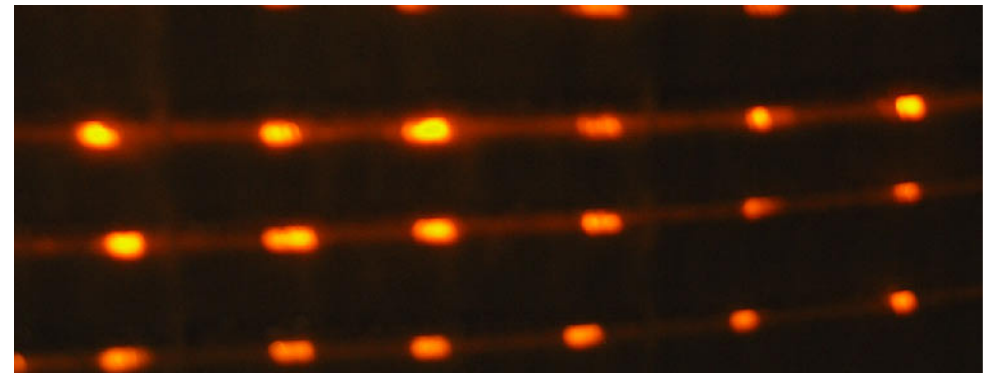


# energy curtain interacting with daily light cycles

The Energy Curtain is a window shade woven from a combination of textile, solar-collection and light-emitting materials. During the day, the shade can be drawn to the extent that people choose to collect sunlight and, during the evening, the collected energy is expressed as a glowing pattern on the inside of the shade. In this example, people make direct and tangible choices over how much energy to save and spend, and their choices are experienced as an aesthetic presence in their home that reflects the natural cycle of daily light.

## STATIC! [www.tii.se/static](http://www.tii.se/static)

STATIC! is a research project funded by the Swedish Energy Agency (Energimyndigheten or STEM). It is a collaboration between the POWER and RE:FORM studios of the Interactive Institute. Partners include Front, Ludvig Svensson AB, Mälardalen University, Region Västra Götaland, School of Design and Crafts (HDK) at Göteborg University, Swedish Industrial Design Foundation (SVID) and Swedish School of Textiles at the University College of Borås.



## expression of choice

The Energy Curtain functions by capturing energy converted from sunlight during the day, sensing when the light disappears in the evening, and then activating to display light. Generated light is in direct proportion to collected light, and users make an explicit choice of how much light to collect based on how much they draw the blind during daylight hours.

If the curtain is pulled all the way down during the day, then the maximum amount of energy is stored for use in the night. Similarly, if the curtain is completely lowered in the evening, then it is able to display the maximum amount of stored light.

## reflecting a natural rhythm

The Energy Curtain is an example of how power becomes integral to the function and the aesthetic expression of the artefact - thus energy is in focus as a design material. Designing for visualization and choice over energy use led to an interaction model based on a self-sustaining energy cycle, where natural rhythms and human decisions together build the expression of the object. The user is presented with a direct and tangible choice over enjoying the sunlight or saving the sunlight for enjoyment later on. In this way, the object acts to stimulate reflection on the trade-offs with regards to a local, sustainable system and a basis for exploring how people might evolve a relationship with such a self-sustaining object and their own energy behaviors over time.

## textile design and engineering

The Energy Curtain fabric is constructed in two layers - an inner layer woven with optical fibres and an outer layer integrating solar cells. The inner and outer fabric layers are sewn together at the edges and horizontal seams secure the entire span of the curtain. Three polyester filament yarns, in the middle and on the sides, are drawn through the curtain and connected to a bar across the top and bottom of the curtain, which additionally provide some weight to facilitate lowering the curtain. This fan-folded blind construction allows the curtain to be lowered or raised, its fabric unfolding or folding back onto itself every 5 cm in zig-zag fashion.

## project team

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