modern technologies. Rare earth minerals are present in everything we use in the modern world, from electric windows, wind turbines, energy efficient light bulbs, catalytic converters, toothbrushes, elevators, solar panels, lasers, defence, planes and electric vehicles. What many people may find alarming is that China has been responsible for over 80% of the world supply of these rare metals, with both official and un-official (black market production) mines across Jiangxi and Shandong etc. Other producing countries include South Africa (Platinum, Rhodium), Russia (Palladium), Brazil and the Congo (cobalt).

Mainstream logic heavily targets the use of petrol and diesel vehicles, agriculture and the processing of fossil fuels for energy consumption as a core problem to the world’s environmental woes. Yet, if we unravel a smart phone, we can see that in end to end



chain terms, it is no cleaner than a petrol powered car. A typical smart phone contains over 41 minerals. Included in this basket are elements that require some of the most environmentally polluting processes on earth. Lithium, Cobalt Oxide and Graphite make up the battery. The screen is built using other rare earths to assist in giving an array of colours that include yttrium, lanthanum, terbium, dysprosium, europium and gadolinium. Electronic components encase another array of hard to source rare earths including praseodymium, gallium, neodymium and many others. The green energy revolution is far from green. In fact, the communications and technology sectors consume 10% of the worlds electricity and produce over 50% more carbon than the transport sector. A 2-gram chip that exists in your phone, laptop or desktop produces 2kg of waste.

The hard truth is that no politician who is championing the “Build Back Better” narrative will want to confront is, mining the rare earth minerals cause more economic damage than the fossil fuels they replace. The only difference is, supply chains outsource the raw material risk to third parties based in de-regulated countries, pulling a convenient curtain over the problem of mass pollution. As supply chains breakdown the downstream and upstream functions into ever more fragmented parts, raw materials visibility becomes ever more challenging. Rare earth mining has caused huge issues in China and the Congo. Heavy metals discharge, contaminated water sources, acid rain and ill health are all by products of rare mineral extraction. The reality of why it is cheaper to produce in these de-regulated countries is due to zero regulation, policy and process to protect the rivers, lakes, oceans and the population from contamination. To do so would be expensive and the spot price would inflate further making an already expensive mineral inflate 2-3X.

This was a key reason that developed nations took the decision to outsource the pollution in the 1st place. The refining process is where the water pollution starts. To extract the minute volumes of these rare materials involves a lot of water.



How much water? Well, to purify a tonne of rare earth minerals takes about 200 cubic meters of water and plenty of sulphuric and hydrochloric acid. The silicon content of a typical solar panel produces 70kg of carbon dioxide and require 3500 litres of water per megawatt. That is easily 2X what a coal plant would require. If we factor in the solar sectors growth curve, we are looking at nearly 3 billion tonnes of carbon produced annually. The mislabelling of “sustainable” comes from the energy source which is sustainable. Wind, Water and Sunlight are in abundance and clean, but the mining processes to extract minerals to exploit these clean sources of power are anything but clean, and this leads us on to the reason these minerals are labelled “rare”.

Rare earths, although rare in terms of volume (units per tonne), are not rare in terms of geography. In fact, France and America have a history of rare earth production and Australia has joined the party, with companies scouting the Cummins range and other sites in WA and NT. Developed nations have not only exploited labour arbitrage of emerging nations to increase profit margins, they have also exploited the lack of regulation and desire for economic prosperity. Countries like China were only too happy to take over the mining and processing of rare earths when major producers in the US and France were shut down due to environmental concerns. China, with its de-regulated industry sectors can produce a kg of rare earth material for 100% less than that of a developed nation that must follow environmental regulations. This ability of China to compress labour and production has allowed it to gain such control over the sector, blocking out attempts of the US, France, South America and Australia to globally compete. Only with ethical procurement, with procurement contracts committed to place environment and people’s health over price could a power shift be taken from Chinese supply. As it happens, this never was placed on the agenda, for we in the West value cheap consumption over anything else. It took a geopolitical trade war to create a potential opportunity for other countries to position themselves to take up the gauntlet of production and supply. This will result in huge inflation for digital products, as environmental and labour policies and regulations take effect to protect environments and communities.



With all the buzz on rare earths, especially since Trump's national emergency announcement via supply risk, we cannot ignore the other topic that involves rare earths. Defence risk. It seems rare earths mirror the same supply chain risks as the world recently encountered with PPE equipment. The developed world's desire to consume and outsource labour, production, pollution and accountability to China, has essentially resulted in supply risk. China, a highly strategic country, will have understood the importance of rare earths and their importance to defence. Western governments seem to lack long term strategies. Globalisation of supply chains has created a demon that will unravel countries. Procurement power has replaced procurement knowledge, and short-term thinking has displaced long term thinking. If the trade war continues between China, Australia and the US, have no doubt that along with coal, copper, meat, wine and barley, rare earths will be on the menu to be leveraged creating a critical supply shock that will impact millions. This will cripple the not so green energy movement and create incomprehensible inflationary forces on military budgets and stall production of defence equipment of which rare earth minerals are critical.

Jigsaw recommend strongly for anybody interested in exploring rare earths, our dependence and the damage created in producing them to read "The War on Metals" by Guillaume Pitron. If you do this, I am sure you will feel less confident in the popular narrative of the benefits of an energy transition, at least without considering huge inflation forces to achieve it and the real problems that will result in a transition that is overly aggressive. As the developed nations rely more and more on end user consumption and utility, we are increasingly being further removed from the impacts of the supply chain upstream that is more destructive to process than oil, coal and gas and only represents a cleaner comparison at the stage of utility. The other point to consider, even if you drive an electric car or ride on an electric plane (once invented), these modes of locomotion still use fossil fuels to produce the actual electricity itself via coal and gas burning and still require other carbon releasing processes for components such as tyres.



One solution that is being heavily investigated by countries like Japan, who are resource light and heavily reliant on imported commodities is how to efficiently recycle rare metals to avoid the continuous mining of them. Problem is, as it stands today, it is far cheaper to mine them in a de-regulated country than to recycle. If Chinese supply is truly embargoed and western nations take up their own production, in turn drastically increasing the cost of supply by at least 2-X, then maybe recycling will have more merit economically.

The more likely change to mining of commodities will occur re how they are mined. When mining for any commodity, there is a trade-off between the energy used to extract the mineral to the energy gained from the new resource. Factors to consider include depth, intersection, grade of mineral, mine life and access to civil infrastructure. These factors all contribute to the economic inputs required to produce the raw material for industrial use. Whether a deposit is deep or shallow matters. If you only must drill down 50m to access a mineral, it will require far less capital and the mineral grade that is commercially viable can be far less. If you must drill down over 400m, which would qualify as underground mining, then the capital required is high and the grade for the mineral to be commercially viable has to be far greater. These variances in deposits will play a larger role in the future according to Robert Friedland who is a financier to the mining industry. In a recent interview, Robert explains that a grade of mineral 10 times inferior will require 10 times more energy, capital and labour to extract. This will result in commodities having a far more complex array of standards in future depending on the energy that was required to produce them through the process of exploration, development and production. This will result in much higher metal prices over the next two decades. Nickel, Silver, Vanadium, Copper, Cobalt and other metals that the electric revolution will be dependent on will be in huge demand, and the mining of them will have a far more critical lens making minable deposits rarer and far more costly.



Maybe the only way to change the pollution we are placing in the air we breathe and water we drink is to impact demand (usage) over source. For instance, whether we are buying electric or petrol cars, does a family really require two or three vehicles. Do we really need all the empty buses that seem to be taxing ghosts around the city? Do we need two phones, electric windows and two play stations? Should cars be banned from all cities within a 5km radius, with bikes being the major mode of transportation? As well as looking at demand over source, could we look after our rain forests and natural habitats, as they are a major source of carbon contraction. Jigsaw understand these suggestions sound idealist and would come at a cost. Cost of safety, cost of efficiency, cost of leisure time and cost to economies. One thing is clear, if we want to genuinely curb our environmental impacts, the growth at all cost's philosophy will only keep us on the path to failure. The green energy revolution is far from green, we simply push the pollution away to undeveloped countries or countries that have more insight to long term strategies and in desperate need of economic growth, who use our consumption against us at the expense of their population. Advancement is a tricky beast. Just because we can, does it mean we should? Have we hit peak innovation and consumption, where to progress further means we destroy the elements that are genuinely critical to our long-term health and survival? These elements are not cerium, cobalt, beryllium and antimony. They are oxygen, water and the elements that make up vital nutrients we consume. The summary here is, natural energy sources maybe sustainable, but the minerals, geological processes, labour and materials to utilise these forces are not.

As always, Jigsaw is just highlighting the facts, not pushing an idealism. We go back to the point that when it comes to energy, we have no solutions, only choices. The question is, are we hiding behind our end user consumption, which in its utility is cleaner, greener and if un-explored, allows us to feel like we are making something of a difference to the health of the planet. Yet, if we are brave enough to lift the lid of reality, we see that the production processes of these rare earths is creating devastating environmental damage to the emerging countries we rely on to produce them, yet it is



so far away from our smashed avocado and latte life style, we can just give it a hard ignoring. Build Back Better, in Jigsaw we are not so sure.

For a full breakdown of the rare earths and usage, please refer to Table below.

Exploration Results	Industrial Usage
Antimony	Fire Retardants; Plastics, Polyethylene Terephthalate Catalyst
Baryte	Glass, Radioprotection, Healthcare, Pyrotechnics, Drilling
Beryllium	Telecoms, Electronics, Aerospace, Nuclear, Defence
Bismuth	Thermo Generators, Superconductors, Auto
Borates	Glass & Ceramics
Cerium	Catalytic Converters, Oil Refinery, Alloys
Cobalt	Mobile Phones, Computers, Hybrid Auto, Magnets
Dysprosium	Perm Magnets, Hybrid Engines
Erbium	Long distance fibre optic comms, Nuclear medicine
Europium	Lasers, Nuclear Reactors, Lighting, Geo-Chemistry, Red Phosphors in Cathode Ray Tubes
Gadolinium	Phosphorescent in Cathode-ray Tubes
Gallium	Semi-Conductors, LED's
Germanium	Photovoltaic Cells, Fibre Optics,
Graphite	Electric Vehicles, Aerospace, Nuclear Sectors
Holmium	Lasers, Magnetism, Superconductive compounds
Indium	Computer Chips, LCD Screens
Lanthanum	Superconductive compounds, Lenses, Lighting
Lutetium	Beta Emitter - Radiation
Neodymium	Perm Magnets, Autocatalysts, Lasers, Oil Refinery
Niobium	Satellites, Electric Vehicles, Nuclear, Jewellery
Palladium	Catalysts, Jewellery
Platinum	Catalysts, Jewellery
Praseodymium	Lighter Flint, Colourants, Magnets
Promethium	Luminescent Compounds
Rhodium	Catalysts, Jewellery
Samarium	Magnets for Missiles, Electric Motors
Silicon Metals	Integrated Circuits, Electric Isolators, Photovoltaic cells
Tantalum	Super Alloys, Miniaturised Condensers
Terbium	Green Phosphor activator for Cathode-Ray Tubes, Magnets
Thulium	Portable radiography, High Temp Conductors
Tungsten	Cutting Tools, Shielding, Electric Energy, Electronics
Vanadium	Specialty Steels, Aerospace, Catalysis
Ytterbium	Stainless Steel, Active Ion (Crystal Lasers), Portable Radiography



The Minimum Wage

The minimum wage was introduced into Australia in 1906. It paid workers circa 42 shillings for 6 working days. (In the US, 1938 was the date under FDR when a minimum wage was introduced). Although the term and conditions for the minimum wage have varied greatly over time, the policy was initially designed to protect workers against low pay and contribute to balancing capital and income inequality. In fact, FDR intended the minimum wage to be more accurately described as a living wage, in that all citizens could earn a decent living from their labour inputs. The minimum wage rate is determined by national data on wage rates, inflation and generic employment figures. The current minimum wage in Australia as of November 2020 is \$19.84 per hour; \$753.80 a week; \$38,521 per annum. In the past decade, the minimum wage has increased 30% from \$15 in 2010 to today's rates. That is all well and good. Yet if we factor in the Australian dollar has lost 25% of its value over the past decade re inflation, then this 30% rise looks far less impressive. Essentially 83% of the nominal gain is wiped out re increased living expenses, such is the trick of monetary debasement.

A living wage is very different from a minimum wage, as it factors real world costs that need to be met to live. These typically include shelter, food and utilities. Advocates of a living wage (which is not in play, at least in Australia or the US) push for an income of 60% of the median national income, which, if adopted, would vary from the minimum wage circa 7%, bringing the target income to \$41,184 per annum. It seems no matter which method you adopt re minimum wage or living wage, the real expense of rent, food and utility is exceedingly more than \$40k per annum, especially if you live in certain postcodes.

If we go back to 1906, we may be able to understand better if base income was minimum wage or living wage. In 1906, a single day's labour would generate 7 shillings of income.



As Australia did not have its own currency until 1910, by UK records, a shilling (1 Shilling = 12d or pence) could buy you the following - Rent = 3s 6d; Bread 2.5d; 14 pounds of coal 2.5d; Pint of beer 1.75d; 1 pound of meat 10d. So a typical family budget in early 1900's was circa 20 shillings per week. It is fair to say, if our research is correct, then back in the early 1900's, when the base income initiative was introduced, governments were actually thinking of living wage, not a minimum wage.

If we compare the minimum wage today re its purchasing power with the living wage of 1906, the \$38,521 per annum of income re minimum wage will just about cover the average annual rent at \$27,300.00 per annum. If we factor in the minimum wage is taxed after \$19,000 at a tax rate of circ 12%, so your actual net income is only around \$33,000.00 per annum. So, for food and utility, you have \$6k for the year or \$115 per week. So, this raises another question, aside from students or young adults who are still living at home, who does the minimum wage actually help? Is placing a fixed cost on labour a good thing, if it does not assist these employees actually afford rent, food and utility.

It may help to understand who should be entitled to a minimum or living income, if we are going to enforce such a system. If we break down the labour market, it is more complex than politicians would lead us to believe. We have non-skilled, skilled and highly skilled workers. In addition to the absolute reality that not all labour is equal, we also have very different costs which are dependent on where we live. A blanket minimum wage across a nation raises some serious questions to how it impacts the micro economies that exist across Australia. Non-skilled labour means that anybody can execute the task if they are willing. Picking fruit, flipping burgers, stacking shelves and digging holes are all basic tasks that require effort but little technical skill. These jobs, although not skilled, are critical to society and it is fair to assume, it is these roles that mostly fall under the minimum wage policy.



Of course, governments placing pressure on businesses to pay a minimum wage will have an inflationary impact on the operational costs of a business and in turn increase the price of the product. The dynamics are very different with skilled labour, as skilled labour is more scarce than non-skilled and as a result, has a market price which is in sync with supply and demand. That is the reward for a person who has skills and went through the many years of investment to acquire them. Then we have the elite workforce, who are so highly educated and skilled they essentially dictate their price of labour and create markets via their demands. Again, this is the reward for many years of investment and sacrifice that enabled these rare few to be at the top 1% of the labour force.

These skills across the labour market are realised by what we are willing to pay as customers for the end service or products that result. A cheap, cheerful high street eatery who is offering burger in a bun with chips at an economical price point requires a basic labour force to clean the floor, flip the burgers, fry chips and use the cash register. The value of the business is in its simplicity, resulting in a product price point that is affordable to the masses. The business model is dependent on low margins and high transactions to achieve profits. This is a different offering to a more expensive dining experience that a typical established restaurant may offer. Fine dining requires a skilled work force to focus on customer service, fine cooking utilising European techniques and waiters with a deep knowledge of French wines. As consumers, we are prepared to pay for this extra experience, and we factor in the price point with low utilisation. The restaurant owner has hedged its business model on this very fact, so the staff are paid a market rate. The cheaper high street eatery does not have this luxury. The owner of the cheap and cheerful eatery works just as hard, and for the product produced, has just as much passion and a sense of quality as the fine restaurant, yet the model is severely impacted by overhead costs, and government policies that increase the cost of doing business can cripple the model.



Customers too, get a raw deal if opex costs are inflated, as the burger and chips that used to cost \$5 are now \$6.50. As we have established, for wealthy people, \$1.50 sounds irrelevant, but if you only have \$6k for the year, \$1.50 matters.

If we factor in geographies the problem is compounded, at least for the cheap and cheerful eatery. The fine restaurant operates its business by the law of market forces as it utilises a labour force that is skilled. If it opens another fine dining restaurant 100km away from the CBD, it can offer wages at local market rates of the town it is based. Let's say it offers its local labour force a 30% discount on what they could earn in the CBD. The skilled workers will still be happy with this wage as the cost of property and other utilities are cheaper being away from the convenience of the city, so it is all relative. They get to still exercise their profession, have a less congested lifestyle and still have purchasing power to buy a house and a car etc. The customers that eat in the restaurant are also benefiting, as the fine dining experience, although still expensive, is great value compared to what they would pay in the CBD. The cheap eatery based in the same town is not so lucky. A raise in the minimum wage means the owner is forced to increase operating costs, and in turn is forced to raise prices on the meals they produce. This means, their cost of goods is quickly becoming out of sync with the economics of the town. The cheap eatery either must lose customers who are not prepared to pay the increase, employ less people or break the law to survive and pay under the minimum requirement in turn carrying legal risks and fines associated with such practices.

There is a finite value to a given task, and when governments step in and attempt to correct markets, they end up causing more harm than good. If we insist on pushing an ever increasing minimum wage, a wage that, on reflection, is still not enough for a person to live on, all we are essentially doing is increasing the price of goods that are supposed to be basic and cheap or driving businesses to insolvency. The working class, as always, lose. The unskilled labour force may get more money (gross) than they would



if the minimum wage policy was not in effect, but after tax and with ever increasing prices of basic items inflating as a result, are they better off? The sentiment is great but is it genuine or beneficial in a world where currency loses 25% every decade and large businesses are deflating their opex via capital investment, which is a strategy that small businesses cannot entertain. If Paul is robbing Peter to give something for nothing, then Paul will always get my vote. If we just look beyond the tag line, which does suggest doing the right thing for the working-class income earners and placing more accountability on the tyrant capitalist, we can see it for what it is.

Another wealth transfer that kills the middle class (small business owner) and seduces the working class (non-skilled labour force). As there are far more income units in society than capital units, the play is both smart and effective.

The truth is the minimum wage hurts the very people it was engineered to assist. It destroys small businesses; whose operations rely on providing good product at cheap prices which lower income earners can afford. If the minimum wage does not destroy these small operations, it increases the price of goods and services they produce, which again impacts the low-income earners ability to consume these products.

Jigsaw have written in the past about inflation being the governments preferred tax of choice. It is surreptitious to the uninformed, you must really want to see it and its impacts to notice it. It is why initiatives to lowering the cost of operations for smaller businesses are not on the government agenda. Truth is, income is not the problem, it is inflation and the policies that force it that is robbing people of their prosperity.

You cannot tax a devalued unit, you can only tax a unit more if its market value is increased. In positioning policies such as the minimum wage, governments get a double benefit. They get to create inflation of goods beyond annual targets whilst positioning a favourable policy that retains the votes of the many. Think how cheap fruit and other groceries would be if there was no minimum wage. That would likely equal more real-world quality of existence to working class people than a nominal increase that still is not enough to service basic living.



If we are going to stick with governments enforcing a floor on income, at least let's review a living income that has parity with a geographical location and not a sweeping national solution that causes more harm than good. How about more understanding on local markets and the economies that businesses operate within? What is the cost of goods, services and income for a given geography? This should play a factor in deciding the minimum living wage for that location. This move at the very least would allow businesses to align with local conditions and provide them a chance at staying solvent, keeping pricing in accordance with the micro economy and giving the residents more employment and choice. The skilled work force achieves this because a skilled workforce applies free market principles. Maybe it is time to review the non-skilled.

Commodity of the Month – Potash

This month, as Jigsaw are covering the issue of food shortages, we felt potash was a raw material worth exploring as over the next decade, its relevance will become ever more important as the world tackles an ongoing food crisis. Potash is a phrase referring to manufactured salts that contain potassium in water. The name derives from wood ash that was soaked in a pot, a method that was used to produce it prior to the industrial revolution. The primary use of potash is to support plant growth, support plant immunity, enhance water preservation and commercially to increase crop yield. Potash was the 1st industrial chemical patented in America (1790) and 95% of its utility is to fertilize crops that do not rely on a heavy acidic content as the usage of potash increases the PH in soil. Potassium is a key food source for many plants and potassium chloride and sulphate occur naturally in dried seabeds and salt lakes. Potassium is also a key mineral for human health (lowers blood pressure, aids muscle contraction) and like protein, it cannot be stored in the body, so consumption of this critical mineral needs to be regular.



So, in a world where food shortages are a reality, potash is an essential fertiliser to ensure quality produce and optimise water usage. In many parts of the world, such as the Congo, Uganda, Nigeria, Tanzania and Ivory Coast, farmers are replacing only 10% of the potassium that is stripped out of the soils via farming practices. As crops are grown and removed from the soil, nutrients are removed with the crop, this rinse and repeat process eventually equates to soils being infertile. So, as we consume key plants, we are mining them, we are extracting these minerals out of the earth as we farm them. As the price of crops is forever being compressed by western nations, the price of potash is too high for these poor countries to adequately replace the lost nutrients in the soil and with an ever-increasing population, the issue re food shortage is compounding. In this respect, we are encountering the same problem with potash as with rare earths. To mine a commodity in an underdeveloped, de-regulated nation is cheap. To put in place a 360 sustainable process that considers key social and environmental issues, is expensive and is regulated and executed as it should be, the price of production of minerals and foods could double or even triple. As a developed nation, are consumers prepared to back their green agenda by paying a premium so that proper process can be actioned to ensure future generations can eat, drink and breathe clean air?

Key producers of potash include Canada (13m MT), Russia (6.8m MT) and China (5million MT), with the largest consumers of potash being China, US, India and Brazil. When it comes to Potash, there are two different sources, Muriate of Potash (MOP) and Sulphate of Potash (SOP).

MOP (potassium chloride) is most common and is used to produce a large and diverse array of crops. The draw back being the high levels of chloride that can create a toxic nutrient imbalance, so select crops and select soils need to be factored in that assess chloride volumes. SOP is considered a higher quality potash and it contains both sulphur and potassium and hence, is a superior product for increasing crop yield.



SOP makes plants more resilient to adverse impacts of frost, insects (plagues) and drought and has even been found to improve the overall taste of the crop as it also enables iron absorption. As SOP is a superior product to MOP and is not natural (it must be fabricated via chemical processing, see Mannheim process or double salt method), it has a higher cost point than MOP.

So, both MOP and SOP are going to continue to be very important commodities over the next 30 years. MOP is cheaper, impacts positively plants that can tolerate higher levels of chloride (beets and celery as examples) and is more mainstream than SOP. On the flip side, SOP is more costly to produce, so in turn is more costly to source, and is superior for crops that are sensitive to chloride (fruits, nuts, coffee and tobacco).

For the Australian economy, potash presents a great opportunity to be a major consumer and exporter of both SOP and MOP. As demand increases and the geopolitical landscape continues to impact trade, companies such as Parkway Minerals (PWN) and Trigg Mining (TMG) are well positioned to exploit market demand.