

Essay  
**Peace and Wellbeing for All on Earth**  
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*Peace and Wellbeing for All on Earth.*  
This is needed and possible, as exposed in the [free e-book](#)  
*Era 3 of Humanity. Shape Paradise or Slip into Hell*, September 2025<sup>1</sup>.

This essay presents results without extensive proofing, with the aim to reach a wide audience.  
Endnotes provide some references and extra information.

The essay is composed of 3 parts.

Part 1 is a concise description of the main, caused by humans, dangers for life on Earth: Global Warming by raising the Greenhouse Gas Concentration in the atmosphere, and the ensuing Climate Change.

Part 2 argues the key role of energy supplies and uses in the life of people and in the development of societies. Three human civilization eras are discernable according their use of various kinds of energy. Now we live in an Axial Age<sup>2</sup> between the era of fire & steam from fossil fuels and the beckoning era of electricity generated from renewable flows from sunlight, wind, and water. For escaping climate collapse, a fast transition is due.

Part 3 investigates how the present global reality may transform into the pursued reality of the essay's title. This demands act-directed thinking, orthogonal on the dominant thinking today, and from a principled disposition. Obtaining a world of Peace and Wellbeing requires the dismantling of the present dominant neoliberalism<sup>3</sup>. Demanding and expecting of today's neoliberal power clubs to eliminate themselves is illusory hope and pointless loss of valuable time. Transformative change arises bottom-up, and part 3 documents how this may happen.

### **1. Climate Change is decisive for the future of All on Earth**

In the years 1980, the issue of problematic climate change started to receive public attention. In 1992, the Rio de Janeiro Summit with global political participation addressed Global Warming and its probable impacts. The Climate Convention pursued *stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system*. In all years since Rio however, the greenhouse gas concentrations increased exponentially. Why is the Climate Convention a dead horse? You may write voluminous books about political failures and activist naivety, lobbyism and administrations sloth, etc. Overall, the cause is the expanding impact of neoliberalism, since 2025 worsened by Trump-2 excesses. When humanity wants a future of Peace and Wellbeing, she has to dismantle neoliberalism in an efficient way by removing its three main pillars: fossil fuels, private money creation, and media indoctrination.

1.1. The annual emissions of billion tons of greenhouse gases escalate their concentration in the atmosphere, hence thickening the heating cover around the Earth. When the human species appeared on Earth, 280ppm was the stable concentration up to the begin of industrialization in 1750, with the use of fossil fuels. First came coal, after 1860 petroleum was added and in the 20th century also natural gas. Combustion and explosion of fossil fuels are the predominant factors of the voluminous emissions of greenhouse gases, in 2024 surpassing 54 billion tons.

1.2. Industrialization and the Imperial Mode of Living<sup>4</sup> by the rich part of the world's population push the greenhouse gas concentration up *irreversibly*, since 2023 beyond 420ppm<sup>5</sup>. Correspondingly, planetary heating rises: already +1°C as global average, with +1,5°C inevitable and with continuing emissions +2°C to +3°C in the coming years. Around those averages extreme temperatures are observed at particular places and times<sup>6</sup>. The heating causes irreversible climate change with dire impacts<sup>7</sup>.

- 1.3. Massive use of fossil fuels causes global warming and climate change, rising temperatures on Earth, the ruin of vital ecosystems. Fossil fuels' roles in other problematic environmental themes are significant, for example acidification, photochemical pollution, water and soil contaminations, and more. For a secure human life on Earth, massive use of fossil fuels should decline immediately and significantly towards practically zero. However, under neoliberalism, the unconstrained exploitation of oil, natural gas and coal resources is a major source of super profits and militarism.
- 1.4. Neoliberal climate policy is an unseen story of ineffective instruments such as the EU Emissions Trading System<sup>8</sup>, wrapped in hundreds of documents, thousands of pages, dubious plans, top level meetings, intentions, announcements, and so on. Neoliberalism cannot exist without massive use of fossil fuels. The annual billion tons greenhouse gas emissions proof the deceit of neoliberal climate policy.
- 1.5. Relevant climate policy is dependent on energy policy, itself being a component of the techno-economic public policies in all sectors and on the many levels from local to global. All activities in every society need energy in a kaleidoscope of forms. Without correct view on the extensive and diverse energy realities, it is impossible to identify the proper measures for ending the use of fossil fuels. Moreover, the precarious tasks are disturbed by Big Money interests with hordes of lobbyists, complacent politicians, and loyal media. The aim of Big Money is continuing the societal and political confusion, notwithstanding the climate alarming bells blaring louder.

## **2. The key role of Energy.**

As indispensable fundament of all human societies, and due to her important role in all eras of human existence, energy is placed at the focal center. Era 2 of fire & steam from fossil fuels is facing the self-created collapse of the mild climate on Earth. Era 3 of local renewable electricity offers a new future, feasible to build by human beings as they are. There is no need to wait for the appearance of the *ideal men climaticus*<sup>9</sup>. Full attention for existing, proven techno-economic solutions suffices. Such focus reduces conflicts in local communities of people, arising when cultural, ideological, religious, racial, and similar differences among themselves are emphasized. Workable solutions are preferable over administrative paper tigers without visible, testable results.

- 2.1. Living without energy is impossible: energy accompanies each person from birth to death. Communities develop their civilizations according the enlargement of technical possibilities for improved use of more energy. The primary sources of energy are the free natural flows forthcoming from the Sun, and the free prepared stocks hydrocarbons accumulated in the Earth during millions of years. By appropriating the free stocks hydrocarbons under the land area owned, nations and private corporations may capture enormous super profits<sup>10</sup>. General appropriation of flows sunlight and wind is not feasible. However, appropriate locations for PV-installations or for wind turbines are owned by public or private entities. Excellent locations provide the advantage of more output, hence lower kWh generation prices.
- 2.2. Three eras of civilization<sup>11</sup> are discernable according the development of used energy forms. *First*, the millennia since the arrival of the human species on Earth. Vegetable and animal food provides somatic energy as power and heat. Domesticated animals, tools and installed appliances such as water wheels, raised the amounts of artisanal exploited renewable energy. *Second*, since 1750 mined coal complements the artisanal renewable energy supplies, and progressively replaces human labor and renewable energy in industrial processes, transport by trains and ships, space heating. After 1850, pumped petroleum is added, offering a broad range of refined products for transport vehicles, industry, and households. In modern metropolises of the 1880s enters the distribution of electricity, generated from axial power delivered by water and steam turbines. After World War II, coal and peat, heavy fuel oil, natural gas, combustible waste, and similar are combusted for delivering steam to thermal power stations, also to ocean-going ships. Atomic power plants obtain steam by atom fission. Gas turbines combust natural gas, light fuel oil or kerosine as in jet planes. The use of fossil fuels escalates exponentially, as do the emissions of greenhouse gases<sup>12</sup>. *Third*, on tiptoe since the 1970s, on pilot light after 1985, but groundbreaking from 2008 onwards, electricity is generated with PV-panels and wind turbines. Both technologies surf on

various inventions and technological successes of forgoing decennia and today. Their performance improved significantly, and continues to do so; the decline of the cost per generated kWh is tremendous without being exhausted, in particular for PV<sup>13</sup>. PV and wind are the fundament for an eternal future era 3 for the whole world.

- 2.3. Era 3 runs its activities with electricity and heat from sunlight flows, wind, water, and geothermal energy. Small scale installations owned by households, communities, cooperatives, local enterprises, etc. can supply the majority of the requested energy. Redundant generated electricity at some places and times are shipped over the grids to meet the demand of end-users elsewhere. Energy storage in water basins and batteries enhance the flexibility of the system. Redundancy can cause congestion on some grid lines. Instantaneously reducing the power generation by PV, windmills and water turbines, is feasible.
- 2.4. The working of PV-panels, battery storage, wind turbines, and ICT systems is performing: their efficiencies increase and their costs decrease. Everywhere PV-panels may be installed. Superfast proliferation of PV installations will stop and reduce the emissions of greenhouse gases. Fast spreading of the solutions is feasible when households and communities worldwide install the lion share of the generation capacities. In this way ordinary people and their local organizations acquire the supply of energy, the principal economic sector of every society. However, the peoples' acquisition of the own power generation impairs the financial wealth of the incumbent electricity corporations, given this wealth is based on billing small low-voltage electricity users. Corporations invest in large-scale wind parks and PV fields, receive state subsidies, and arrange priority in the so-called merit order for delivering to the grid.
- 2.5. Humanity has to end era 2 of *fire & steam* energy for deploying era 3 of *top-quality electricity* from renewable energy flows. This transformation is needed, desirable and possible, given renewable electricity is the least-cost, safest electricity of human history. Not only the electricity bills of households become slight, also the social and environmental costs are minimal. By liquidating the era 2 installations for power generation, renewable electricity plants liquidate also the huge social costs of the obsolete installations and of their risky fuel cycles. In era 2 these huge costs and risks are loaded on poor and vulnerable people, and largely transferred to the future generations. Climate change and high-level radioactive waste are just two examples in case.
- 2.6. This essay builds on earlier and recent research about fire & steam power systems, rational use of energy, and renewable electricity. Some findings have become generally accepted, such as the future way to use energy means the overall substitution of electricity for fuels. However, the argument of the lion share of electricity must and will be generated with *local* renewable flows, mainly sunlight and wind, is not generally accepted. Centralist, pyramidal electric systems comply with the neoliberal ideology of growth and profit, rolling off the huge social costs on nature and on the people. The transformation of the central electric system towards the patchwork of millions, subsequent billions, local electricity generation units develop techno-economic fundamentals for democratic bottom-up organizations replacing the neoliberal vestiges.
- 2.7. Many academics, politicians, neoliberal media, and others, are unwilling to accept that the exhausted technology of atomic steam power plants are incredible complicated and expensive, while the global RE-insurance companies refuse to accept high premiums to cover their *risks*<sup>14</sup>. In addition, the cumbersome inflexible atomic power plants are incompatible with electricity generated by PV-panels and wind turbines in integrated electric systems. Electric currents from atomic and renewable plants are no partners, but rivals. Their unsolvable conflict is clearly revealed in *real time*, the seconds-duration of power generation, or the approximate short time resolutions of minutes to maximum one hour. When supply redundancy occurs, it is visible how the production of PV- and wind current is truncated to keep atomic plants running. The exclusion of low-cost, safe renewable power for artificially keeping alive high-cost and risky atomic power, challenges all rules of sound economics.

- 2.8. The new Hydrogen H<sub>2</sub> hype is a *déjà vu*. Beside small stocks of hydrogen in the Earth's crust and infinite quantities in the universe, hydrogen is not freely available. Manufacturing of H<sub>2</sub> molecules is cumbersome, expensive, and hazardous. The practice of manufacturing H<sub>2</sub> for industrial purposes is using fossil fuels<sup>15</sup>. However, the hype is about *green* H<sub>2</sub> to be manufactured with renewable top-quality *electricity* for splitting scarce *pure water* H<sub>2</sub>O to obtain the problematic *fuel* H<sub>2</sub>. Such strange practice astonishes who had a life-long duty to extract the maximum of electric current out of fuels. Truly, the hype is techno-economic nonsense, and the vaunted hydrogen boom parasites on subsidies from the treasure, the money of tax-paying people, hence ordinary people. Storage, transport and use of H<sub>2</sub> are all expensive and fraught with explosion danger. Because of its physical properties and the technical exigencies to handle it, hydrogen cannot be a meaningful energy vector. *Hydrogen is the glittering shell concealing the life extension of the fossil fuel economy*<sup>16</sup>.
- 2.9. Without fast and transformative changes in the global energy systems with the exclusion of fossil fuels, twaddle about climate policy is a waste of time. This wasting is especially disturbing and irresponsible because of the *irreversibility* of the many crucial disturbances and annihilations occurring. Energy is the Alpha and Omega of human induced climate change problems. Obscuring the role of energy – like the Paris Accord of December 2015 did – is negating the climate problem. The capture of the climate conferences by energy and other corporations was obvious in 2015. Only the minds of a tiny minority were clear. Capture and negation are the lifelines of deceit in neoliberal climate politics.
- 2.10. With respect to energy, the single proper and just alternative for the fastest elimination of fossil fuels, is deploying as soon as possible local PV installations by households, communities, cooperatives, small enterprises, as the spine for the global carbon-free electricity systems. This alternative is growing at many locations in the world. The international knowledge hub and mouthpiece about renewable energy is available by IRENA. Obsolete options like atomic power and the broader political economy of the transformations are no part of IRENA's agenda. Beside PV, wind turbines are a matching companion for local generation of renewable electricity. Then, local is wider than the roof of a building or the range of a community. Onshore wind turbines generate low-cost kWh, about 60% lower than offshore wind turbines. The large scale expensive offshore projects protect the business model of the incumbent electricity corporations. In most cases, the projects are subsidized with tax money. More problematic than the largeness of scale related to offshore wind, are the atomic and hydrogen interests. Advocacy and lobbying are their main instruments for gathering support. The *delusive truth*<sup>17</sup> of atomic power is Einstein's formula  $E=mc^2$ , and of the fuel hydrogen its carbon free combustion. The delusions devour billions \$, £, €, and they waste more years of precious time. When the adepts of delusive tales really want atomic or hydrogen energy, they only should pay the full bills, including the associated risks. Stop the subsidies, stop charging the electricity bills of low-voltage customers.
- 2.11. Ordinary people owning generation and supply of electricity has amazing aspects:
- Renewable electricity is direct useful, without a fuel cycle, without huge waste problems, without cooling water needs, with little maintenance and operational concerns. Those wonderful properties provide great luxury to the owners of a PV-installation. The queen of the numerous forms of energy on Earth is electricity from sunlight, and from its derived wind and water flows.
  - The societal consequences of deploying small-scale renewable electricity are several:
    - (1) The Marxian utopia – acquiring the means of production by the proletariat – is realized in a different way. Not only proletariat, but all inhabitants of the world will own production means. Not all the production means, however the most crucial ones for securing renewable electricity. This implies the elimination of steam power plants fired with fossil fuels or driven by atomic fission, and of gas-fired power plants. These obsolete activities request nowadays at least 20% of the present industrial economic activity.
    - (2) Ending the fire & steam era is paired to a big jump in *natural* or economic *advantageous*

degrowth. This may cure the vagueness of much degrowth literature about who would shoulder the burdens of imposed reductions in economic goods & services.

(3) Stopping the energy use from fossil fuels destroys a main pillar of neoliberalism, with strong effects on the money pillar, and shocks towards the media pillar. It implies significant constraints on aggression militarism, globally driven by the USA hegemony. Two most influential corporations – energy and weaponry – will lose money and power.

(4) By the overall spreading of small-scale renewable electricity generation, with smart local grids making headway, the physical fundamentals are strengthened for supporting innovative local organizations. Some may create novel political-administrative bottom-up power entities. The availability of well educated, trained and experienced citizens and of modern Information & Communication Technology worldwide, boosts the conversion of possibilities in realities.

(5) Development and deployment of representative democratic bottom-up authorities are stimulated by the political vacuum created by dismantling neoliberal power houses. Big Money interests are now manipulating the voting mechanisms of something they call democracy. The swindle outcomes of elections are presented as representative for many millions of people. Via top-down institutes and institutions, ordinary people is deprived of political participation.

(6) The fundamental transformation from era 2 to era 3 is not like storming of the Bastille. Quite differently, it is a progressing transformation of bottom-up establishing permanent small entities. By their existence and successful generalization, the old systems become irrelevant. The thrust is delivered by technical, economic and institutional innovations. The whip of irreversible climate change hurries global action.

### **3. Transversal Thinking**

*Peace and Wellbeing for All on Earth* is a fully opposite reality to the state of the world anno 2026. The path to the now non-existing future reality starts at transversal thinking, independent of the reigning paradigms. Transversal Thinking ditches *Business-as-Usual* of maintaining the present societal situation, which accepts only pragmatic, mitigative changes. Creating a different future is but possible<sup>18</sup> by implementing strategic, paradigmatic changes. Which changes, when, how and by whom? are questions for today and for the coming years. Transversal Thinking experiments with back-casting for looking at the situation in 2026 from vantage points in the future<sup>19</sup>. Such vantage points are stadia of the path towards the pursued future reality.

3.1. Independent thinking is built on facts, not on ideology, biased perspectives and deceiving stories. It critiques the news and the framings broadcasted by media embedded in the neoliberal mainstream. For analyzing deceiving messages, it helps to be immune to obtruding and mentally paralyzing media blasters. Clarifying situations, decisions and events, asks intensive research of context and processes. Exploring a diversity of scientific approaches facilitates recognizing feasible actions and action directions for discarding *Business-as-Usual*.

3.2. A disposition aiming to *know*<sup>20</sup> prefers *to be above to have*<sup>21</sup>, and rejects *possession, power* and *prestige* assigned by neoliberal regimes. Such principled disposition is a condition for attaining insights *opposite* to neoliberal *Business-as-Usual*.

3.3. Neoliberalism is an extreme version of liberalism. Oligarchs and corporations usurped the *strategic* political decision-making via clever masterminding<sup>22</sup>. The formal structures of the national representative democracy remain in place in several roles, like serve as façade, take care of the societal and environmental mess from neoliberal growth economics, engage and control the people for contributing to the neoliberal agenda. For example, people's trust in the US\$ currency is a must for neoliberal Big Money objectives, and the trust must survive the wrecking of the welfare state. Deceit and indoctrination daze people's mind for accepting the surveillance state and militarism. Unhindered spread and move of globalized capital are instrumental in burgeoning of Big Money. Three main attributes and three main supporting pillars clarify what actually is neoliberalism. This advances the know-how of the system to dismantle.

3.4. Neoliberalism is typified by three main attributes:

(1) Financial power of oligarchs and corporations dominate submissive politicians in decision-making on *strategic* socio-economic issues. As plainly visible in the USA, the election of the majority of political candidates depends on funding by Big Money. The political institutes remain responsible for a multitude of social services, e.g., public infrastructure, education, health care, environmental protection, natural parks, etc. The budgets are tightly supervised<sup>23</sup>.

(2) Economic growth is maximized without considering the consequential degradation and destruction of the values and services delivered by nature and pristine environments. The yardsticks of success are super profits and expanded fortunes of oligarchs and corporations.

(3) More justice in society is not a political issue. Inhuman inequality is called *normal*, as being the evident difference between insufficient industrious poor and the very rich driving economic growth. Hence, the only cure is said to be charity.

Inequal property and income among various people and classes, and vague promises of higher living standards at the horizon, lure and keep people in the neoliberal rat race.

3.5. Neoliberalism builds on three main pillars +*Business-as-Usual* comments

(1) *Intensive and unlimited use of fossil fuels*. Without the dense, easy to handle and available on command energy, the neoliberal economy jams and stands still. By lack of fossil fuels most aggression military equipment is useless.

+*Business-as-Usual* emits billions of tons greenhouse gas, raises their concentration in the atmosphere, causing irreversible climate collapse.

(2) *Control on money creation, huge stocks and flows of capital*. With money, oligarchs and corporations influence a majority of politicians in money-driven nations, via the neoliberal discourse and media, via strong impact on elections, via lobbyism in public administrations. +*Business-as-Usual* augments global inequality, making *illegal* migration from poor countries ungovernable. It feeds populism, ultranationalism and totalitarian regimes, which tend to slip in fascist extremism.

(3) *Indoctrination<sup>24</sup> of people by discursive power via media with global impact*. Media owned by oligarchs or corporations hide the *arbitrariness* of corporations with fake tales about *free markets*. The USA and Israel are called *democratic*, notwithstanding obvious military invasions and genocide on the Palestinian people. The ideology of Western superiority is imposed. Keeping alive the deceiving and paralyzing mantra "*there is no alternative for neoliberalism*". +*Business-as-Usual* discourse and media hinder and refrain the *possible alternatives* for preserving human living on Earth. Delaying proper action is problematic due to *irreversible* destructions of natural mechanisms and ecosystems.

3.6. Dismantling neoliberalism is a condition for *Peace and Wellbeing for All on Earth*. But who can realize a timely dismantling? Asking oligarchs and corporations to quickly give up neoliberalism is nonsense loss of precious time. As well is the expectation that submissive politicians will subdue Big Money interests on your demand. Nevertheless, publications and calls to action by NGOs and activists are built on the above kind of demands, seemingly the essence of their strategy. This reveals a lack of strategic clarity, partly explaining why climate policy delivers no real measures to prevent irreversible global heating and climate change<sup>25</sup>.

3.7. Mostly ordinary people and communities experience the anomalies of the rich and reigning classes, with oligarchs and corporations on top. As docile fans of neoliberalism, politicians lose legitimate authority. Deeper inequality and unsolved dysfunctions poison the societal tissue. Only the people can transform civilizations, with their motives of acting often summarized in the groups *Fear* and *Hope*<sup>26</sup>.

*Fear* amounts by the *irreversible* Global warming of the Earth – Climate Change – Destruction of ecosystems and of ecological *functions*. Human suffering is multiplied by aggression militarism, wars, and deepening inequality. By the uneven spread of poverty and sorrow, more global migration gulfs occur, with extra pressure on the most deprived worldwide.

*Hope* is justifiable when the options of using energy without fossil fuels are globally applicable. The fossil fuel pillar of neoliberalism will then disintegrate, weakening the money pillar. The aggression militarism of the forgone 50 years stops having a crucial component and motivation for warfare. The now wildering illegal migration gulfs will make cutbacks to small legal flows. This logical result of booming opportunities for own development, is based on available low-cost electricity, being energy of top quality.

3.8. Transformative change grows bottom-up, incentivized by deteriorating living conditions for common people, and by criticism on the elites and incumbent authorities' failures to care for the public good. More and more people request changes in the governance of society, with other leadership, institutions, rules, etc. Peoples' insurrections may spread fast and widely, with violent phases. However, most rebellions are episodic, of short duration and sensitive for secretive capture by false leaders. The latter may establish a new tyranny, dissolving the positive results of a successful insurrection. Failing uprisings are often followed by hardship repression by the incumbent regime, worsening the living conditions of ordinary people. Such situation fosters new resistance and conflicts, which may turn in civil war.

3.9. Fundamental transformation into a new era of positive development for the entire population is a rare phenomenon. The probability for success is higher when several conditions and forces match, such as:

- Sufficient techno-economic resources and capabilities are available for providing wellbeing to all individuals and communities in the society.
- There are active groups of educated, trained, and experienced citizens well spread over the population.
- *Fear* stimulating factors execute strong pressures to coerce people to inevitable actions, e.g., irreversible global warming and climate change oblige ending the use of fossil fuels.
- *Hope* supporting forces are robust and apportion material economic benefits to large shares of the population, in particular to deprived persons and groups.

Transformation starts mostly in pioneer enclaves, where prototypes are developed, resulting in as well failures and successes, both instructive for future progress. Pioneer successes are candidates for multiplication and for inclusion of other members from the local community. In this way solid fundamentals and proper frames are built for creating representative democratic institutions and institutes, functioning *bottom up*. Simultaneously, the degenerated centralistic top-down structures may be retrofitted in coordinating institutes. The latter function on responsibilities and authorities, mandated by the local levels.

Proponents and agents of change will mostly arise from the 80% of populations worldwide whose economic situation would improve when the fundamental transformation succeeds. Citizens from the 20% privileged and wealthy top layers, may also join the transformative initiatives. This may happen as a person or in small groups, and for a wide pallet of moral motives. When there exist many active and diverse local communities, cheaters and would-be tyrants have little chances to capture the entire transformation.

Constructing broad, solid and durable fundamentals is feasible if the development and results are independent from ideological, religious and cultural brands. By skipping divisive matters, the focus is on socio-economic factors for the common good and the self-interest of individuals and groups of all ordinary people. Political authorities care for ethical-societal values, and enforce respect with attention for coming generations. At occasions, the imposed values and respect may conflict with immediate self-interest of persons or groups.

#### **4. Some afterthoughts**

Research and propositions about what the human society is, and how she may change, is an unlimited time passing, without closure. For keeping this essay short and accessible, important issues are not scoped. For example: the many roles of money; a new electricity economics theory<sup>27</sup> valid for a fully renewable electricity system; litter in juridical sense applied to the emissions of greenhouse gases, and many more.

The dire situation of nature and the environment, irreversible climate change being paramount, obliges All to immediate action, no more talk about void targets. The action is no storming fortresses, but simply build the most profitable energy systems: local renewable electricity. Act, and you will enjoy the luxury and pleasure of your own renewable electricity.

## Eindnoten

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<sup>1</sup> The notes refer to this book as Era3

<sup>2</sup> Karl Jaspers conceived the term Achsenzeit for the 8<sup>th</sup> to the 3<sup>rd</sup> century BC of intensive change in thought happening in China, India, Persia, the Levant and the Greco-Roman world (source Wikipedia).

<sup>3</sup> Neoliberalism as Western ideology and societal paradigm evolved from liberalism in the 1970s and became dominant in the 1980s.

<sup>4</sup> U.Brand & M.Wissen *The Imperial Mode of Living*, ch.15 in C.L.Spash, ed. 2017 Routledge Handbook of Ecological Economics

<sup>5</sup> 420ppm surpasses the historic equilibrium of 280ppm with 50%

<sup>6</sup> Daily news, e.g. M.B.Bif & F.P.Tuchen *How a monster ocean heatwave could fuel a super El Niño*. Bulletin of the Atomic Scientists, May 30, 2026

<sup>7</sup> IPCC [Intergovernmental Panel on Climate Change] Working Group I assesses the knowledge about climate change, and Working Group II covers the impacts of climate change.

<sup>8</sup> Era3 chapter 8

<sup>9</sup> Indeed a non-existent species

<sup>10</sup> Super profits are obtained without effort. More than US\$ bn1,000 (1 trillion = 1% of the global economic product) to US\$ bn3,000 when provoked wars rage. Era3 chapter 5 and figure 9, p.128

<sup>11</sup> Era3 chapter 2 and figure 5, p.41

<sup>12</sup> Era3 Introduction, figure 1, p.2

<sup>13</sup> IRENA - International Renewable Energy Agency - offers update information, free at [www.irena.org](http://www.irena.org)

<sup>14</sup> Era3 chapter 3 provides analysis of the atomic energy case

<sup>15</sup> Yearly ca.100 million tons H<sub>2</sub> for industrial use: chemical fertilizers and explosives, oil refineries, steel, are obtained from fossil fuels, hydrocarbons, with ca.1 billion tons greenhouse gas emissions.

<sup>16</sup> Most advertised are SAF=Synthetic Aviation Fuels, for serving aviation. Era3 chapter 4.

<sup>17</sup> Delusive when materialising the truth is impossible or nonsensical. See Archimedes' *I lift the Earth with a fulcrum and a lever*. The physics of levers is truth. Lifting the Earth is delusion.

<sup>18</sup> Sheldon Wolin (2010). *Democracy Incorporated*. Princeton University Press

<sup>19</sup> *Back-cast* as opposed to *forecast*

<sup>20</sup> *Savoir* added to *Avoir-Pouvoir-Valoir* (Possession-Power-Prestige) as motives of human behavior.

<sup>21</sup> Psychologist and sociologist Erich Fromm's book *To Be or To Have*.

<sup>22</sup> Era3 Glossary, p.xvii

<sup>23</sup> Kelton, S. (2020). *The Deficit Myth*. NY: Public Affairs

<sup>24</sup> Fisher, M. (2009). *Capitalist realism. Is there no alternative?* London: Zero Books

<sup>25</sup> Era3 p.2, figure 1 shows the yearly greenhouse gas emissions and their atmospheric concentration

<sup>26</sup> B.v., Benjamin Studebaker (2023). *The Chronic Crisis of American Democracy*. Palgrave

<sup>27</sup> Verbruggen, A. (2021). *Pricing Carbon Emissions. Economic Reality and Utopia*. Routledge, pp.151-154