POWERING ECOLOGICAL FUTURES

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This article riffs off from Peter Sloterdijk's important concept of 'air-condition' and Bruno Latour's influential idea about 'ecologizing', which establish a theoretical framework to discuss the engagement of digital art in environmental problems. Looking at two projects – *Nuage Vert* by the duo HeHe and *Natural Fuse* by Haque Design – the article argues that digital art can articulate the complexity and ambiguities of an ecological future.

Left: *Natural Fuse* by Haque Design   Right: *Nauge Vert* by HeHe

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We are living in an era where air conditions and atmospheres enter our awareness and are made explicit. Through rising awareness of global warming and of how we modify our indoors and outdoors climates, it is clear that we must redesign the systems we use for air-conditioning different spheres of our planet's air. This includes our power supply systems. French sociologist Bruno Latour claims:

"As soon as artists, designers and architects are busying themselves with the light element [Air], we are going somewhere. From the philosophical point of view, Air will take the place of Earth as the 'fundamental element'" (2004)

 By looking at two digital artworks, dealing with air conditions and electricity consumption, this article will use the ideas of Bruno Latour and German philosopher Peter Sloterdijk to discuss what role art may play in rethinking 'air-conditioning systems'.

AIR AS AN OBJECT OF DESIGN

During WWI, April 22, 1915, air lost its innocence when a toxic green cloud migrated from the Germans into the British camp in Ypres, transforming the air and environment into their worst enemy (Sloterdijk 2004, 89). According to Sloterdijk, this day marks the beginning of a new era of our anthropological history; an era in which air and atmosphere is made explicit. In his trilogy, *Sphären*, Sloterdijk describes our time as an age of greenhouses and climate control (2004). In order to comprehend the ecological crises and our being-in-the-world today, it is essential to understand how air and atmosphere has been made explicit. Air has moved from a passive background to the foreground of our attention. With the invention of 'air-conditioning systems' such as heating, ventilation, and light, humans have become masters of controlling air and atmospheres. Through these technological systems we can isolate ourselves from common air, conditioning our private spheres as we like. According to Sloterdijk, it is distinctive for current state of affairs that air is moving from being the invisible surrounding (Umwelt), something we take

for granted, to becoming an object of technology and something we can deliberately design. Hence air has become the center of political disputes:

"*Politics, from now on, will be a section of the technology of climate-control*" (Latour 2004b)

Since CO2 emissions are linked to energy consumption, electricity supply systems counts as essential climate-control or air-condition technologies Sloterdijk 2009). With energy consumption not only conditioning our indoor climates (Sloterdijk 2004) but also our common atmosphere and environment in a rather unfortunate way, air-conditioning systems and their electrical power supplies find themselves in the midst of political disputes and redefinitions.

Various disciplines such as architecture, engineering, politics, and social science are working at full throttle to redesign our way of living. Each discipline plays an important role in outlining the contours of a range of social, political, and technical changes that point toward a more ecological future. Art and experimental design are also concerned with these challenges and contribute to the field with a special sensitivity towards the complexity and ambiguity of the problems. Through the last decade an increasing number of artists and designers have been working with energy visualization and digital technology, trying to make explicit what is still implicit to most of us. Using computer technology - with its expanding databases, interconnectedness and embeddedness – the artists and designers present and translate energy data into interactive and networked projects with the aim to direct the public's attention to issues of energy consumption and ecological problems. Through the following presentation of two digital art projects, *Nuage Vert* and *Natural Fuse*, we will discuss how art can participate in articulating an ecological future.

NUAGE VERT

Ninety-three years after and 2133 kilometers away from Ypres, the sky turned toxic green again. This time it was vapor emissions from the Salmisaari power plant in Helsinki that was illuminated with a high power green laser animation. During one week of February 2008 the citizens of Helsinki experienced a city-scale light installation beautifully enlightening the sky and reminded the inhabitants of their rising electricity consumption and it effects on our air conditions. The installation, *Nuage Vert* (Green Cloud), was produced by the artist duo HeHe, consisting of Helen Evans and Heiko Hansen, together with Helsingin Energia. The power plant provides electricity for a former industrial harbor redeveloped into a residential district with growing energy consumption. Using the data from the power plant, the laser drew an outline of a green cloud onto the real cloud itself. The green cloud changed size according to the residents' fluctuating electricity consumption. When the collective consumption was low the cloud grew larger, but shrunk when the electricity loads were high. Functioning as a public visualization of the local electricity level the residents were expected to respond to *Nuage Vert* by turning off electrical devises to increase the volume of the cloud (Holmes 2011, 53).

NATURAL FUSE

Another project that comments on our everyday use of electricity and carbon footprint is *Natural Fuse* conceived by the design studio, Haque Design. *Natural Fuse* is a hybrid artwork networking a series of distributed plants with energy consuming devises and participants via the Internet. Each participant gets a 'Natural Fuse' unit, which consists of a houseplant and a power socket. The amount of power

available to the socket is limited by the plant's capacity to offset the carbon footprint produced by the energy expended by the electrical device. If the appliance plugged into the socket draws more power than the plant offset itself, the unit will not power up (Haque et al. 2011, 65). However, all participating units are connected through the Internet. The units are able to share their capacity and determine how much excess capacity of carbon-offsetting is available within the community of units as a whole since not all *Natural Fuses* will be used at the same time. In this way the project is about energy conservation and also about structures of participation.

Instead of the usual on/off switch the sockets have a selfless/selfish switch. When the system is in self-less mode the energy consumption is well below the fixed quota and the unit will provide only enough power to not harm the community carbon footprint. In selfish-mode the owner of a plant can use as much energy as wished. However this mode might harm the community's collective carbon footprint and kill other plants. The fuse takes care of the plant through a remotely activated water-controlling system but the water system only works if there is enough energy left to use in the fuse. If the owner uses more energy than the system can offset the *Natural Fuse* system will start to randomly kill plants. Each plant has three 'lives' before a 'fuse kill' function is activated and a deadly vinegar shot is injected into the plant. Emails are sent both to the owner of the dead plant and the owner that sent a 'kill' signal.

MAKING AIR EXPLICIT THROUGH ELECTRICITY CONSUMPTION

Both *Natural Fuse* and especially *Nuage Vert* make explicit how air and CO2 emissions have become a fundamental concern in relation to power supply systems. In these two installations one can no longer talk about electricity consumption without taking into account how it affects our air-conditions and how we deal with CO2 emissions and pollution. By coloring and animating the chimney vapor, HeHe draws the public's attention to the smoke, which is often just an unnoticed part of the cityscape. The installation also explicates how the air-conditioning in our private houses or spheres is not as isolated as we may think. Sloterdijk describes our society as 'foam' consisting of 'connected isolations' (Sloterdijk 2004, 568). Each bubble or 'sphere' is an isolation but the air-conditioning of one sphere always affects conditions of other spheres. All isolated air-conditioning systems are connected through their electricity use and affect each other. The green cloud artistically illustrates this and tit is made 'deadly' clear in *Natural Fuse*.

Nuage Vert is part of HeHe's series of artworks, *Poll Stream*, working with smoke, man-made clouds and energy use. Like Sloterdijk, HeHe questions the popular notion that weather is 'natural'. By visualizing the man-made aspect of weather HeHe "propose[s] climate as man-made phenomena and therefore a social-political space" (HeHe). Existing simultaneously as a visualization of the residents' participation and the ultimate aesthetization of pollution, *Nuage Vert* is a complex socio-political sign of both environmental effort as well as wasted energy.

STOP MODERNIZING, START ECOLOGIZING

Throughout Modernity air-conditioning infrastructures such as our power supply systems have been made invisible and imperceptible. Electricity use today is a passive one-way connection and only a few people pay any thought to how power plants are adjusting their production to our consumption. Both production and effects are completely detached from the use of electricity, just as individual household consumptions are totally independent of one another. The electricity system has been turned into what

Bruno Latour calls a 'Black Box', a system we don't need to know how works or how it is connected to the rest of the world (Latour 2007). Art projects like *Nuage Vert* and *Natural Fuse* attempt to open this black box and reveal the hidden structures of the energy system. In *Natural Fuse*, these structures are shown to be quite complex involving organic, electric and social systems. Energy consumption here is not controlled by production but it is directly connected to the offsetting available and the illusion of our power supply system as an autonomous back box system is shattered. Through the information technologies in the system the black box is opened up and its many attachments to the world is revealed. *Natural Fuse* highlights how the participants' decisions about being selfish or not have a direct impact on the other participants and organic actors in the energy community. If people cooperate on energy expenditure the plants thrive and everyone may use more energy but if they switch to selfish mode plants will die and diminish the network's electrical capacity. Here the electricity system is fully entangled with the energy community rather than being detached and autonomic as it is normally conceptualized.

The latter view on the electricity supply system is emblematic of what Latour describes as a modernization of the world. The modernizing way of constructing the world has been characterized by the approach:

"Go forward, break radically with the past and the consequences will take care of themselves!" (Latour 2008,3)

Our built environment has been based on cold objectivity or matters-of-fact, as Latour calls it, and the purpose of our surroundings has been to provide us with progress and speed through smoothly working effective systems that we would never have to pay attention to. Modernization has been a project of emancipation and detachment. It has been all about freeing objects and designs from their various attachments and complex relations to, and effects on, the rest of the world. But this way of designing, says Latour, has turned out to be not only highly unsustainable but also quite a deception (2008), because 'we have never been modern' (1993). While we might have believed that we were emancipating and detaching, we have in reality been producing ever more hidden attachments and effects – such as the complex network in *Natural Fuse* suggests. Those ignored connections are today revealing themselves as rambunctious monsters, traveling around the planet and coming back to hunt us, such as climate change and energy shortage (Latour 2009, 7). Therefore, says Latour, if we want to deal with global warming we will have to stop pretend that we are modernizing and instead start 'ecologizing' (1998).

While modernizing was about emancipation and detachment, ecologizing is about drawing things together, about attachments and entanglements, and about a precautious attention to and explication of details (Latour 2007). By explicating the connections between electricity use and offset, *Natural Fuse* presents a complex conceptualization of energy systems where our usage is not only highly entangled in other people's consumption but also thoroughly attached to non-human actors such as the plants. The often unnoticed effects of our unrestricted use of power is drawn directly into the living room and made clear through the dying plants.

POLITICS OF ARTIFACTS

Latour criticizes Modernism and Humanism for focusing too much on human actors.

"To define humans is to define the envelopes, the life support systems, the Umwelt that make it possible for them to breathe. This is exactly what humanism has always missed." (Latour 2008, 8).

Humans can only be defined through the objects surrounding us and these non-human actors therefore have agency; or in Latour's words, 'artifacts have politics' (2004b). Both artworks portrayed here articulate a sensitivity towards the artifacts – what Latour calls the 'missing masses' (1992) - which constitute part of the power supply systems. When the black box, i.e. the power supply system, is opened up it becomes clear that it does not consist of cold materiality but that it has been designed. The black box is always a result of political discussion and it determines our use and therefore envelopes our being in the world. Artifacts go from being 'matters-of-fact' into becoming 'matters-of-concern'. Objects become 'things'; that is complex and contradictory assemblies of conflicting humans and non-humans (Latour 2007, 6; 2008, 7). When ecologizing, the non-human actors have to be given a voice in our political 'parliament of things' (Latour 2004b) and participate in the discussion of our collective lives (Sloterdijk 2004, 67).

"Democracy can only be conceived if it can freely transverse the now dismantled border between science and politics, in order to add a series of new voices to the discussion, voices that have been inaudible up to now [...] the voices of non-humans" (Latour 2004b,64).

To this purpose, we argue, art has a capacity to transverse the border and represent the entanglement of humans and non-humans. By giving voice to the various non-human actors of the system - e.g. plants, electricity devises, water systems - *Natural Fuse* and *Nuage Vert* are concrete manifestations of how power supply systems are not merelymatters-of-facts but always matters-of-concern and how they are deeply affected by political, environmental, and ethical issues. Both art projects in this way function as small laboratories, where artists and designers experiment with visions of new ecological futures and carefully try to redesign the complex connections between humans and non-humans.

CAREFULLY RADICAL, RADICALLY CAREFUL

Ecologizing is a slow process paying attention to the details and ways things are connected in hybrid networks or 'interconnected foam', to use Sloterdijk's term. Referring to Sloterdijk, Latour says that a redesign of our life support systems has to be 'radically careful and carefully radical.' The 'radical' here refers to the fact that we have to take non-human actors into consideration and the 'careful' referring to paying meticulous attention to how we design connections (Latour 2008, 8). We are still in the midst of articulating a new narrative for a more ecological future. However there are no easy shortcuts only detours. We can never be certain that we take the right direction; that we have chosen the right solution. A redesign of a more ecological energy system therefore needs to be open, reversible and adaptable. We argue that this is where art and experimental design can contribute.

As Usman Haque, Haque Design puts it:

"The point is that there is no 'easy energy future'. [...] It is often expressed that it is the task of designers to "make things simple for people" – which I find patronizing and counter-productive. If anything, it is the task of designers to show how **complex** *things are, and to help build tools for dealing with that complexity"* (Haque 2011, 86).

The *Natural Fuse* system is clearly not a implementable or desirable design solution but rather an explication of how complex a redesign of power supply system becomes when CO_2 emissions, carbon offset, and structures of participation enters into our awareness. Instead of giving us easy answers it encourages us to discuss how it is possible to ecologize energy usage.

Through the aesthetic choices *Nuage Vert* also refuses straightforward answers. People are encouraged to 'feed' the cloud by turning off electricity devises: the less electricity usage the bigger and more beautiful the cloud becomes. However large amount of chimney vapor normally signifies the exact opposite of environmental friendliness so this equation might be puzzling to some. Furthermore, the illuminating acid green of the cloud gives associations to toxic wars and pollution just as green has become the iconic color of sustainability. *Nuage Vert* stays ambiguous and doesn't offer simple moralistic messages.

 Art is distinguished by a close relations to the time out of which it arises and by often taking the vanguard in sensing, recording and expressing the changes and conflicts lurking underneath the surface of society. Without giving a ready-to-go manual, *Nuage Vert* and *Natural Fuse* power a discussion of how we can rethink the future of energy consumption in a more carefully designed ecology with a attention to details and attachments. Both artworks formulate a new way of comprehending the world, which with homage to Latour, could be termed 'ecologization' where humans are no longer sole actors but part of a larger collective with our fellow species and neighboring artifacts.

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