

SYMBIOTS: CONCEPTUAL INTERVENTIONS INTO URBAN ENERGY SYSTEMS

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Symbiots set out to examine values such as ease-of-use, comfort, and rationality assumed within conventions of ‘good design’, in order to expose issues related to energy consumption and current human- (versus eco-) centered design paradigms. Exploring re-interpretations of graphical patterns, architectural configurations and electrical infrastructure typical in Swedish cities, Symbiots takes the form of a photo series in the genre of contemporary hyper-real art photography. Painting a vivid picture of alternatives to current local priorities around energy consumption, the three design concepts depicted are strangely familiar, alternatively humorous and sinister.

INTRODUCTION

With the new challenges presented by climate and energy issues, design must reexamine its role in shaping and changing values – both within the sustainability discourse as well as within the design practices that impact production and the products that shape consumption practices. We need only consider the current difficulties caused by traditional conceptions of nature as resources quantified in terms of ‘use value’ and ‘exchange value’

– such terms have long governed how related problems are set with profound consequences for the framing of ‘sustainability’ within political, economic, social – and design – discourse. If we consider that design has had, and continues to have, a profound power to influence consumer and societal values [Forty, 1986; Shove et al., 2008], then we might renew this role in light of current problematics of mass-production and (over)consumption.

Through a series of practice-based design research programs inquiring into energy consumption, we have been examining certain conceptual and practical paradigms within design in light of current environmental problematics. In the Switch! program, in particular, we have been investigating energy in everyday life in relation to contemporary debates around (post)environmentalism and (post)critical practices of design and design research [Mazé, 2008; Mazé and Redström, 2008].

While our previous work explored how reflection might be introduced into ongoing everyday interactions using redesigned objects and appliances, more recent work has inquired into alternatives to design approaches centered on the object and the corresponding one-to-one interactions between people and products. Replacing notions of objects, products and even services with placeholder concepts such as ‘interventions’, Switch! explores a range of alternative design expressions, methods for prototyping concepts and strategies for placing design concepts in discursive contexts. Beginning with the creation of a conceptual space, and ending with

interviews, this is the story about the thinking and making behind Symbiots.

CONCEPTUAL COMPLICATIONS

While certain aspects of design have been profoundly challenged by need for more sustainable development, others are less frequently questioned. For instance, the material basis of design and associated infrastructures of industrial mass-production are often targeted as part of the ‘problem’, typically met by counter-arguments of design as a potential ‘solution’, or problem-solver, pointing to new materials, technologies and production techniques. Reduced to simplistic distinctions between problems and solutions, materials and alternatives, the discussion often remains superficial – more profound relations between design and ideas/ideologies about societal values and human needs are less debated.

However, thinking in terms of ecosystems and lifecycles removes us from the center – rather than our needs, here and now, natural limits and balances, future generations and global impacts take precedence. Whether we think that this represents a real conflict between sustainable design and user-centered design, or not, we must at least consider how different – and sometimes competing – values interact within design discourse and practice.

HUMAN - NATURE

While design discourse has long been premised on a human-centered and humanistic logic, exactly what constitutes the ‘human’, and relations to the ‘non-human’, have been discussed within a history of ideas in and around design. For example, the origins of architecture in man – or in nature – have long been discussed in Western architectural history, underlying often opposing worldviews spanning from classicism and romanticism to modernism and post-functionalism, and instantiated in debates such as whether architecture is essentially an edification of man (for example, the classical columnar orders – base, column and cornice – as feet, body and head) or an evolution of the aesthetics, materials and tectonics of nature (as in romantic and gothic conceptions of the ‘primitive hut’) [cf. Vidler, 1987]. Today, many fields debate the universality and constitution of human nature as well as the primacy and centered-ness of the human subject, evident in post-structuralist, social constructivist and feminist critiques.

Indeed, such debates must be considered in sustainable design. Within contemporary discourse, diverse logics can be identified – Guy and Farmer [2001] analyze eco-technic, eco-centric, eco-aesthetic, eco-cultural, eco-medical and eco-social framings of sustainable architec-

ture, which are based in different epistemological and disciplinary orientations, and result in the (e)valuation of different sets of causes and effects, interests and values. Technocentric and rationalistic paradigms prevalent in sustainable design, for instance, tend to marginalize social consequences and agency, as well as local conditions and forms of knowledge. Diverse valuations are also endemic to (post)environmental discourse – while environmental realists argue for a scientific and technological bottom line, social constructivists examine how environmental claims are created, legitimated and implemented, and critical ecology and critical realism acknowledge deep interdependencies among ecosystemic and socio-political formations [cf., Shellenberger and Nordhaus, 2007; Latour, 2004; Forsyth, 2001]. “The designation ‘green’ is extremely wide ranging, encompassing many viewpoints and open to broad interpretation,” prompting Cooke and Golton [1994] to posit sustainable design as an “essentially contestable concept.”

Nor are the logics of different worldviews aesthetically or ethically neutral. The scientific instruments through which we observe ‘what is’ in nature are themselves designed and social constructions, and our ‘cultural imaginaries’ filter what we think and therefore do observe [Latour, 2004; Andrews, 2006]. Further, ideas and valuations concerning the ‘human’ and ‘nature’ are interpreted and perpetuated by design as they are made operational in design processes and products. Moving well beyond consideration of what *is*, design formulates propositions about what *might* be in the future. Indeed, to the extent that selections and judgments made by design are materialized as enduring forms that shape social organization [Dovey, 1999] – design has a powerful role in determining what *ought* to be [Mazé, 2007].

Examining and contesting concepts within sustainable design, we might also consider the consequences of certain existing conditions and alternative premises. Besides eco- or anthropocentric conceptions, perhaps design might participate in an intellectual and ideological inquiry into the space in-between. For example, we might consider the logics and agency within a more mixed assembly of – human and non-human, biological and political, natural and social – factors. Not forgetting the persuasive and even deterministic role of design, we might also inquire into ways of crafting questions about ‘what ought to be’ in more complex and critical terms.

(POST-)CRITICAL PRACTICE

Such ethical questions – as well as their socio-political and aesthetic/formal implications – have long been at stake in critical practices of design and design research.

Arguing against design 'in service' to ideas imposed from without, critical architecture and anti-design have been arguing since the 1970s for an ethics and ideology proper to design. Relations between theory and practice have been reconfigured to build an intellectual and ideological foundation within and proper to design and to relate to critical and social theory from other disciplines. Contemporary (post-)critical practices argue not for criticism or evaluation of past or existing things but for the proactive production of new and alternative ideas, an ideological and artifactual production concerned with materializing a 'criticism from within' one's own discipline [see Mazé 2007; Mazé and Redström, 2007].

Practitioners have engaged with theory to engage with the complexity of the (built) environment. Where the modernist avant-garde drew upon scientific theories, postmodernists argued for models accounting for social complexity. An interesting example is the 1960's groups Archigram and Non-Plan in the UK and metabolism in Japan. While often compared in aesthetic and tectonic terms, the former aligned with capitalist consumerism and cybernetic psychadelia, and the latter assumed neovitalist and bio-technical principles. Contemporary practices such as Diller+Scofidio explore more subtle intersections of power, gender and class within the environment. Their Slow House plots an experience of nature culminating in a view that, literally, determines real-estate value [Betsky et al., 2003]. Nature in this case is treated as a component of cultural and economic value systems – architecture becomes an activity and aesthetics of framing conceptions of nature, intended to provoke reflection both on 'cultural imaginaries' of nature and on the human occupation of the landscape.

Explicitly dealing with concepts made material and experiential, design engages theory not only for establishing external or retrospective descriptions, but as integral to the aesthetics and experience of designed objects as such. While criticism of design can only happen after and about an object that has already been designed and materialized, this opens up for another form of criticality [Mazé and Redström, 2007]. As Rendell [2004, p. 146] articulates, "projects that put forward questions as the central tenet of the research, instead of, or as well as solving or resolving problems, tend to produce objects that critically rethink the parameters of the problem itself." While it may not be up to design to solve or resolve the complex problematics of the 'prevailing order' circumscribing the discipline, design may expose and articulate these in ways that make them more accessible to understanding, critique – and to change.

SYMBIOTS

Within the practice-based design research program Switch!, we explored relations among variables within existing value systems. For example, consider how the introduction of an unusual or extreme behavior (e.g., different proximities or arrangements in public spaces [see Whyte, 1980]) can cause reflection upon habit or a change in other's behavior. Or, how the introduction of a new thing (e.g., into a home [see Shove, 2003]) changes perceptions of other pre-existing things. This is part of an ongoing investigation of design interventions (as things or happenings) into systems in order to effect an awareness of the values involved – such interventions might operate to expose habits, norms and standards, or to shift and renegotiate actors/variables [see also Routarinne and Redström, 2007].

DESIGN BRIEF

One strand within the general program was an inquiry into (inter)dependencies between nature and culture, and how this might be expressed or negotiated. As a starting point, we looked into notions of 'symbiosis'. In biology and botany, for example, symbiosis characterizes relationships within 'the living together of unlike organisms', including pathologies of harm/benefit ranging among the mutualistic, parasitic and commensal. The term 'biot' also has a currency within technoscience – in his hybrid science fiction and design theory, Sterling [2005, p. 134] elaborates: "The industrial and natural worlds have interacted long enough and powerfully enough to become a kind of planetary froth... The human body breathes, eats, drinks, excretes, assembling flows of material and energy, and since a human body lives in a froth of microscopic rubbish, people are increasingly composed of effluent... A biot is somebody who knows about this and can deal with the processes." We also looked to cultural theory, in which parasitism applies to practices of sharing and stealing electricity in nomadic settlements and in developing countries. Related issues of (political) power are raised in tactical media, in which the term applies to strategies of questioning and usurping the power of hegemonic media, economic and political systems [see Martin, 2002].

In relation to these general thematics, we began to speculate on interactions around the natural resources necessary for survival, within a system characterized by 'survival of the fittest' among diverse organisms and interests. More specifically, we began to speculate on issues of exploitation, competition and collaboration within a limited (energy) system – and how these might be manifested in interactions among participants in such

systems and the material forms and technical mechanisms that govern such interactions. Exploitation and theft, for example, raises issues of who owns what, and how resources are distributed, appropriated and consumed. Benefit and reward raises issues related to persuasion, affect and social contract.

As a brief, symbiosis operated as a placeholder concept in a transition to our more specific interest in the material and technical manifestations of social and political relations to energy in everyday life. It also had further life as a sort of rhetorical device within a conceptual space and design fiction developed within the project.

In *Symbiots*, we imagine a parasite that lives off energy from the local electricity grid. It thrives when there is low demand on the system, when it has a chance at competing for resources. During a phase of low energy consumption within a neighborhood, and thus reduced competition, the parasite surfaces within the urban landscape as it consumes energy from the grid. Since revealing itself involves the risks involved with being noticed, the parasite has chosen a symbiotic strategy, shaping itself into forms and functions that are pleasing to inhabitants of the neighborhood. Suddenly and sometimes spectacularly visible, these serve to lure people out of their private habitats and away from their energy-consuming habits, thus further reducing private energy use. A successful instance of this parasite would create an addictive relationship with the local inhabitants, who would become dependent on the forms and it provides – a less successful one, however, could potentially die off. The survival of the parasite depends upon its ability to minimize the energy consumption of local residents sharing the resources of the host grid.

DESIGN PROCESS

Having thus set a sort of brief, we began to develop our conceptual and design space, focusing on ways in which energy might be used, saved and allocated within a system comprising diverse actors and agencies. Rather than stand-alone forms or autonomous functions, we considered material and technical interventions into existing (infra)structures and social systems, and the temporal as well as spatial aspects of interactions with energy. In relation to the overall theme of ‘energy ecologies in everyday life’ in *Switch!*, *Symbiots* developed as an investigation into the complexity of natural, technical and social relations within an ecology instantiated in everyday life, commonplace behavior and local sites.

In order to further explore how this might play out in the here and now of actual sites and situations – and existing functions such as shopping, partying, playing, and

eating – the concept development process developed as a series of iterations between conceptual mapping, site-seeking within Stockholm, and sketching of different concepts within images of the sites.

CONCEPTUAL MAPPING

Early concepts explored potential parasitic forms of reactions to high/low energy consumption in local contexts. Each explores a different set of motives and actors that might be appealed to, as well as various formal manifestations and behaviors, for example:

Square parasite – a parasite living beneath a plaza that reconfigures a 2D/3D surface for social gatherings

Light parasite – a parasite that glows within a surface or furniture located within a local park or common space

Playground Parasite – a parasite that assembles itself into the form of play furniture for local children

Crossing Parasite – a parasite raises the stripes of a crosswalk to function as outdoor seating and roadblock

Transparent Parasite – a parasite that appeals to aesthetic pleasure in the form of art installations

Bridge Parasite – a parasite allows safe passage during low energy consumption but can also rise and fall

SITE-SEEKING

The next step was taking concept development ‘in the field’ – over several days; the project team explored different neighborhoods in Stockholm, seeking particular sites that could be interesting to situate the particular concepts. Alongside these rather characteristic neighborhoods, we also explored typical and popular spots in terms of the kinds of inhabitants and visitors, local amenities, reputation, and economy. After these site-seeking field trips and sketching sessions, the project team gathered to discuss the relation between the concepts originally mapped, sites found and new concepts generated or elaborated in response.



Certain concepts proved very difficult to map onto existing spatial and social situations. Other concepts were sparked by existing conditions – in Aspudden, for example, the display of personal preferences and behaviors as highly-decorated and multi-functional balcony spaces generated a new concept about a balcony that would traverse the building façade to reward low-energy consuming households – this evolved into Public Spotlight concept.

CONCEPT SKETCHING

After site-seeking, the project team gathered to discuss concepts originally mapped in relation to sites found, further elaborating promising or emerging concepts.

To locate these concepts within existing neighborhoods, as well as to test out different ways that they might be conveyed and read visually, we sketched out different possibilities as montages on top of the photos taken out and about in the city. For example, the Square Parasite was manifested in different sites – the landmark tourist destination of Sergels Torg in the center of the city, in a cosy semi-public courtyard habituated by families, and in a square ringed with popular cafes for young professionals – using the same formal/functional mechanism. This activity of concept-mapping, site-seeking, and sketching interventions was iterative, with further field trips and repeat visits to promising sites. Over several days, this was a basis for the project team to compare and contrast aspects of different situated concepts.

Sketching the same intervention in different locations allowed us to test the extensibility of the basic formal mechanism – the extrapolation of an existing 2D/graphical or 3D/architectural feature into furnishings for new social functions. Different locations exposed differences in who might be effected, how and why. For example, the Street Cinema in a suburb suggested a potential clash between old-timers and outsiders but, in a progressive part of town, suggested impromptu social gatherings and shared child-minding among young families. Around these sketches, we were able to transform the discussion from one about the design features and functions to the range of potential social conditions implied. Eventually, three situations were selected to develop as

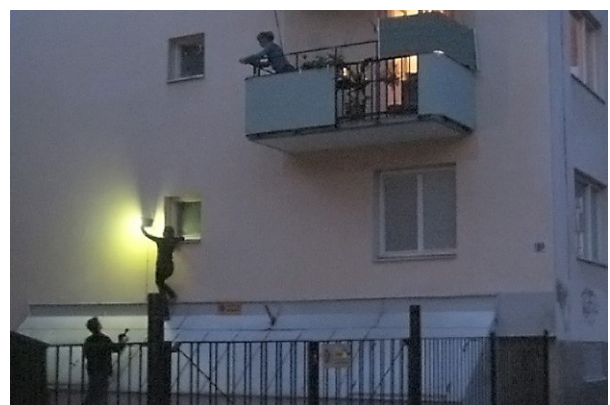
the final design examples.

DESIGN EXPRESSIONS

Through sketching, we discovered the complexity of existing factors within sites and situations, as well as a range of issues that we wanted to expose in order to raise a nuanced and varied discussion around energy consumption. Besides the selection of concepts that were interesting in and of themselves to further develop, we realized the importance of each within the whole – the three different sites and situations, spaces and times, allowed us map out an important set of contrasts across social groups, cultural functions and urban typologies.

Our method of sketching and arranging the concepts for purposes of internal discussion successfully allowed us to explore the tension between different values and interests at stake within each site, but also to create a more diverse picture of potential manifestations of the basic symbiotic interaction concept. In this way, our internal visualization and discussion became a sort of prototype for how we chose to further develop the project.

We chose photography both as a communication medium to convey complex and nuanced messages as well as a prototyping platform for ‘implementing’ design concepts that were not possible (or even desirable) to build. Indeed, the challenges of building them at a full scale and in any realistic technical or aesthetic version would have reduced the set of issues that we could have raised and directed attention away from the complexity of factors to a selection of a few factors that might feasibly have been prototyped in this way.



The photographs evolved from an ongoing collaborative process: we started by discussing the conceptual content and the spatial/social aspects of the sites; a dialog was developed based on preparatory sketches passed back and forth; we all participated in the photoshoots and made on-the-spot decisions based on trial-and-error compositions, and; iterative alterations were made throughout the final post-production and rendering work.

With respect to the photographic medium, we also discussed alternative aesthetics. Within architecture and in-

dustrial design, it is commonplace to pitch ideas with extensively retouched site drawings or slick renderings. Within sustainable design, future concepts are also often communicated through renderings or simulations – preferable futures are often portrayed in utopic and fantastic visualizations. We were not as interested in these genres, which typically succeed by simplifying a concept to a singular message or one-liner, often by reducing the complexity of social and conceptual factors at play and correcting for distracting details from the ‘real’ site or difficult problematics at hand.

Instead, we turned to fine art photography and developed a collaboration with a professional photographer and an institute specializing in 3D rendering. In the process, the materiality of photography came into sharp focus for us. Subtle alterations to the texture and color of light, for example, resulted in dramatic differences in how attention was directed in the picture and the mood conveyed – the color green, for example, could be dark and sinister or bright and suburban with only a very slight alteration. In addition, subtle interventions to articulate the edges of objects and surfaces within the photographs – for example, minute pixel-by-pixel frames around the stripes on a crosswalk – gave rather dramatic visual cues about the potential for 2- or 3D transformations of the built environment that has otherwise become so mundane and habitual that such patterns have become invisible.

This genre of photography involved careful staging of the photoshoot situation, crafting visual/material qualities, and resolving composite forms. Rather than the mainstream documentary photographic tradition, this process was perhaps more akin to the constructed drawings and encoded texts of ‘paper architecture’ [cf. de Zegher and Wigley, 2001].

FINAL DESIGN EXAMPLES

Finalized as a photo series, *Symbiots* depicts three situations: a street cinema that arises to provide a traffic-stopping experience for locals; streetlights that spotlight household energy efficiency, and; a mini-golf course that builds up through collective effort. Suddenly and sometimes spectacularly visible, these serve to lure people out of their private habitats and away from their energy-consuming habits, thus further reducing private energy use. Through the provision of new functions and public forms, people are rewarded and lured into new patterns of local activity and energy behavior.

Each situation is portrayed in two states, to emphasize how, where, and why the site and situation look different in relation to changing patterns and trends in energy

consumption. While we imagine that the *Competitive Golf* might come to life at the end of the working day, the *Street Cinema* would need a more sustained and collective effort – each also operates in relation to different temporal cycles and patterns of energy use, patterns of public/private life, and rhythms of urban routines, which is built into the concept. Through portraying each in two states, the familiar is rendered strange and vice versa, inviting a closer look and longer attention to the nuances of existing and altered elements within the photos and behaviors demonstrated by the spatial and social aspects of the situation.

Each situation deals with different scales of energy behavior. *Public Spotlight* highlights individual occupants within the semi-public community of an apartment building and the public facade facing the streetscape; *Competitive Golf* leverages household-to-household competition between house-proud neighbors in a protected neighborhood; and *Street Cinema* relies on a campaign of neighborly cooperation to build a local commons. *Competitive Golf* operates through peer competition; *Public Spotlight* through individual achievement, and; *Street Cinema* through community cohesion. Further, each suggests potential side-effects in behaviors, perceptions and values within the depicted interactions – spotlighting private citizens in the public eye suggests a double-edged celebrity of being singled-out, the showcase neighborhood in *Competitive Golf* invites interlopers and unintended uses, the safety crossing transformed as a commons prevents (motorized) access and blocks outsiders.

Each picture embodies different sets of issues related to energy consumption in a social context, raising complex issues around private life and public rights, relations between consumption, habitation, and citizenship, relations between social competition, collaboration, and ex/inclusion. Each situation has been selected and the photograph crafted to articulate a particular position in relation (and contrast) to the others. Instead of simply reducing energy consumption to a question of incentive and directive or reward and punishment, the nuances and effects of the situations implied in the photos are intended to draw out a more complex engagement and rich imagination on behalf of the viewer about ideas of ‘good’ consumption and ‘model’ society.

INTERVENTIONS AND OPERATIONS



Public Spotlight ... Streetlights serve the public good – and, in this instance, private citizens. These lamps shed light on the apartment with the best energy habits within reach. Balconies suddenly come to life for new activities – and, as a stage for models of good behavior.

Street Cinema ... If everyone in the area works together to lower energy consumption, a reward may be in store at the end of the week. An ordinary street crossing transforms into traffic-stopping event. On show are classic nature and family films – bring your own popcorn!

Competitive Golf ... Who's grass is greener? These neighbors can tell how their energy behaviors match up – their savings manifests as a sporting activity on their own doorstep. Individual houses distinguish themselves and collective action builds a whole golf course.

The final design examples, realized in the form of a photo series, present a view upon a set of ideas and questions about energy use, instantiated as scenarios represented and located within specific sites. From developing the concepts to constructing the photographs, the design process has engaged an interdisciplinary team and collaborators into hands-on manifestation of a 'material thesis' or 'rhetorical trope' [see Seago and Dunne, 1999; Hellström Reimer, 2009] The photos produced and scenarios depicted can be seen as a sort of constructed and physical manifesto, a set of ideas and questions specified, situated and materialized. Further, we have intended these photos to be a basis for making these ideas and questions operational towards other potential and future stakeholders. Toward this end, we have considered the photos as interventions within two different contexts: a (future) exhibition within a museum or gallery context, and; a local conversation within neighborhoods where the photos were taken.

In the first case, an exhibition is targeted in order to expose the ideas and questions in the project, in the form of the photo series, for an audience including the general public and art/design critics. Placing the project within this context would allow us to further explore what the genre and aesthetics of fine art photography might do for expressing and debating ideas about (sustainable) design. As established arenas for presentation, reception and criticism a museum or gallery would also allow us to experiment with how such ideas might be activated

within an another discursive context. In these terms, we are exploring an alternative mode of (ideological) production together with associated practices of (critical) consumption.

We have taken this into consideration in relation to the composition of the photos and disposition of the photos series. Each situation depicted has many levels at which it might be analyzed and compared, and many layers which are gradually exposed as one looks at the image from afar versus up close, and in relation to the other images. For example, the composition of elements in the photos, the angles at which the photos have been shot, the color palette of each photo, and the intended positioning of the photos in relation to one another when mounted, have been carefully selected and oriented to draw the eye to differences and similarities. We assume a reading from left to right, but then attempt to build in intensities, reversals, and different focal lengths at which the collection might be read both in its discrete parts and as a whole. These considerations have been important for considering the kind of receptive practices typical in exhibition contexts though, of course, additional issues about size and orientation must be site specific to the future exhibition context.

In the second case, we were interested in how the photos might operate to stage and stimulate a dialog within the everyday lives of ordinary people. We planned a return visit to Aspudden, a neighborhood in which one of the



We designed a poster presenting the project and photos for multiple purposes: to post in a large format on billboards around the neighborhood; to fold up for distribution in 'direct mail' fashion through post-mailboxes with a space for pre-stamped return of comments designed into the poster, and; to unfold and present in more detail within in one-on-one conversations with local inhabitants.

photoshoots took place, and designed a poster presenting the project and the photos.

To this end, we took other issues into consideration with respect to issues of presentation and reception. For example, the 'fine art' refinements and subtle details of the photographs were downplayed – the images are treated as illustrations in the poster. Two photos were printed as glossy snapshots, intended as mementos, with a written invitation to post them on the family refrigerator. Our intention was that the photos operate more as 'boundary objects' or conversation pieces for different sites and scales of conversations with the local context. When we returned to Aspudden, the posters were distributed to all the apartments in buildings within a particular block, and interviews were conducted by two of the project team with five households.

The posters and photos framed conversations opening onto many related ideas. For example, only the kitchen light is on when we arrive to meet Britt (87-years old). She tells us that she thinks a lot about energy savings – *"We just have one planet."* She promotes energy savings in the building and would seem to be an ideal candidate for the Public Spotlight but, as we talked on, further stories were evoked – long wishing for lights on her balcony, for example, Britt would have had them installed except that she forgot to ask when the electrician was last there and it costs too much to have him back.

Upstairs, Sven (73) is on a municipal committee concerned with energy but treasures the heated bathroom floor and always leaves a light on for the cat. Conversation seemed to move on from politically correct or socially acceptable ideas to impromptu responses and rich stories, in parallel with unfolding the poster and delving into the rather challenging propositions presented.

Issues of individualism, collaboration and competition

within the local environment also emerged. The Public Spotlight prompted Mikael (29) to identify a concern: *"I can imagine that when you come home at night after work, you will surely look for the lamp to see where it is. The risk is that there is always a small one-person household that consumes very little electricity in comparison to us with two children, it's a lot of cooking and there's a washing machine... That's the thought that strikes me."* While he himself has environmental ideals, Olof (23) nevertheless believes that *"People tend to be pretty individualistic, and it's becoming more and more like that, so [Public Spotlight] would probably work on some level... Well, competition is popular."* Beyond the local context, he is even more skeptical – *"In general, on a societal level, a lot of electricity is used by private actors, businesses and public facilities... factors that are beyond individual control."* Such responses articulate significant social and even political issues around energy use, posited within reflections on their own personal, family and communal situation.

In a variety of ways, these conversations explored values related to everyday interactions with energy. Grounding articulations of general opinions or larger issues, the strangely familiar photos seemed to stimulate the expression of rich stories, personal beliefs, local dynamics and existing relationships. Besides our in-person conversations, we foresee further related interactions among inhabitants after our visit. Indeed, we discovered that our repeated visits – for site-seeking, photo-shooting and interviewing – had already sparked local discussions around the topics raised. After our interview, Sven looked forward to the fact that *"[Britt] will soon come by, knock on my door, and say that these girls were here again."* For us, this suggested a potential for Symbiots to operate not only as a critical practice, but as a critical social design practice.

DISCUSSION

Given the often simplistic and superficial ways in which sustainability is often presented, perhaps it is not surprising that it is difficult to come to terms with the complexity of challenges, choices and consequences involved. Notwithstanding the difficult science involved, it is inextricable from a history of ideas that have framed how debates are constructed and conducted. We might think of energy as a matter of technological infrastructure or a technical system of economy and regulation, but we need only look to its local manifestations abroad and in our own backyards to understand that political power, social contracts and human costs are at stake. Nor are technical terms separate from those of ethics and aesthetics – simply consider the mundane traffic light, part of one of the most pervasive and public of electrical systems. Not only does a traffic light entail an aesthetics – in terms of a specific form, configurations of the built environment and circulation patterns of pedestrians and vehicles – but each creates a situation in which people must negotiate physical, social and legal matters [cf. Silbey and Cavicchi, 2005].

While it may be hard to spot nature within our contemporary cosmopolitan lifestyles, our (inter)-dependency upon natural resources is increasingly apparent – as is the need for crafting new ways to imagine and engage with the complexity of related ideas. *Symbiots* is an example of how an inquiry might be crafted and staged within our research through (critical) practice. Starting from the notion of symbiosis, we expanded upon the perhaps more typical terms of interaction and communication to explore varieties of dependency within (non)human relations. This opened a conceptual space in which we posed questions about the individual and collective use of energy, such as: In what forms is energy production/delivery/sales/consumption/use visible? How would exposing existing systems or intervening new infrastructures transform the situation? What alternative interests might be served? How might other places, activities and actors become focal points or ‘power’-stations within a locality? How would this transform the landscape, in space and over time?

In asking such questions, it was not our intention to answer them but to open a space for speculating on a range of related issues within our project team and with potential stakeholders. As such, we have approached design research not as problem-solving but as a sort of curatorial activity, in which we attempt to frame issues and stage encounters environmental issues by materializing diverse – and perhaps even conflicting – values in forms and formats that people can relate to and partici-

ate in. In addition to crafting complex issues as a sort of ‘material thesis’, the outcomes are also intended to become operational outside our own discursive context, directed toward two further contexts and associated constituents. This has been important to the methodological intentions of the *Switch!* program in general. Indeed, we have been investigating the power the ‘products’ of critical practice to propagate something beyond appearance, to locate a material point of interaction within the multiplicity of systems and complexity of issues relating to sustainability in everyday life.

The application of fine art photography may seem at odds with the more established modes within design research. While low-fidelity mock-ups and low-tech prototypes are more commonly used as a basis for communication, co-creation or evaluation in design research, we found it interesting that these photos have proved to be both inviting and inspiring within our conversations with locals. The photographs are highly refined in aesthetic terms and highly elaborated in rhetorical terms – typical products of this genre build in multiple depths and foci within an image through a labor-intensive photoshooting and postproduction process on the scale (and budget) of blockbuster movies. While perhaps not typical to the modes of production common in design research, we found the materiality and technique of fine art photography particularly suited to the issues at hand – in particular, the hyper-real or hyper-banal genre exposes the everyday to another kind of speculation and interpretation by means of surreal and even epic portrayal of minute and mundane details.

Indeed, even a common theme in the genre – twilight – resonates with our intention to evoke an ambivalent and changing picture of the values involved in energy consumption in everyday life [see Helmore, 2006]. While other approaches might seek to open up design for wider accessibility through other means, we attempt to entice people into a carefully crafted complex of embedded conflicts and unresolved questions which requires active imagination and personal interpretation.

ACKNOWLEDGEMENTS

The *Symbiots* project team includes Jenny Bergström, Ramia Mazé, Johan Redström and Anna Vallgård, with photography by Olivia Jeczmyk and Bildinstitutet. *Switch!* is a design research program at the Interactive Institute funded by the Swedish Energy Agency. Additional funding has been provided through the project *Forms of Sustainability* funded by the Swedish Research Council.

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