***LIGHT BOUND ECOLOGIES***

Key words: abundant, resilient, mysterious, symbolic, new immediacy, ecological conversion, active making, abiding, dance, attunement, negotiating, co-shaping, co-evolving

What are we trying to sustain?

Every day the earth turns such that the sun appears, traverses the sky, and then disappears. And each day the wind blows.

Today we can harness solar and wind energy to replace coal, oil and gas, but this will not fundamentally change the way we consume energy and resources. And this is the problem, the current paradigm of sustainable energy approaches renewables as a *replacement* for our existing energy system, but does not ask the critical question as to what is being sustained. Simply switching out the current energy sources without addressing how energy is used sustains a consumption logic based on exponential growth, which is both radically unsustainable and the ultimate cause of our climate crisis. Switching to renewables to continue with our growth paradigm is the problem.

Our project proposes a new way of life by enacting the ecological conversion necessary to supersede the problematic logic of the renewable energy revolution. *Light Bound Ecologies* proposes to create a novel landscape that differentially absorbs and radiates the sun's energy. The novel forms of this landscape afford new ways for all species to directly respond to the unique configurations of the sun’s radiation.

Key to this conversion is the ability to sense the affordances of the ambient energy differences in the landscape and to actively respond to them in an immediate and embodied manner. A direct engagement with the actual effects of solar and wind capacities is meant to stand in a strong contrast to the logic of the sustainable energy paradigm. This paradigm reduces the sun and wind to generic and interchangeable watts of infinitely storable energy awaiting human demands.

*Light Bound Ecologies* challenges its community to shift from the model of the infinite storage — the battery, where energy is an ever present convenience, stored in an on-demand manner to serve any and all needs. The sustainable energy paradigm does little to challenge the logics of consumption and extraction that gave rise to the current climate crisis.

How can our engagement with energy be re-envisioned, not as a means of continuing current practices, but as a tool to radically transform those practices?

By designing a unique topography of shifts in the ground plane composed of thick rammed earth walls the sun’s energy can be absorbed and radiated in ways that can be immediately felt and responded to by multiple species — plants, animals, and humans. Differential heating of a landscape affords open possibilities: from thermals for birds to soar, to radiant walls that extend a plant's growing season, to fast growing thickets for animals to burrow, and spontaneous meadows for humans to forage.

Picture these energy engagements affording alternative forms of attunement and co-shaping habits within our current society. In an era of rapid ecological destruction coupled with ever greater inequality, we need architectural models that don’t seal us off from the changing environment, but invite us to live mutualistically within changing systems. *Light Bound Ecologies* provides an exciting way for people to reconnect with the full breadth of species within their urban ecosystem in a way that promotes a collective negotiation and creative invention of possibilities. We will develop systems that transform people from isolated consumers to engaged and intra-dependent citizen-steward-kin with plants and animals as valued agents of mutual well-being.

What specific forms of landscape design sensitizes creatures to the unique energy affordances of their immediate ecology?

At the time of our visit, the Mannheim site was under great transformation — tremendous steel machinery tore apart the concrete structures of the Spinelli barracks, and trucks packed with entire ecologies of soil were continuously moving off-site. In the heaps of rubble we could see that seeds recently brought to the surface were quickly transforming the once barren landscape.

Because of this, with *Light Bound Ecologies* there is limited introduction of materials into the park. The enormous abundance of rubble (the site's Schuttberg topologies) supplies almost all the materials we need.

The building strategy introduces one significant design move: the use of compressed earth and rubble structures to offset the ground plane. Throughout the site, *Light Bound Ecologies* proposes using two forms of walls to achieve this: freestanding and retaining walls.

Freestanding rammed earth walls are scattered across the site in ways that afford possibilities for creatures to experiment with the rush of wind, heat, shade, or stillness based on the season, time of day, and proximity to new shapes on the landscape. Wide rammed earth retaining walls, designed to erode over time and reveal their unique strata, afford a home for the emergent plant life within this urban ecology.

These “Schuttberg” structures are carefully configured based on the surveyed paths of sun and wind and act to either amplify or reduce light, temperature, and airflow and other environmental transformations that are catalyzed directly by the sun’s energy.

Critical to our proposal is that we do not designate or predetermine the specific usage of these features. Instead of imposing functionality, our proposal calls upon species inventive spirit to elicit affordances and their possibilities through open experimental engagement. Affordances may be based on an intervention’s elevation, shape, impact on wind direction, heat absorption, or path of shade. We envision evolving systems where human and non-human exploration of the site’s affordances engenders a form of ground-up emergence, leading to a shared sense of stewardship.

Compact Not Impact (Environmental Impact)

*Light Bound Ecologies* reframes the way we demand energy by removing the storage of solar and wind. Without the storage component, people directly engage with the energy via new ecologies and ever changing topologies, becoming sensitized to the unique affordances of their environment. Constructing the Schuttberg terraces, pathways, and valleys involves moving and compressing the already existing earth and rubble of the site. Our proposal is unique in its radical insistence on topographical specificity and, because the materials are mostly present on the site, there will be minimal emissions resulting from resource extraction, manufacturing, shipping, or construction.

This process of moving and compacting earth and rubble requires the use of heavy machinery such as bulldozers, excavators and compressors and therefore there is some impact on the environment due to the fossil fuels used to power these machines. This is the only use of extracted energy sources in the installation of *Light Bound Ecologies*. Overall, the construction will have minimal impact on the environment which will be mitigated by forms of shelter, gardening and community events accommodated by the use of sustainable materials and renewable energy.

Following the Construction

*Light Bound Ecologies* comes to life: it begins to gradually erode, spontaneously seed itself, and in dialogue with countless other species it co-*make itself* over centuries, constantly evolving with emerging natural cycles in dialogue with the sun.

The project responds critically and creatively to several UN Sustainable Development Goals (SDGs) as well as transcending them in novel ways. The main SDGs *Light Bound Ecologies* responds to are ‘Good Health and Well Being,’ ‘Zero Hunger,’ ‘Affordable and Clean Energy’, ‘Industry, Innovation, and Infrastructure,’’Sustainable Cities and Communities,’ ‘Responsible Consumption and Production,’ and ‘Life on Land.’

Here’s how:

*Good Health and Well Being*: *Light Bound Ecologies* provides space for multiple species to roam, play, rest, congregate, grow, celebrate, stay warm, and stay cool. Health and well being become a collective multi-species project.

*Zero Hunger:* Whether it be through the spontaneously initiated growth from seeds traveling on the wind path, or farmed by nearby residents, *Light Bound Ecologies* offers the space and opportunity for local, seasonal food options across species.

*Affordable and Clean Energy:* Is there anything more affordable than un-ownable energy? The energy of *Light Bound Ecologies* does not discriminate based on socioeconomic or species status. Is there any cleaner infrastructural energy use than none at all? The energy is not stored in a manufactured product nor is it relying on mass infrastructure to access. *Light Bound Ecologies* does not aim for net-zero emissions, it’s inherently at true-zero.

*Industry, Innovation, and Infrastructure:* Scalable, novel, and low-impact, *Light Bound Ecologies* fosters the innovative multi-species soul of Mannheim. This is an infrastructure where social and ecological lives reconnect in activating novel affordances. Infrastructure can flow as non-intensive, passive informal or formal activity develops.

*Sustainable Cities and Communities:* Sustainability requires resiliency to withstand and repair in the wake of hardship. Resiliency in cities simultaneously applies to the intersections of inequality of its peoples, creatures, and environments. *Light Bound Ecologies* supports each by curbing society’s addiction to consumption. Additionally, the various interventions connect neighborhoods, affording cooperative investment and community cohesion on this site.

*Responsible Consumption and Production:* *Light Bound Ecologies* is a participatory place for multiple species to actively negotiate what happens. The flora and fauna on our site have an equal agency to integrate themselves onto the site. It's not that energy isn’t being produced, but that it isn’t being harnessed as a commodity. Our design deliberately abates irresponsible consumption of energy that leaves others to bear the consequences. You can stand in the light or wind all you want. Stand in its path, feel it permeate, and discover new possibilities of co-production.

*Life on Land:* What is life on land, if not rocks, soil, water, wind, or light, is it what responds to them? The trees, the plants, the critters, the animals, and the people are the energy sources as much as they are the reactors. Inclusive terrestrial life on *Light Bound Ecologies* flourishes without ongoing intervention.