



## HOW DO WE BECOME ZERO2NATURE?

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*"No pessimist ever discovered the secrets of the stars, or sailed to an uncharted land, or opened a new heaven to the horizon of the spirit."  
Helen Keller*

To answer this question we will have to defy some paradigms, starting with engineering itself. Classical engineering is linear, Aristotelian logic, dividing the whole in parts and narrowly analysing each one of them.

Stephen Hawking says that all theories are good until a better one shows up, thereby continuously expanding the possibilities of the comprehension of physics. So, let's admit that all types of engineering are good, until a better one comes along.

Mentioning Stephen Hawking is not an attempt of being vainglorious, neither is the fact of naming our company Planck-E.

By giving us the concept of quantum mechanics, Max Planck started a revolution in physics. Hence, if Newtonian physics is the mother of classical engineering, holistic engineering is the child of quantum mechanics.

Holistic engineering is in essence the contextualization of interrelationships between patterns. Too complicated? Not really.

Let's take Nature as an example. Although encompassing countless and intense productive cycles, Nature does not produce waste. Refuse from one organism is food for another. However, don't be mistaken, nature's productive processes also have very high emissions related to them! The Ocean's carbon concentration is something like 1 peta-ton (one followed by eighteen zeros). Emissions from radioactive elements in nature are common as well as are the production of the most powerful poisons. But everything is inserted in balanced cycles. For instance, vipers produce a mortal poison. Nevertheless, they are food for the mongooses which possess a natural immunity. Life on Earth is about an infinite number of productive cycles with very high negative emissions that are effectively neutralized in almost every occasion. Almost, because when human beings are at the helm of the operation, the result is consistently different.

However, we have made considerable progress over the years. We now have violin chords made out of spiders' silk; we can construct more resistant and beautiful buildings with considerable less material, based on the weight distribution of the horse's legs; we study the deposition of silica from algae in order to apply the principle to nanotechnology. Be that as it may, all the previous examples are related to Biomimicry, which is the search for solutions by emulating processes in Nature. After all, what does Holistic Engineering offer beyond Biomimicry?

Holistic Engineering finds inspiration in Nature, by observing its processes and trying to adequate them to our productive cycles. Nevertheless, the focus of Holistic Engineering doesn't fall on the linearity of productive cycles but on the interrelationships between the phases of each process, contextualizing them continuously and instantaneously.

In order to handle information from a three dimensional perspective, we had to go further than the usual organizational tools available, like Pareto, Fishbone, Perth, blocks diagrams and so on. Planck E developed the software CONTEXT-3D™, which permits a three dimensional and instantaneous view of any kind of productive cycle, from any kind of perspective desired. The interrelationships between the different parts of the whole can be arranged according to a desired scope.

Ok, but what about ZERO2NATURE? When implementing a ZERO2NATURE project we do away with three taboos of the increasingly fashionable Green Economy: First of all, that in order to reduce negative emissions we have to reduce production. Secondly, that green products are necessarily unsophisticated (cheap or ugly) and finally, that in order to reduce negative emissions we have to sacrifice profits. Here, let's take as an example General Electric, with its Ecomagination division, which is making more money today, with its green products, than before the adoption of this new paradigm.

The theory behind ZERO2NATURE is that when a productive cycle respects the principle of input-process-output without causing pollution (considering that pollution is everything Nature cannot absorb), a “zero to nature” status has been achieved. Hence, in such a condition an increase in production would not cause a negative impact to the environment.

Finally, coming back to our initial question, how do we reach ZERO2NATURE? Through research with Universities, international energy agencies, IPCC and the UNFCCC, Planck E has created a database with all possible substance emissions that can occur in marine water, potable water, soil and air. With adequate parameters inserted in our system of equations, based on the location of the productive cycle, we can obtain indices of all the emissions related to the referred cycle and compare it either to the industry baseline scenario or to the local natural capacity of assimilation. Therefore, the closest the measured impact is from the baseline or capacity of assimilation, the closest the emission impact is ZERO2NATURE.