"It's Only Natural" Alex Slocum 7 October, 2019

The term "free will" seems to originate from the story of Adam and Eve: If God could predict everything in advance, why was the snake allowed in the tree? Judging by history, humans indeed have free will, and it is by this that they will be judged, as witnessed by laws and their enforcement. Humans were given complete dominion over the earth to civilize it by means of their brains and opposable thumbs and they have flourished at the expense of the wild.

We came from Nature and we are thus part of it and just as if we do not take of ourselves in the short term we will wither, so too if we do not take care of nature in the long term we will wither. Balance is needed. Many people believe in "God", and are content to learn about God by reading verse written long ago and listening to the exhortations of people trained to teach them about God and the meanings of religious writings. While some claim to hear the voice of God, few claim to actually see and talk to God conversationally.

God having created everything is all knowing, which means God also knows all about science and engineering which come from the Natural Laws that God also created. Laws such as discovered by Einstein and a host of other brilliant people that have given us the miraculous civilization in which we live. Chief among these laws is the 2nd law of thermodynamics which states entropy always increases, and thus perpetual motion is impossible. This law thus means in order for something to happen, energy must be supplied; in the great universe there is one fundamental source of energy from which all others evolve. That source is when two atoms of the simplest element, hydrogen, fuse to form a new atom, helium, that has a slightly lower mass than that of the two hydrogen atoms individually. What happened to the little bit of mass lost? It was turned into pure energy: "light" with all its brightness, warmth, and glory to spread out in all directions. This is E=mc²: energy equals mass times speed of light squared.

One day the universe as we know it will ultimately come to something that will lead to a big pause and then perhaps another "AHA!" moment and then there will be a new light and perhaps new laws to see how things play out. But for now, we have a set of natural laws that we have discovered and learned how to use that have given us a life full of air travel, cell phones, the internet, and many diverse sources of energy. So, it stands to reason that God gave us life and these natural laws and free will and rather than micromanage us on a daily basis, is happy to observe and according to some people there will be a final judgment.

Some believe we were pure and beautiful and then were tempted and took a bite from the apple and attained knowledge which made God mad and drove us from the Garden of Eden. By discovering natural laws and using them to our advantage to harness many forms of energy, such as hydrocarbons from long dead plants that originally grew because of light from the sun, we have taken the fateful bite of the apple of science. To make matters more interesting, we have also decoded the recipe for life, and have vanquished many of the afflictions that for eons kept us in balance with Nature. Our free will has led us to freely expand to the point where many believe we can expand no more and, indeed, might have to contract to survive.

How can we know? Many believe in the words of long dead scribes who wrote verse about God's laws, and the exhortations of those who portend to understand God's laws so well that they feel obliged to teach others about what was written. There is some debate as to who is correct in their interpretations as evidenced by many different religions in the world; however, people from every religion read by light, talk on a cell phone, watch broadcasts; and many travel weekly by car to visit places of worship to learn more about God's words and some travel by air now and then to visit Holy places. And all of these modern marvels that make possible the spreading of God's words and laws are made possible by the discovery and understanding of God's Natural Laws.

Unlike those who preach about what God meant by words in verse written long ago, despite never apparently having been able to say they actually themselves talked to God for explicit clarification, scientists have not only observed every single one of God's Natural Laws, they have learned that they can put them in a form that needs no discussion with God directly for clarification as they have come to understand that "mathematics is the language with which God has written the universe" (Galileo Galilei). So, what is "science?" Science is the process of observing things to form an understanding of why things are happening and to, ultimately, encode that understanding with a mathematical formula. What then is "engineering"? Engineering is the process of observing things to form an understanding of what needs to be done and, ultimately, to create something to do it.

These same scientists have been saying louder and louder, and many are now shouting, that the same Natural Laws that have enabled engineers to create things to make our lives much more pleasant and longer lasting that ever before in history, these same Natural Laws tell us we are about to engineer ourselves back to the stone age. Climate change is real, the ice is melting and the waters are rising and the weather is ever fiercer. Some may think they can choose not to believe, that God will never let this happen, that in Genesis 8:1–22, God promised never to cause a flood, but God never promised to prevent humans from themselves causing their own flood! Indeed, free will means the Earth is ours to do with what we please.

So, what to do? Perhaps we should listen to the prophetic words of Greta Thunberg to the UN "We are in the beginning of a mass extinction and all you can talk about is money and fairy tales of eternal economic growth - how dare you!' And then to the US Congress "unite behind science, and then I want you to take real action".

Each person has free will and thus can do what they wish. But if a person does not believe in climate change and does not believe we must all work hard together to reverse it from conversing every bit of energy we can, consuming less, recycling carefully more, and putting our production capabilities towards creating renewable energy machines to drive our carbon emissions to zero and ,indeed, negative, then that person must also turn off their cell phone, lights, car, heat and go back to living a natural life just as God gave them in the time just after that fateful bite of the apple. And for those holier than thou folks who look forward to the waters rising and the fearsome heat as fires rain down upon us, they must remember Matthew 21:12, remember all the innocent children who never had a chance to make a choice who will suffer and die because of your inaction. Your greed takes you to a big bang toga party to celebrate the end when you will get to stand before God with your holy book in hand and wait for God to find your name in the book of life. Imagine your thoughts when God cannot find your name because your greed and

lack of action in life led to life being erased on earth and has caused your name to be erased from the book of life. Revelation 20:11-15. Perhaps one day from the lake of fire you created to which you return, one day a new light will begin again? Genesis 3:19.

We are close to the point of no return, in just a few decades scientists using the same Natural Laws that give us all our goodness say that at the current rate the temperature will rise to the point where even if we were to suddenly go carbon negative, we will not be able to stop the melting and the waters rising. Greta's message is most prophetic: No longer can we say "renewable energy is more costly than hydrocarbons, so let's keep burning until we get a better deal". Indeed, modern history tells us that when science leads to a new idea and a new product, be it air travel, space flight, cell phones, the internet it takes one to two decades for the idea to reach the masses. We do not have the time to bet on hope for a new magic energy source nor do we have the time to then build it out. We DO have "good enough" renewable energy sources to save our climate and ourselves and we DO have the economic ability to deploy them, and create great jobs and business opportunities for ALL. God has a plan for that too, and Isaiah 2:4 offers guidance:

An Almighty vision

Unless energy from sun and wind we do fully capture We burn ourselves in our own sordid Rapture

It will be our collective ignorance and vanity that leads to the end of civilization and humanity

Religion or perceived rights are no excuse to pollute and burn carbon footloose

A wrecked environment, history will tell, led to humanity's Almighty hell

After 2020 the time will be too late It is NOW that we must choose our fate

Banish narcissists, liars, and cheats to prison Elect smart leaders with compassion and vision

Peace and prosperity to all,

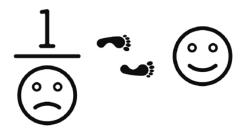
Alexander Slocum Walter M. May and A. Hazel May Professor of Mechanical Engineering Massachusetts Institute of Technology 77 Massachusetts Avenue, Room 3-445 Cambridge, MA 02139-4301 slocum@mit.edu http://pergatory.mit.edu Twitter: @ahslocum

Its Only Natural: A Sustainable Revolution

A Bright Future for Energy & the World YES We Can Do It!

> Herein are many different puzzles to solve Including many thoughts to evolve Some lots more than others > Some less than druthers <

> Many different peoples Gathered under varied steeples Each will see things in different ways And that's the real key to happy new days



To mask or not to mask? That's not the question to ask We all must no longer dwaddle We need a new economic model

From COVID-9 economic ashes we can rapidly rise Powered by focus on harvesting energy from the skies Rapid testing isolation and treatment can open up the store Harmony and balance with nature we can economically restore Due to our CO2 gassing Heat records keep amassing We grow yet wallow in pollution We ignore that there is a simple solution

As corals & salmon die of heat before they can spawn Carbon emitters must no longer turn their heads and yawn On renewables we must ALL spend a reasonable part of what we earn Or soon our atmosphere will be like that of Venus and it will be humanity's turn





https://www.kyuk.org/post/summer-chum-salmon-die-likely-caused-heat-stress-say-scientists

(Photo: NASA)

Our dependence on carbon fuels is causing global strife The amazon burning should be a signal for all life Nature and Physics simply do not care We humans have no time to spare

Forget fake news We have too much to lose Money will not buy a place to hide We must work together to stem the warming tide





https://www.theceomagazine.com/business/management-leadership/ostrich-strategy-ignorance-no-excuse/

"Mathematics is the language with which God wrote the universe" To ignore tHIS great gift is myopic, silly, SAD and perverse And the math for phones to ring & planes to fly predicts planet warming from CO2 in the sky

> Energy themes must be the focus in schools While industry is supported and retools Lest we all pay the ultimate price Together walk from sad to nice





For all the brave soldiers who died for our way of life it will have been in vain if all ends in climate strife A slowly increasing carbon tax is the way to start to fund actions to keep us from falling apart

Because even with all our military might soon there will be nothing left for which to fight Let's quickly pivot to form the Climate Defense Forces to develop and protect all Earth's precious renewable sources

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https://www.washingtonexaminer.com/trumps-julv-4th-militaryparade-is-a-good-idea



https://devotionsbychris.com/tag/arlington-national-cemetery/



https://www.solarcostguide.com/guides/benefit-from-solar-energy/



https://www.al.com/living/index.ssf/2015/01/a_time_to_plant_tre es_and_shru.html

Military spending* is 2.2% of GWP But to actually protect and keep us free Arms makers and dealers can quickly evolve and profit from environmental problems they solve

To transition rapidly to renewables we already have the means We know how to design, make, and deploy the machines Companies of all stripes promise negative emissions Consumers demand negative carbon conditions



Population	7,000,000,000
Average 24/7 power per person (W)	2,000
Capital investment cost (including storage) per renewable Watt	\$ 5.00
Investment per person required	\$ 10,000
Total investment cost	\$ 70,000,000,000,000
World Annual Economic Output	\$ 75,000,000,000,000
% per year to be refocused on renewable energy	2%
Amount per year	\$ 1,500,000,000,000
Years to total renewables	46.7

* https://www.cnbc.com/2018/05/02/global-military-spend-rose-to-1-point-7-trillion-in-2017-arms-watchdog-says.html

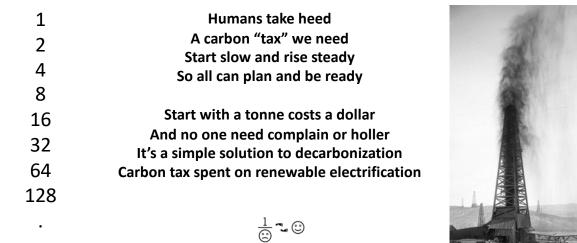
Our selfishness is rapidly leading us to the terrible tragic tipping point trillionth ton CO2 heats the planet up, tundra melts, methane released, and all life is done The solution is simple, like buying insurance for our property and health We just have to spend a modest portion of our paper wealth

> And we can control carbon with hedges Split up the complex problem with wedges Transition from black to green at an increasing rate and all have good jobs and profit while avoiding a dire fate

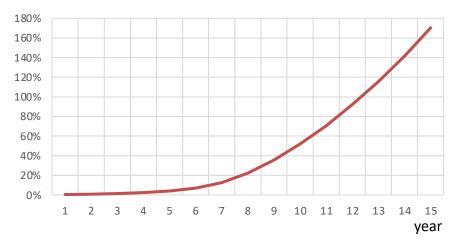
Some think all the hydrocarbons they own they can sell but soon it will drive the climate and us all to hell Instead they should carefully sell just enough and invest dollars in renewable energy stuff

The key is to invest wisely to turn black into green and become owners of many a renewable energy machine Harvest energy from the earth, wind, water and the sun's rays They can forever bring income, peace, happiness, glory and praise

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https://commons.wikimedia.org/wiki/File:Taft_oil_well_blowout_in_Kern_County_ca_1920_(CHS-2498).jpg



% CO2 offset

But carbon producers relax There's an alternative to a carbon "tax" Take just 10% of the gross you sell to burn and invest in renewables for a sustainable return

It's a BIG idea that's very keen Invest income to turn Black Into Green Produce carbon and buy renewables now and create a long term carbon free cash cow





Applied Energy Volume 242, 15 May 2019, Pages 1189-1197



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open access

Black into green: A BIG opportunity for North Dakota's oil and gas producers

David D.J. Taylor ^{a, 1}, Mariya Layurova ^a, David S. Vogel ^{b, c}, Alexander H. Slocum ^a A B B Show more

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Highlights

- The business inertia of hydrocarbon production can accelerate wind energy production.
- Emissions-to-price ratio makes BIG funding feasible for oil and natural gas in ND.
- + BIG's wind farm is funded from 10% of hydrocarbon revenues and 0.03/kWh of wind power.
- Over 40 years, ND's oil and gas can fund 89,000 wind turbines, generating 155GW.
- This wind power offsets 100% of the well-to-wheel emissions of ND's oil and gas.

https://doi.org/10.1016/j.apenergy.2019.03.158

Jobs for many are at hand to farm, replant, and help the land Its as simple as Re and Afforestization to play a big part in resilient decarbonization

5.5 million miles of overhead lines powers US Under them plant switchgrass and *Brassica napus* Planting 1/3rd would equal a one gigawatt powerplant Funding the Department of Energy should be quick to grant





http://be-eco-friendly.blogspot.com/2011/04/reforestation.html



http://chinaplus.cri.cn/mychina/life/35/20170804/13916.html



https://articles.extension.org/pages/26635/switchgrass-panicum-virgatum-for-biofuel-production



https://upload.wikimedia.org/wikipedia/commons/8/8b/Ra _Field - geograph.org.uk - 759058.jpg

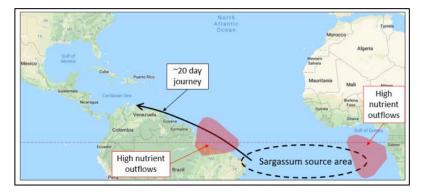
Agricultural runoff is flowing into the warming ocean And so excessive seaweed growth is set into motion Our oceans have become a giant garbage patch The flow of plastic we must stop and catch

Selective Ocean Sequestration of Carbon could be a key Clean up the oceans and help us become carbon free SOScarbon to the bottom many kilometers deep Under intense cold and pressure it will keep



www.soscarbon.com





Don't just drill for oil and gas to burn also seek long term CO2-free return Invest now 10% of all your worth and drill for heat in the earth

Energy for "free"? The key is a high COP For every Watt in you pour a heat pump can give back four

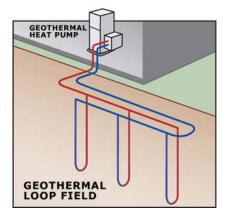
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https://www.rigzone.com/training/insight.asp?insight_id=295



http://www.slb.com/services/drilling/drilling_services_systems/directional_drilling/powerdrive_family/power_drive_orbit_rotary_steerable.aspx



http://www.heddenbroswelldrilling.com/geothermal.html

If you have dug a big deep hole from which you extracted the coal then create an upper and lower lake Pumped Storage Hydro you can make

From coal get other molecules directly Carbon fiber and polymers if cooked correctly Think composite planes and wind turbine blades A new economy for miners and all sorts of skilled trades

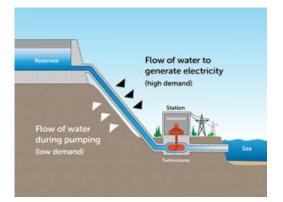


https://www.materialstoday.com/carbon-fiber/features/carbon-fibre-producers-optimistic-in-downturn/



https://www.kolotv.com/content/news/Push-to-close-last-Nevada-coal-plant-centers-on-monev-416509173.html





https://www.energy-storage.news/news/energyaustraliaponders-worlds-largest-seawater-pumped-hydro-energystorage

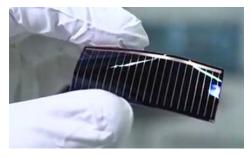
https://www.sciencealert.com/scientists-spot-530-000potential-pumped-hydro-sites-to-meet-all-our-renewableenergy-needs Process old coal ash, it's a resource to generate cash: Extract valuable "toxic" metals, and last, make concrete and offshore turbines' ballast

Market the minerals well and make many a GaAs solar cell Waste nothing and be resource efficient Symbiotic thinking is key to being proficient

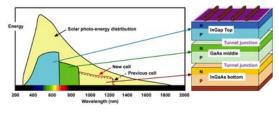




http://appvoices.org/coalash/ https://pdfs.semanticscholar.org/425a/ce511a505f1876f866f9a2b7afaf77c4c57c.pdf



https://www.altadevices.com/technology/



http://www.sharp-world.com/corporate/news/130424.html

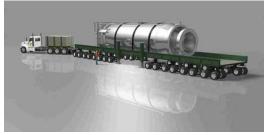
Power from the atom is part of the answer to help ward off painful climate change cancer Modular standardized reactors can be done right and they will ensure the lights burn through the night

Nuclear fuel from the sea can give us endless power CO2 free Robotically process or bury spent fuel on site re-use and vitrify to prevent hazardous waste blight





http://powertrends.blogspot.com/2010/07/s mall-modular-reactors-fun-and-exciting.html



https://www.npr.org/sections/thetwo-way/2017/01/13/509673094/miniaturized-nuclear-power-plant-u-s-reviewing-proposed-design



https://www.sciencedirect.com/science/article/pii/S2213138814000848

We need a resilient electric grid so of reliability worries we can be rid All help with a small extra fee to remit We can bury the lines for power we transmit

Batteries can share and smooth the load to store energy and propel us down the road Auto companies and workers need not suffer a rift Excess capacity to make renewables can help the shift

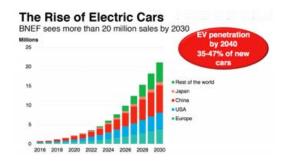


https://spectrum.ieee.org/energy/the-smarter-grid/utilitiesbury-more-transmission-lines-to-prevent-storm-damage



ABB launches world's most powerful extruded HVDC cable system

https://www.youtube.com/watch?v=je5INqMXN5Q https://new.abb.com/systems/hvdc



https://gas2.org/2017/04/26/total-electric-cars-decrease-demand-gasoline-2030/

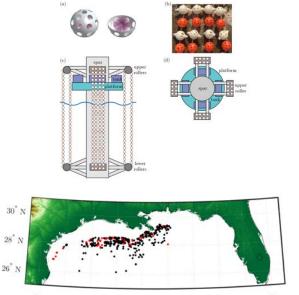


https://www.teslarati.com/tesla-gigafactory-1-solar-rooftop-array/



A green new deal Could have great appeal But as with each new revolution before History teaches energy and minerals we will need more

It will take massive amounts of metals to be newly mined while on the land there are not enough to nicely find they exist abundantly dissolved in the ocean Industry just needs to be set in motion







The Middle East's oil has generated incredible wealth! but is it worth a future of ever worsening health? Long ago the region was the cradle of civilization Now become a catalyst for climate salvation

> All the countries in the region Form a renewable energy legion In your hearts you know what to do To us all, Mother Earth, and Allah be true

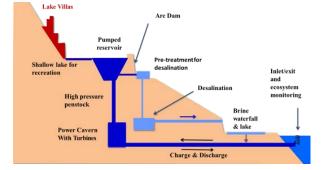




It can be foreseen that from every Arab Nation there can be brotherhood and reconciliation Trade weapons of death and destruction for renewable systems construction

Together build resilient and renewable energy systems on land with pumped seawater hydro storage for power on demand Fresh water flowing freely from desalination Lead the rebirth of human civilization





http://www.sciencedirect.com/science/article/pii/S2213138816300492 https://www.youtube.com/watch?v=4qboKpiqWTY



https://www.siemens.com/ma/en/home/company/topicareas/ingenuity-for-life/tarfava-wind-farm.html

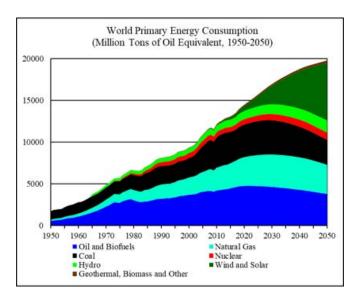


https://www.power-technology.com/projects/sweihanphotovoltaic-independent-power-project-abu-dhabi/ All war torn and gang infested lands People come together with helping hands Cast aside differences and human madness Build new economies and chase away sadness

Let the sun shine on solar panels making power for all and even more from wind turbines standing tall Renewable power built by workers skilled A bright future for us all we can build







http://peakoilbarrel.com/world-energy-2018-2050-world-energy-annual-report-part-1/

Help us oh great leaders of the world's many devout Please pray, stand up, preach and loudly shout ! It's time to end all the distrust, war and hate People and planet together can all be great

Its been said in many different ways How each of us should live out our days How we should be kind and truthful to each other Let it also be said we must treat the planet as our mother

- And I brought you into a plentiful land to enjoy its fruits and its good things. But when you came in, you defiled my land and made my heritage an abomination. *Jeremiah* 2:7
- But ask the beasts, and they will teach you; the birds of the heavens, and they will tell you; or the bushes of the earth, and they will teach you; and the fish of the sea will declare to you. Who among all these does not know that the hand of the LORD has done this? In his hand is the life of every living thing and the breath of all mankind. Job 12:7-10
- Indeed Allah will not change the conditions of a population until they change what is in themselves. <u>Qur'an 13:11</u>
- Pancha Mahabhutas: Five Great Elements (space, air, fire, water and earth); and Dharma (cosmos), Karma (ourselves), Ahimsa (non-violence), & Sanyasa (restraint) <u>Hinduism and Buddhism</u>
- "Mathematics is the language in which God has written the universe" Galileo Galilei
- "Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world." <u>Albert</u> <u>Einstein</u>

When the sun and wind brings power to me and you We can all together be eatin' that rainbow stew Nelson Mandela's ideas for reconciliation can be a key to decarbonization

Prisons must become a place to rehabilitate Learn useful skills and not just incarcerate Opportunities for all can stop the hurt Even if just to plant trees in the dirt

<u>1</u> • • • •



https://energynews.us/2018/12/03/midwest/minnesota-prison-program-aims-to-prepareinmates-for-solar-iobs/



http://www.clog-online.com/news/announcing-clog-prisons/





https://www.nh.gov/nhdoc/divisions/corrrectional/index.html

10/28/20

This is a call to all earth's song writers and musicians please become the planet's climate physicians Climate change causing many a yelp we are desperate for your help

We need to all to raise their voices and harmonize to sing aloud *Yes We Can* rapidly decarbonize Bring on lots of concerts for climate aide invest in renewables the money made





https://www.prosoundnetwork.com/archives/live-aid-25-years-ago





https://www.farmaid.org/press-release/farm-aid-2018-sells-out-four-hours/

Preppers take note Everywhere will be smote

We can no longer stall The writing is on the wall

Nature does not care if our cupboards are bare

As we pursue personal wealth we destroy our planet's climate health

At least after the waves wash us away Other creatures can live to enjoy a new day



https://ichef.bbci.co.uk/images/ic/1024x576/p080nn1d.jpg

On your actions reflect Nature demands respect

But do not despair Our world we can repair

No need to be forlorn everyone can be reborn

Forget what you have spent think how best you can repent

Set aside your vanity focus on helping humanity

Stop personal and climate strife and for all achieve everlasting life



As sure as the sun sets, we are in charge of our fate but we all must make haste and not stagnate We can control pollution, hunger, and strife and together paint a joyful canvas of life



The vote must be unanimous <u>Make All Great And Magnanimous</u> Our actions must show the world we care A model for peace and prosperity everywhere!

Put The World First

Marc Graham and Alex Slocum, http://www.untoldrecords.com/marcgrahamphd/worldfirst3.mp3

The most important calculations are those that will save nations, Like building wind plantations, instead of more gas stations, And seeking new destinations in space, is complicated, The Earth is worth saving from troubles that we created, It's time to double efforts, in land, water and sky, It's time to come together, it's time to solarize, The answer is blowing in the wind and flowing in the water, The polar caps are melting, sea levels are on a rise, Surprised that super storms still haven't opened our eyes, Some scientist theorize, and politicians decide, That man is not at fault, so they gamble with our lives, Let's get off the sidelines and show we're not psychotics, Insane, awaiting change from the same planned periodic, Debates with fate at stake, of our consequent generations, Reversing the complications, requires more impatience, No time to be wasted, this fight is not symbolic, A catastrophic plight, or relationship symbiotic... Decide... It's Time...

Action, no longer passive, too massive to stagnate, Reaction, we seize the moment, accelerate to create, With force, remove mobs from desperate situations, Renewed energy jobs, will lay the foundations, Question, research, guess, test, analyze with a passion, 'Cause building what we create, is the prevalent high fashion, Our fate's in our control, so let's stand hands united, The only way we'll fold, is in a world divided It's time we all put the World First