

Electrifying the World

Representations of Energy and Modern Life at World's Fairs, 1893-1982

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“Sell the cook stove if necessary and come. You must see the fair.”¹ With these words, novelist Hamlin Garland urged his parents to visit the World's Columbian Exposition in Chicago in 1893. Since their inception, contemporaries and academic scholars alike have been fascinated by what world's fairs have had to offer: from spectacular architecture to technological ‘firsts’ to – from a postcolonial perspective rather disconcertingly called – ‘midget’ and ‘savage’ African villages. Exhibitions in general and the hugely popular world's fairs in particular function as mediators between the political, economic and social actors involved in exhibition-making and the public. Their exhibitionary scenarios convey ideas – realistic or utopian – on how we live, work and play. World's fairs' ingrained perspective toward future life models coincided perfectly with the role that energy – particularly electrical energy – was assigned to play in the 20th century. Similar to other media, world's expositions offered interpretations of (future) energy production and use that were closely linked to discourses on modernity and progress. In contrast to print, radio and film, however, their displays visually created arrangements that could be explicatory, suggestive or illusionistic by means of their three-dimensional use of text, image, object and space.²

1 | Qtd. in Justus D. Doenecke: “Myths, Machines and Markets: The Columbian Exposition of 1893”, in: *Journal of Popular Culture* 6:3 (1973), 535.

2 | Gottfried Korff: “Scheinkapellen u. ä. Sieben Bemerkungen zu den diskursiven und visuellen Strategien des Geschichtsmuseums im Jahrhundert seiner Eta-

Moreover, world's expositions' treatment of technology was often characterized by a focus on the present, even the future. Serving as a "site within the transitory present from which the visitor could glimpse the future", world's fairs took advantage of what David Nye has called the technological sublime.³ According to him, a number of interrelated sublimes had emerged in America since the 1820s, i.e. the geometrical, the industrial and the electrical sublime, each of them having a distinct political and social relation to technology. Americans reinvested "the landscape and the works of men with transcendent significance"⁴ and developed a reasoning that saw inventions and new technological structures as continuations of nature, ultimately raising them to the status of "self-justifying parts of a national destiny."⁵ This blending of the natural and the technological sublime was supplemented by a third kind of experience – the "electrical sublime" – eliminating the distinction between natural and artificial sites.⁶

As Nye has aptly shown, world's fairs were ideal sites for the materialized display of the technological sublime in general and the electrical sublime in particular. On their exhibition floors, ideas of energy technologies as the sublime merged with modernist discourses to create narrations of the future built on inexhaustible energy resources and carefree consumption. However, because of its dual nature as "both a commodity and a fundamental aspect of being"⁷, energy and its narratives are at times difficult to disentangle from larger political, scientific and cultural discourses. This paper therefore offers a close reading of energy (re-)presentations in world's fairs both as symbol for a progressive, modern lifestyle and as a consumer good from the late 19th to the late 20th century. Based on both visual and written documentation, it examines selected displays of the fairs of Chicago 1893 and 1933, New York 1939, Brussels 1958

blierung", in: Bernhard Graf/Hanno Möbius, eds. *Zur Geschichte der Museen im 19. Jahrhundert; 1789-1918*. Berlin: G + H Verlag, 2006, 117.

3 | David Nye: *American Technological Sublime*. Cambridge, MA: MIT Press, 1996, 205.

4 | Nye: *American Technological Sublime*, xiii.

5 | Nye: *American Technological Sublime*, 282.

6 | Nye: *American Technological Sublime*, 152.

7 | David E. Nye: *Narratives and Spaces*. New York: Columbia University Press, 1997, 75.

and Knoxville 1982 as they relate to discourses on science and industry, nature, mass consumption and modernity. As pacemakers and role models, these American fairs played a decisive part in shaping the development of an energy-intensive lifestyle and consumption mode enabled by an implied and largely unquestioned narrative of energy abundance. Both national and corporate displays at these fairs served as reference points and models regarding visions of modern living and consumption as well as exhibition design and mediation that would be imitated in other parts of the world.

Understanding exhibits as a particular form of communication, it makes sense to analyze the displays within the framework of larger political and social energy narratives which, according to David Nye, have historically focused on either one of these five contextual preconceptions: 1) natural abundance, 2) artificial scarcity, 3) human ingenuity, 4) man-made apocalypse and 5) existential limits.⁸ Although each of them has gained currency at some point in history, it is the narrative of abundance that dominates the way how energy is constructed, interpreted and cast in the media discourse in the United States for most of the 20th century. As shall be argued in this paper, it is also the narrative that comes to bear on the presentations of energy at the fairs in 1893 and the 1930s and to some extent the Brussels fair of 1958. Here, however, with the introduction of nuclear power, the narrative of abundance merged with the narrative of human ingenuity ensuring affluence by applying refined engineering skills. The final fair – Knoxville 1982 – represents an interesting mixture of narratives. While showcasing elements both of the artificial scarcity and the man-made apocalypse narratives, it simultaneously marks the return to the natural abundance narrative.

No matter which energy narrative dominates, it is always mediated through exhibitionary means. These include, first and foremost, three-dimensional objects displayed in the exhibition space, supplemented by texts, images, lighting arrangements and other media. Over the course of the fairs' history, the exhibitionary modes have changed dramatically, influencing not just the 'vocabulary' used to convey its messages, but rather the content of the narrative itself. In many respects twins of the concurrently emerging department stores and shopping malls, the fairs served as mediators for America's budding consumer society where people learned to view energy, especially electricity, as the doorway to a new quality

of life. Modifying traditional museum display modes, the fairs created a new presentational vocabulary that could be read by a ‘republic of consumers’ within the codes of modern industrial culture. The more industrialized a nation and its culture became, the more symbolism was attached to technological and industrially manufactured goods, their representation in advertising, department stores and exhibitions and their consumption by the people. In the display context of world’s fairs, these goods became a defining part of a “rationalized mythology” in which the displayed object oscillated between the profane and the auratic.⁹ It was at Chicago’s White City in 1893 where this oscillation between sublime wonder and profane application found its supreme expression.

WORLD’S COLUMBIAN EXPOSITION, CHICAGO 1893

In terms of its usage of electricity, Chicago’s first world fair would become known for both its elaborate lighting designs on the fairgrounds as well as its Electricity Pavilion prominently situated at the center of the fairgrounds.



Figure 1: Electricity Building, World's Columbian Exposition, Chicago 1893.

9 | Elke Krasny: “Zukunft ohne Ende: Das Unternehmen Weltausstellung”, in: Brigitte Felderer, ed. *Wunschmaschine Welterfindung*. Wien: Springer, 1996, 322.

Its architecture was meant to correspond with both the qualitative nature of electricity and the contents shown inside, giving “to the general design a movement which, in contrast with its neighbors, may be suggestive of the mysterious functions of electricity.”¹⁰ In accordance with the fashion and level of electrotechnology at that time, the fairgrounds presented themselves as an ‘electrified landscape’ including electrically-powered water fountains, enormous searchlights, an electric walkway and battery-run boats on the basin.¹¹ What presented itself to the visitors as a technical triumph “harnessing the thunderbolts at last”¹² had actually been preceded by a furious battle between Thomas Edison’s General Electric Company and its rival Westinghouse. Due to a lower bid and apparently a stronger argument for reliable capacity, it was Westinghouse that ultimately got the job of illuminating the fair, thereby delivering the final deathblow to Edison’s direct current system.¹³ Yet, despite rapid innovations in the field of electric technology, many Americans remained skeptical about the reliability and safety of electric applications in their homes. The Chicago fair offered a prime opportunity for corporations involved in the electrification business to showcase electricity’s advantages and eradicate any persisting doubts.

The inside of the pavilion contributed to that particular effort only to a limited extent. Firmly anchored in the systemic approach, the individual displays featured electrotechnical ‘hardware’ ranging from apparatuses illustrating the phenomena and laws of electricity to batteries, transmission gear and electro-chemical equipment.¹⁴ Most impressive among the

10 | Rand, McNally & Cos.: *A Week at the Fair Illustrating the Exhibits and Wonders of the World’s Columbian Exposition*. Chicago: Rand, McNally & Cos., 1892, 80, 82.

11 | For a discussion of outside electric lighting at world’s fairs see David E. Nye: “Electrifying Expositions, 1880-1939”, in: Robert W. Rydell/Nancy Gwinn, eds. *Fair Representations. World’s Fairs and the Modern World*. Amsterdam: VU University Press, 1994, 140-56.

12 | Murat Halstead: “Electricity at the Fair”, in: *The Cosmopolitan. An Illustrated Monthly Magazine* 15:5 (September 1893), 578.

13 | Judith A. Adams: “The Promotion of New Technology through Fun and Spectacle: Electricity at the World’s Columbian Exposition”, in: *Journal of American Culture* 18:2 (1995), 49.

14 | Rand: *A Week at the Fair*, 83. Although the Austrian inventor and entrepreneur Friedrich Wilhelm Schindler presented the first electrical kitchen at the fair

“monster machines”¹⁵ was the generating station supplying all buildings at the fairground with electricity. The imposing machinery and sheer endless rows of electrical equipment tended to make engineering experts and technology buffs go ecstatic but the general public rather less so. Apparently, however, this had not been the exhibitors’ intention anyhow. The order in which the chief of the electricity department enumerated the target groups of his pavilion is by no means accidental: engineers, central station managers, manufacturers, students and – finally – the public in general.¹⁶

Hence, the fair of 1893 proved to be transitional in its representation of electricity, exposing a two-lane display strategy separating the inside from the outside: While technical aspects of its production and distribution dominated the interior of the building, 27 million visitors strolling the fairgrounds outside got a foretaste of the consumption paradise to come by using the electrical railway and walkway and experiencing the nightly lightshow. Yet, powered by a large electrical system, lighting and railways appeared to be moved by a magical hand and related the qualities of the new energy form only indirectly to people. Although small electrical consumer appliances for mass consumption already loomed on the horizon, the Columbian fair focused on the communal experience of electricity as symbol for modernity. The electrical transportation and lighting systems thus retained a sublime touch: Using the moveable sidewalk and watching the buildings being bathed in artificial light disrupted people’s ordinary perceptions of their surroundings and forced them to grapple with its immensity and power.¹⁷ However, searching for new opportunities of application and sales markets, manufacturers and utilities wanted people to eventually overcome their awe and start treating, i.e. consuming, electricity unreservedly. The immateriality of electricity posed a serious problem to this endeavor. In what comes across as a clumsy attempt at making people ‘see’ and ‘feel’ electricity, exhibition designers came up with

gaining him a gold medal, it was not named in any of the original sources surveyed for this paper.

15 | J. R. Cravath: “Electricity at the World’s Fair”, in: *Review of Reviews* (July 1893), 38.

16 | Hubert Howe Bancroft: *The Book of the Fair*. Chicago: Bancroft, 1893, 405.

17 | Nye: *American Technological Sublime*, 15.

rather bizarre object arrangements such as pyramids of copper wires and towers of insulators.



Figure 2: Tower of Insulators, Electricity Building, Columbian World's Exposition, Chicago 1893.

Electricity's intangibility confronted exhibition designers with problems that became symptomatic for the world's fairs to follow. Even with the outside lighting spectacle that allowed for sublime sensations, the apparently mysterious nature of electricity needed earthing. The ceremonial opening of the fair provided this by means of a surrogate tactile action performed by President Grover Cleveland. With the president pushing a gilded button on a stand draped with the Star-Spangled-Banner, a connection was made between man and his actions and the miracle of electrical lighting. From one moment to the next, the rumble of machines was heard, water gushed from the fountains, banners and flags were unfurled and the massive Statue of Freedom was unveiled. The immateriality of electrical energy that proved to be both fascinating and threatening to people was packaged into symbolic acts of starting engines and pushing buttons.

In Chicago at the end of the 19th century, the energy narrative of abundance had yet to materialize. Setting the stage for a multitude of applications in transport, industry and at home, the fair hinted at the great utopia of infinite energy used for the building of a better world without quite formulating it yet. It rather allowed people from all walks of life to “gaze into the future and ponder upon the marvellous uses of electricity which must be in store for us at no very distant date.”¹⁸

A CENTURY OF PROGRESS EXPOSITION, CHICAGO 1933-1934¹⁹

About thirty years after the Columbian Exposition, three-fourths of private households in the United States had been electrified²⁰, urban centers were growing, more and more cars traveled across the expanding highway system and mass-consumption was in full swing. Yet with the crash of 1929, America had also sunk into a deep economic depression which left many in doubt about the merits of modern consumer capitalism. Although electricity had brought unknown comforts, Americans at the same time feared for their personal economic and social future. While utility companies and appliance manufacturers proceeded with building an infrastructure of high-energy consumption technology, cultural and social mediation was needed to keep people abreast with the fast developing and changing technical world around them. Alongside national advertising campaigns and mediating councils such as the Society for Electrical Development, exhibitions served as promoters of the modern ‘electrical way’.

In the ambivalent mood oscillating between hope for a bright future and lingering fears about its fragility, the organizers of the second Chicago fair in 1933 conceptualized their exhibitions around the intricate relationship between science and industry to “demonstrate to an International [sic]

18 | John Brisben Walker: “A World’s Fair. Introductory: A World’s College of Democracy”, in: *The Cosmopolitan. An Illustrated Monthly Magazine* 15:5 (September 1893), 523.

19 | Due to high visitor numbers (22.5 million), the fair went into a second – largely identical – season from May 26 to October 31, 1934.

20 | Martin V. Melosi: *Coping with Abundance. Energy and Environment in Industrial America*. Philadelphia: Temple University Press, 1985, 112.

audience the nature and significance of scientific discoveries, the methods of achieving them and the changes which their application has wrought in industry and in living conditions.”²¹ In order to overcome the competitive nature of foregone fairs, they stressed the cooperative element among nations and companies and between science and industry that had brought about “A Century of Progress”. Rufus C. Dawes, President of the Organizing Committee, formulated the fair’s concept and purpose in the following words:

“The Exposition follows no pattern of former fairs; the competitive idea of other fairs is not in the modern spirit. [...] The one great motif of A Century of Progress is the rise of mankind during the last hundred years [...] The Story of the development of the industries that have contributed so strikingly to mankind’s comfort and progress is full of high adventure and romance. It has been a swift-moving drama recording their service to the public.”²²

The fair that developed out of this approach was characterized by a general tendency toward scientification on the one hand and a strong focus on applicability of technology on the other. Both aspects were staged by new display designs realized in many cases by corporate industrial designers who relied on both their artistic and advertising skills. The importance attributed to science found its expression in the Hall of Science featuring

21 | “A Century of Progress. Chicago International Exposition of 1933. A Statement of Its Plan and Purposes and of the Relation of States and Foreign Governments to Them”, National Archives and Records Administration (NARA), College Park, MD, RG 43: Records of International Conferences, Commissions and Expositions, 1825-1979, Department of State, Bureau of International Organization Affairs, Office of International Conferences, Administrative Files, Entry 5536, Box 104, 3-4.

22 | Century of Progress International Exposition: *Official Book of the Fair. Giving Pre-exposition Information 1932-1933 of A Century of Progress International Exposition Chicago 1933*. Chicago: A Century of Progress, Inc., 1932, 5-6. For an elaborate discussion of scientists’ role in the conceptualization of the Chicago and New York fairs see Robert W. Rydell: *World of Fairs. The Century-of-Progress Expositions*. Chicago: University of Chicago Press, 1993, chapter 4; Cheryl Ganz: *The 1933 Chicago World’s Fair. A Century of Progress*. Urbana: University of Illinois Press, 2008, 64-66.

mathematics, physics, chemistry, biology, geology and medicine which was to

“unfold the story of the discoveries of science and invention which, within 100 years have made the forces of nature the servant of man, and which are responsible for the incredible progress in this past century; of how science has added to the comfort and safety of man and is now utilized in his service; and of the promises that it offers for future benefits to man.”²³

The ‘deification’ of science as a motor for progress and its transformational power into technological adaptations as well as humankind’s assigned role in this drama found a particularly straightforward expression in the fair’s motto “Science Finds – Industry Applies – Man Conforms.” Materialization of this attitude became the Fountain of Science designed by Louise Lentz Woodruff and positioned at the main rotunda of the Hall of Science. According to a promotional flyer, its theme – Science Advancing Mankind – was “represented by the great robot-like figure typifying the exactitude, force, and onward movement of science, with its powerful hands at the backs of the figures of a man and a woman, representing mankind.”²⁴

The world that the fair of 1933 painted was scientifically, industrially, socially and implicitly politically progressive. The strong belief in modernization based on the use of abundant energy resources found expression both in architectural and exhibitionary terms. Energetic symbolism was prominent on the outside of the Electrical Group buildings featuring two bas-relief panels delineating, as it said in one guidebook, “man’s struggle to wrest power from nature.”²⁵ The reliefs featured two figures representing Light and Energy, the latter being inscribed: “Energy is the substance of all things—the cycles of the atoms, the play of the

23 | International Exposition Chicago 1933: *A Century of Progress. Hall of Science*. Chicago: International Exposition, [1932?], n. p.

24 | “Fountain of Science. Century of Progress” (1933), pamphlet, Century of Progress 1933-34 World’s Fair Collection (CPWFC), University of Chicago, Special Collections, <http://century.lib.uchicago.edu/images/century0061.pdf>, Accessed: 22.08.2011.

25 | Century of Progress: *Official Book of the Fair*, 40.

elements are in forms cast as by a mighty hand to become the world's foundations."²⁶



Figure 3: Bas-Relief Panel
"Energy" at the Electrical
Building, Chicago World's
Fair, 1933.



Figure 4: Bas-Relief Panel
"Light" at the Electrical
Building, Chicago World's
Fair, 1933.

Inside the Electrical Building which was a cooperative effort of different institutions and companies of the electricity sector, the central attraction was a large diorama showing electricity's way from generation over transmission to usage. Accompanying this were many smaller dioramas ranging from historical instruments to the stylization of modern areas of application in homes, offices, shops and industrial plants. Guiding the design process had been, according to the accompanying brochure, the acknowledgment that "in the enchanting drama unfolded by this Exposition, electricity in all modesty might truthfully be cast in the role of Great Cooperator, extending to all other industry its hand of magic[.]"²⁷

From this view on energy resulted a two-fold approach to (electric) energy. On the one hand, exhibits aimed at transmitting a basic understanding of scientific and technological laws. On the other, they focused on what energy could do for the modernization of the private

26 | Century of Progress: *Official Book of the Fair*, 40.

27 | "Electricity at Work", pamphlet, CPWFC, <http://century.lib.uchicago.edu/images/century0132.pdf>, Accessed: 22.08.2011.

household and economy. This consumptive spin on presenting energy called for new designs and exhibition styles. Not the production aspects of technologies were to be featured, but rather their applicability in everyday life, that is their desirability. The founder of Grand Canyon's Scenic Airways and member of the fair's exhibition team, J. Parker van Zandt, therefore called for less overwrought scientific exhibits in favor of simpler, easier-to-consume displays:

"Be dramatic! Whatever the story—dramatize it. [...] There is drama in everything. No product that people purchase lacks dramatic possibilities. However lifeless, prosaic and commonplace to the unimaginative it may seem, actually it is alive with warm human feelings—with the hopes, fears, and wants of the people who buy it, not as an end in itself, but as a means toward the satisfaction of their desires. The ability to see inanimate things living, which other men think are dead, make successful advertising—and winning exhibits."²⁸

Following van Zandt's credo, General Electric (GE) constructed a 'House of Magic' that accommodated objects and demonstrations dedicated to the 'science of electricity' performed by personnel of GE's research laboratories. Encoded as 'serious scientists' and/or magicians, the shows were as much vehicles for the popularization of science and the company's products as pure vaudeville-style entertainment. Though the personalized approach added to their appeal, shows like the lighting of an incandescent lamp without wire connections or the popping of corn kernels with electric 'microwaves' trivialized both the scientific processes and the practical applications in favor of mesmerizing, yet fleeting enjoyment.

While the 'House of Magic' or the musical comedy "What a Night"²⁹ featuring a stingy husband who ends up being persuaded that electricity is in fact affordable made for good audience entertainment, manufacturers were at least equally interested in solid advertising by displaying their appliances hands-on. The ideal place for this was the Century of Progress Homes Exhibit consisting of eleven fully furnished model homes. Although the houses differed in the degree to which they presented revolutionary

28 | J. Parker van Zandt/L. Rohe Walter: "King Customer at a Century of Progress", in: *Review of Reviews* 90:3 (1934), 24.

29 | "What a Night" (1934), pamphlet, CPWFC, <http://century.lib.uchicago.edu/images/century0156.pdf>, Accessed: 22.08.2011.

modern architecture and interior design, all of them shared the underlying tone of progressiveness resulting in elaborate technological infrastructures made possible through consequent application of scientific findings:

“In each of the eleven model houses, science has transformed what, in the century closing, was the kitchen into a laboratory of domestic science. Each is equipped with automatic refrigeration, self-regulating electric or gas ovens, dish-washing machines and electric mixers. Not the least interesting features of these sample homes, however, are that many of them were fabricated in faraway factories, simply being assembled on the exposition grounds, and all of them are tailored for modest purses.”³⁰

According to the exhibiting companies, it was not just the use of gas- or electrically-driven appliances that marked modernity’s invasion into American households, but also the employment of new building materials and modes of production. However, as Brian Horrigan has pointed out, there was an ambivalence inherent in the model homes’ exhibition. While the homes equipped with refrigerators, washing machines, kitchen ‘laboratories’ and remote-control windows fascinated the visitors, they remained essentially a utopian dream in light of pressing economic needs.³¹ It was therefore mandatory for the fair’s organizers to provide a mental bridge between the audience’s often stark living reality and the dream world of the exhibited homes. They did this by incorporating presumably affordable homes such as the single-family home designed by Howard Fisher for General House, Inc. Relying on standardized mass-produced building parts assembled on site, these houses were supposed to fulfill the American homeowner’s dream for thousands of average-income families.³² While these houses were advertised as modern in design and comfort, most manufacturers and architects simultaneously made sure not to distance themselves from the audience’s rather conservative image of an

30 | *Chicago and the World’s Fair 1933*. Chicago: T. Husum Publishing Co., 1933, 57.

31 | Brian Horrigan: “The Home of Tomorrow, 1927-1945”, in: Joseph J. Corn, ed. *Imagining Tomorrow. History, Technology, and the American Future*. Cambridge: MIT Press, 1986, 145.

32 | General Houses, Inc. Pamphlet, 1933, CPWFC, <http://century.lib.uchicago.edu/images/century0106.pdf>, Accessed: 22.08.2011.

ideal family home – practical, affordable, not too fancy in architecture and furnishing.

Not so, however, George Fred Keck whose ‘House of Tomorrow’ blew people’s imagination in many ways. His house was boldly different and suggested a completely new way of living in tune with the evolving automobile culture. “Admittedly experimental, to test the reactions of visitors [...] to a house that entirely upsets the conventional ideas of a home”³³, the ‘House of Tomorrow’ was built around a central utility core, twelve-sided, steel-framed, completely glazed and fully air-conditioned. While the base floor offered room for both a garage and an airplane hangar, the top floor was entirely taken up by a sundeck and observatory. It was the middle floor where the living rooms, kitchen and bathroom – radiating like cake wedges from the utilities core – were to be found. Just as air-conditioning and central heating was pronounced as a given in the ‘House of Tomorrow’, state-of-the-art electric and gas-driven appliances were presented as must-haves and future standard.



Figure 5: House of Tomorrow, Chicago World's Fair, 1933.

In its promotional brochure, the house’s construction company Century Homes Inc. predicted that air-conditioning systems like the one used by Keck

33 | Kaufmann & Fabry Co.: *Official Guide Book of the World's Fair of 1934*. Chicago: A Century of Progress International Exposition, 1934, 104.

would soon “be considered as necessary as central-heating and bathrooms are today.”³⁴ While this proved to be ahead of its time since air-conditioning would not become widely diffused in American private homes until the 1960s, many of the other appliances shown in the model homes and the adjacent Home Planning Hall sent the simple, but intriguing message that progress was just around the corner for every American citizen.

In a way, model homes did more for utility companies and appliance manufacturers than any ‘House of Magic’ ever could have done: They staged and sold a walkable, even touchable dream of modern living based on the assurance that the narrative of energy abundance had an equivalent in the material world. The fact that the production, the transportation of centrally manufactured building parts and the operation of these homes were highly energy-intensive was largely disregarded by producers and consumers alike. At the Chicago fair of 1933, energy was an emblem for modernity and progress finding its expression in artistic and architectural symbolism as well as down-to-earth hands-on appliances. Together, they painted a picture-perfect domestic life for those willing to let modern energy forms, particularly electricity, and corresponding consumer technologies into their lives.

NEW YORK WORLD’S FAIR, 1939-1940³⁵

In many respects, the New York world’s fair built upon the concepts, designs and messages of its younger Chicago brother. Its two blockbuster

34 | Century Homes Inc. House of Tomorrow. Chicago, 1933, pamphlet, CPWFC, <http://century.lib.uchicago.edu/images/century0094.pdf>, Accessed: 22.08.2011.

35 | Similar to the Chicago fair, the New York World’s Fair reopened for a second season from May to October 1940. Different from Chicago, the second season showed some major changes in the displays; most notably the dismantling of the Soviet Union’s pavilion after the country had invaded Finland in November 1939. Germany – officially citing budget restraints – had not participated at all. Overall, the second season clearly stood under the impression of world events giving itself the new motto “For Peace and Freedom” and was characterized by stronger nationalistic tones. This article focuses on the displays as they were featured in the 1939 season.

attractions – the diorama “Democracy” in the Perisphere and GM’s “Futurama”³⁶ – have intrigued both contemporaries and scholars alike. However, there is also much to say about the presentation of energy narratives and modern consumption society when turning towards lesser known pavilions. In fact, what distinguished New York from Chicago was its radical move towards the abundance narrative in interior displays as well as architecture. Most of the energy-related exhibits were situated in the power and distribution zone devoted “to industries whose task it is to transform natural resources into commodities necessary to the daily life of whole populations.”³⁷



Figure 6: Petroleum Industry Building, New York World's Fair, 1939.

36 | Both “Democracy” and “Futurama” have been analyzed extensively in previous studies. See Robert Rydell: *World of Fairs*, 135; Roland Marchand: “The Designers Go to the Fair, II: Norman Bel Geddes, The General Motor ‘Futurama’, and the Visit to the Factory Transformed”, in: Dennis P. Doordan, ed. *Design History*. Cambridge, MA: MIT Press, 2000, 103-21.

37 | Frank Monaghan: *Official Guide Book New York World's Fair*. New York: Exposition Publ., 1939, 139.

Aside from the usual suspects like Westinghouse and GE, cooperative exhibits of the gas and petroleum industries as well as public utilities presented themselves in this zone. Their displays often relied on time-proven and straightforward exhibitionary approaches such as historical comparisons to emphasize the progress that electricity had brought or plain showrooms such as Westinghouse's display of state-of-the-art electrical kitchens and GE's electric appliance store. Beyond this hands-on approach, however, was a remarkable tendency towards abstraction and utopianism. The architecture of the production zone buildings featured striking references to those natural resources on which the respective industries were dependent and the technological tools with which they were extracted from the earth. While the Petroleum Industry Building rested on four huge oil tanks and exhibited an oil derrick in operation on the lawn outside³⁸, the Gas Exhibits Building featured high towers from which gas flames shot into the sky.



Figure 7: *Electric Utilities Building, New York World's Fair, 1939.*

38 | “The Petroleum Industry at the New York World’s Fair...”, pamphlet, Smithsonian Institution, National Museum of American History, Archives Center (SI), Larry Zim World’s Fair Collection, 1841-1988, Box 1.

This “Court of Flames” was the gateway to an exhibit “presenting the true story of Gas, the modern magic that has made life modern for America [...] the fuel that is as modern as tomorrow.”³⁹

The Electric Utilities Building featured a massive waterfall running into a basin, the visitors entering the building through a glass spillway beneath parts of the waterfall. While giving a sense of the force of the water used for electricity generation, the tunnel enabling visitors to walk through it unharmed symbolized the conquest of this natural power. Inside, the building showcased the results of this mastery by means of a massive two-fold diorama with a live cast comparing a historical and a modern street scene to demonstrate the enormous comfort of living that electricity had brought in less than half a century. The separation between outer architecture focusing on nature’s resources and interior displays featuring spaces of application corresponded with the growing detachment of energy’s generation from its consumption practices in private homes, offices and shops. While the buildings claimed to be devoted to the all-encompassing story of energy production, distribution and consumption, they actually bore witness to society’s increasingly fragmented view on energy. Architectural elements such as the oil derrick or the waterfall served as shortened symbols for the narrative of energy abundance that had decoupled consumption from the effects of production. There was no oil dirtying the grass in front of the petroleum building and no smoking stacks of gas plants clouded the air. Instead, the visitors were confronted with an abstract rendering of energy in which nature was estheticized and artificially re-pasted into the picture. The stainless steel lightning bolt in front of GE’s building symbolized the “taming of the savage natural forces of electricity to serve the needs of men”⁴⁰ as did the showing of ten million volts of man-made lightning. What had long been considered magical beyond human beings’ comprehension had turned into a force controlled by “research and engineering in electricity that will provide, for the WORLD OF TOMORROW, even *more* goods for more people at less cost.”⁴¹ Hence, the formerly natural sublime had turned into the technological sublime by the exhibitions, “push[ing] the audience over the line from ordinary reality

39 | “Meet me at the ‘Court of Flame’ New York World’s Fair 1939”, pamphlet, SI, Larry Zim World’s Fair Collection, Box 1.

40 | Monaghan: *Official Guide Book*, 148.

41 | *New York Herald Tribune*, 30.04.1939, 22. Emphases in original.

toward a simulated dream world in which everything seemed possible” and where the terror of the natural sublime had been eliminated.⁴²

Coupled with the powerful expressions of future urban living based on the use of abundant energy, not the least for mass automobilism, these architectural renderings of energy created the vision of a smooth production and consumption cycle. Technology had set the stage and apparently both the exhibition creators and the millions of visitors exploring the fairgrounds wanted to believe that modernity, progress, well-being and a high living standard could and would be theirs at no cost at all.

BRUSSELS 1958

Of course, the Second World War destroyed all utopian dreams envisioned in the 1930s. By the time the first postwar fair opened in 1958 in Brussels, Belgium, the geopolitical situation had changed dramatically. Victorious over Germany and the axis powers, the Western world now faced new enemies. In the ensuing Cold War that pitted the United States against the Soviet Union, private consumption became a decisive issue. The fair was also marked by the recent war experience that had not only shaken people’s trust in the project of modernity, but also their beliefs in science and technology’s benign nature. To formulate a new relationship between science, technology and humankind and regain confidence in scientific achievements and applications became the theme of the fair, making it “a declaration of faith in mankind’s ability to mold the atomic age to the ultimate advantage of all nations and peoples.”⁴³ However, the International Hall of Science, intended to overcome nationalistic rhetoric and to emphasize instead international cooperation in the research on basic science, failed to capture the public’s imagination.⁴⁴

42 | Nye: *American Technological Sublime*, 216, 224.

43 | “The Brussels World’s Fair 1958”, brochure, SI, Larry Zim World’s Fair Collection, Box 1.

44 | Brigitte Schroeder-Gudehus/David Cloutier: “Popularizing Science and Technology During the Cold War: Brussels 1958”, in: Robert W. Rydell/Nancy Gwinn, eds. *Fair Representations. World’s Fairs and the Modern World*. Amsterdam: VU University Press, 1994, 163, 167.

In terms of the energy narrative, the Brussels fair proves to be an interesting case. In essence, it was an expression of what Nye has called the narrative of human ingenuity. The need for abundant energy resources had become obvious to all nations during the war. Especially in Europe, the scarcity of energy supply had affected not just the military, but also the civilian population in their battle for survival in the immediate postwar years. Even though the United States had not been affected by this as much as Europe, there was a fear of energy scarcity curbing the economy and thus endangering the standard of living. Seizing upon this opportunity, the exhibition designers presented the American dealings in atomic energy entirely in scientific and peaceful terms, albeit of course simultaneously trying to keep rivaling nations from getting involved in atomic energy. At the fair, the new energy source was presented with a “mechanistic approach” explaining scientific laws in a matter-of-fact way and leaving out social, political and environmental implications.⁴⁵ Aside from the Hall of Science⁴⁶ and the iconic Atomium whose lower globes were home to exhibitions on atomic energy, nuclear power was featured in the British, French, Soviet and American pavilions. The American treatment was part of the pavilion’s concept of small display units and basically recycled elements of the “Atoms for Peace”-exhibitions that had toured European countries earlier. Covering about 10 percent of the main floor, it featured samples of irradiated food, a hospital cobalt-60-radiation unit and – the audience’s favorite – electro-mechanical hands for the handling of radioactive material that could be tried out by the visitors. A small cube of uranium was positioned in front of a large photograph showing railroad cars filled to the brim with coal suggesting that the cube provided as much power as 3,000,000 tons of coal.⁴⁷

America’s energy-related display looked progressive and optimistic, but the audience’s response was not overly enthusiastic. The topic simply remained too scientific and lacked emotional appeal.

45 | Nye: *Narratives and Spaces*, 78.

46 | The United States presented the AGN-211, an operating nuclear research reactor with an output of 1 watt, constructed by the Aerojet General Nucleonics Corporation in California.

47 | “Islands for Living”, NARA, RG 43, Entry P 16, Box 20.

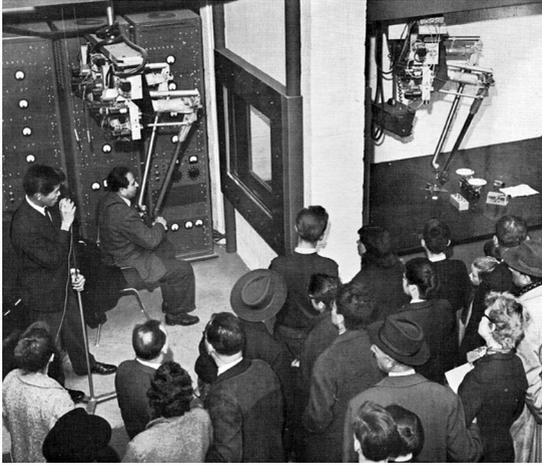


Figure 8: Nuclear Energy Exhibit, American Pavilion, Brussels Expo, 1958.

But a closer inspection of the copious American records on the displays in Brussels reveals that it was private consumption rather than atomic energy anyway with which the Americans hoped to win the hearts of the people. That the danger of falling short of the public's expectations worried many of the organizers – most of all the exhibition's commissioner general Howard S. Cullman – becomes clear in one of his warnings to an assistant to the U.S. President in December 1957 when he relayed the words of one of his aides: "It becomes more and more apparent we would be derelict in our duty if we did not point out with all possible emphasis the kind of representation the Russians plan to put on in Brussels next year. It is propaganda with a capital P."⁴⁸ The war was apparently on and the United States decided to wage it on the terrain they knew best, America's

48 | Letter of Howard S. Cullman to Honorable Sherman Adams, December 12, 1957, NARA, RG 59: General Records of the Department of State, 1763-2002, Records Relating to the Brussels Universal and International Exhibition, compiled 1956-1959, Entry 5108, Box 2. Securing a sufficient budget for the American exhibit in Brussels remained difficult. According to a German news magazine, the Soviets' investment into the fair (126 million) doubled that of the United States (63 million). "Babel in Beton", in: *Der Spiegel*, 09.04.1958, 46.

comfortable and enjoyable but also energy-intensive consumer lifestyle. In Cullman's words, they tried to "present those highlights of life in our country which are most demonstrative of ever-increasing cultural activity in the face of technologically increased leisure and our accomplishments in improving the conditions of living of every American."⁴⁹

To achieve this goal, Cullman's office had brought together a special committee consisting of fifty representatives from the intellectual, industrial, academic, diplomatic and artistic elite. In conjunction with the Massachusetts Institute of Technology (MIT), five themes were developed to be exhibited in the pavilion: Land and People, Life and Work, American Idealism in Action, Culture, and Science and Technology. Providing the "ideological glue" for the exhibitions were the underlying messages that "Americans are distinctly dynamic, energetic, impatient and restless for change, and that because of the vastness of America, the diversity of our people and the free conditions pertaining to American enterprise, thought and action, we are committed to constant, unremitting search for an improved way of life."⁵⁰ In view of the latest propaganda disaster, namely the Soviet Union's successful launching of the first human-made object into the earth's orbit, America had already dangerously fallen behind in the propaganda battle. In Cullman's opinion as he expressed it to President Eisenhower, it was of utmost importance to make sure that the Brussels fair wouldn't result in a similar debacle: "Properly handled, this could be a strong public relations weapon in combating Communist propaganda. With bungling, we could have a bombshell that could score a resounding victory for the other side. It seems to me it is vitally important to our whole foreign policy."⁵¹ Setting about their task, the exhibition design team under

49 | "Statement by Howard S. Cullman, United States Commissioner General to 1958 Brussels Universal and International Exhibition", NARA, RG 59, Entry 5108, Box 2.

50 | "A Report on Certain Considerations Involved in the Operation of an Exhibits Pavilion at a World's Fair. Prepared by the Staff of the United States Pavilion at the Brussels Universal and International Exhibition, 1958. January 1959", NARA, RG 306: Records of the United States Information Agency (USIA), Records Relating to USIA Expositions (World's Fairs), 1959-1993, Entry 1058, Box 5, 7.

51 | Howard Cullmann to President Eisenhower, November 12, 1957, NARA, RG 43, Entry P 16, Box 22. The press shared Cullman's assessment as can be seen in the many articles bearing titles such as "Fair Warning", "Big Chance at Brus-

the leadership of Peter G. Harnden developed a multitude of small display units covering art, technology, culture, politics, food and entertainment. Situated in the airy two-level interior of the American pavilion designed by Edward D. Stone, some of the individual thematic clusters dealt with automation, color television, city and industrial planning and typical American shopping in the so-called ‘Streetscape’. An American diner-like restaurant and voting machines completed the ‘American experience’ while the “Face of America”-display gave the audience the possibility to acquaint themselves with typical American things such as a section of a California redwood, a Ford automobile, tumbleweed, the first Edison electric light bulb, a gold nugget or an Idaho potato.⁵² All of these exhibits were supposed to contribute to a favorable picture of the United States by adhering to six basic guidelines: avoid fragmentation – positive approach – accent on the future – subtle approach – visitor reference point – economic integration in the United States.⁵³

In the conflict between the Western and Eastern bloc that was a cultural as much as a political and technological battle, home furnishings and lifestyle consumer goods soon became flagships of their respective system. It comes as no surprise, therefore, that kitchens and their appliances also found their way into the American pavilion at the Brussels fair. That a kitchen embodies “the ideology of the culture to which it belongs”⁵⁴ was especially relevant for design team member Katherine Howard, who early on argued for a full-fledged model kitchen like the ones displayed at Marshall Plan-sponsored exhibitions in Germany and other West European countries:

“[W]e must not lose sight of the fact [...] that first and foremost we are engaged in a psychological battle to win the uncommitted nations to the free way of life. [...] It is one of the wonders of the world that Americans in every economic strata

sels”, “Empty Show Window at Brussels?”, “Uncle Sam in the Shade”, “Our Best Diplomacy!” and “Let’s Show Reds” to be found in the clippings collection with the NARA Records, RG 59, Entry 5108.

52 | “A Report on Certain Considerations”, NARA, RG 306, Entry 1058, 10.

53 | “Theme Development. Staff Discussions, November 6, 1956”, NARA, RG 43, Entry P 16, Box 8, 2.

54 | Ruth Oldenziel/Karin Zachmann: “Kitchens as Technology and Politics: An Introduction”, in: Oldenziel/Zachmann, eds. *Cold War Kitchen. Americanization, Technology, and European Users*. Cambridge, MA: MIT Press, 2009, 2.

have kitchens with labor-saving devices which free the American woman from drudgery, which make the kitchen the heart of the home.”⁵⁵

Howard’s conventional approach to exhibition design, however, lost against the more experimental visions of Harnden and Cullman.⁵⁶ Nevertheless, her idea to showcase the manifold consumer choices open to Americans of any social and economic standing was incorporated and even taken to another level in the “Islands of Living.” Here, over 1,000 objects – household appliances, toys, sports goods, office equipment and general gadgets – were displayed, demonstrating “not only the high design standards and beauty of America’s everyday living equipment, but also diversity, utility and convenience.”⁵⁷

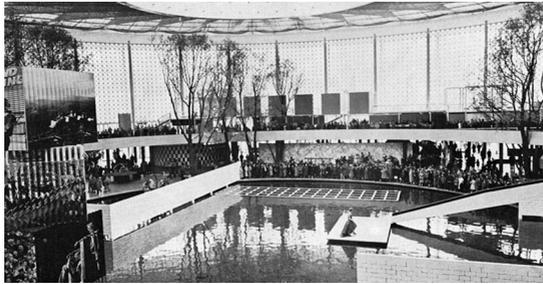


Figure 9: View from the Balcony onto Ongoing Fashion Show, American Pavilion, Brussels Expo, 1958.

Part of this concept was a fashion show which took place several times a day and regularly drew high numbers of spectators. Dressed in the latest American fashion, models paraded through the islands, interacted with the

55 | Howard to Cullman, memo, October 31, 1957, Katherine G. Howard Papers, Dwight D. Eisenhower Library, Abilene, KS, Box 25, Folder “Confidential Mrs. Howard”, p. 1, qtd. in Robert Haddow: “Material Culture Exhibits in the American Pavilion at the 1958 Brussels World’s Fair: Women’s Clothing, Men’s Gadgets, Hot Dogs and Haute Couture”, in: *Popular Culture in Libraries* 2:3 (1994), 64.

56 | For an account on the debates about the kitchen display see Robert H. Haddow: *Pavilions of Plenty. Exhibiting American Culture Abroad in the 1950s*. Washington, DC: Smithsonian Institution Press, 1997, chapter 6.

57 | “A Report on Certain Considerations”, NARA, RG 306, Entry 1058, 13.

objects and descended from the balcony level onto a slab across the pool at the center of the pavilion.

In the tense climate of the Cold War, this strong focus on consumption and lifestyle provoked mixed reactions. A flood of letters reached the American commissioner general and the American President in the weeks and months after the fair's opening. Many of them complained about the fragmentary design of the exhibits, the too subtle 'propaganda' lacking informational give-away brochures for foreign visitors and the meaningless fashion show.⁵⁸ Instead of "useless street signs and other odds and ends", some citizens called for "model homes, furniture, appliances, automobiles, trailers, camping and barbecue equipment [... demanding to] show American life as it really exists, and pride automatically will replace our shame."⁵⁹ These often bluntly voiced opinions were supported by official audience evaluations stating that the American pavilion in almost all respects was outranked by that of the Soviet Union. The fashion show, despite having drawn high numbers, actually ranked first as the least-liked display in the entire pavilion.⁶⁰

Even though neither the displays nor the controversy ensuing around it really centered on the atomic energy exhibit, the American pavilion nevertheless had a great significance for postwar energy history as it was exactly this subliminal character of the energy narrative underlying the exhibition that would become important. The American pavilion celebrated consumption practices that would become a model for many Western European societies⁶¹ in the years to come and thus contributed to the spreading of a careless high-energy consumption mentality. While the scientific background of potentially infinite energy resources by means of

58 | Letter from Jaquelin H. Hume to the President of the United States, September 23, 1958; Letter from Arthur Cherkin to Gerson H. Lush, Department of State, June 26, 1958; both NARA, RG 43, Entry P 16, Box 11.

59 | Letter by Richard Van Zele to the Department of State, June 7, 1958, NARA, RG 43, Entry P 16, Box 11.

60 | Program and Media Studies PMS No. 29, "Visitor Reaction to the United States versus Major Competing Exhibits at the Brussels International Fair", Office of Research and Intelligence, USIA, July 1958, NARA, RG 43, Entry P 16, Box 11.

61 | See Victoria de Grazia: *Irresistible Empire. America's Advance through 20th-Century Europe*. Cambridge, MA: Belknap, 2005; Oldenziel: *Cold War Kitchen*.

nuclear fission had been meant to take center-stage at the Brussels fair, it was really the lifestyle in reach for an increasing number of people based on “diversity, mobility, portability and disposability”⁶² that made people go into raptures. Behind fashion, food and fun, energy in its physical and technological nature disappeared out of sight as if bikinis, hamburgers and television sets were entirely energy-insensitive in production and consumption. In the end, the American pavilion left its visitors with the impression and confidence that energy abundance was secured by the means available to scientists and engineers and that consumer paradise was just around the corner for everyone and – yet again – at no sacrifice at all.

INTERNATIONAL ENERGY EXPOSITION, KNOXVILLE, 1982

This assessment would of course change dramatically over the next two decades. As the postwar economic boom set in, bringing industrialization to more countries around the world, the demand for cheap energy sources increased dramatically. Finally, in the 1970s the world was shaken by the oil price crises that – for many rather abruptly – turned the narrative of abundance into one of scarcity.⁶³ Whether the energy shortage was due to natural causes as the world approached peak oil or a result of artificially constructed limitations of supply is irrelevant for this paper. What matters is that energy was high on the agenda of politicians and economists and vividly present in the media. It comes as no surprise, therefore, that the exposition in 1982 taking place in Knoxville, Tennessee was chosen to run under the theme “Energy Turns the World.” Modeled in many respects on the 1974 Spokane world’s fair which had distanced itself from technocratic approaches and focused on the topic “Celebrating Tomorrow’s Fresh New Environment”, the Knoxville fair was conceived by local businessman and executive director of the Downtown Knoxville Association W. Stewart Evans. Although one of the smallest cities ever to host a world’s fair, Knoxville was by no means an accidental choice. Home to the University of Tennessee’s energy research center and the Tennessee Valley Authority’s headquarters, the city was also close to the Oak Ridge’s National Atomic Laboratory

62 | “Islands for Living”, NARA, RG 43, Entry P 16, Box 20.

63 | Nye: *Narratives and Spaces*, 80.

and rich oil fields in the surroundings. Despite its topical motto, the fair turned out to be rather traditional, uninspired, even boring if we believe contemporary assessments. Although many of the participating nations made an effort to incorporate the theme into their presentations, most of them ended up re-activating the same cultural displays that had been a staple for over 50 years.

Despite its limited significance for the history of world's fairs in general, the Knoxville exposition is interesting for the topic of this paper as it signifies the shift of energy narratives in the 1970s and 80s in the United States. Firmly anchored in Republican energy politics, the fair of 1982 gave expression first to the narrative of artificial scarcity brought about by foreign hands to be remedied by human ingenuity only to finally return to energy abundance and security.

The primary stage for this succession of narratives from scarcity to abundance by way of ingenuity was the American pavilion which was supplemented by the landmark building of the fair, the Sunsphere. This steel tower topped with a glass globe symbolized the sun and its enormous energetic potential. Inside, however, there were no exhibitions but two observation desks, a dining room, a restaurant and their kitchen. Huge solar collectors on the roof provided power for the air conditioning and hot water system.

The pavilion told America's "energy story" presenting all nine energy sources used in the United States at that time in separate glass towers. Artifacts "suspended in a beam of light" were joined by photographs and a multi-media presentation depicting "a geographical survey of our nation's abundant energy resources." Energy as basis for America's technological advancement and society's affluence was the underlying statement of another display in which historical artifacts ranging "from a metal bed warmer used in 1816 to parts from an IBM-360 computer" showed "energy's importance as a central factor in our society's growth."⁶⁴ Again, energy abundance and modernity, progress and material comfort were so closely linked as to not allow for any critical questioning. Ten years after the appearance of *The Limits to Growth* (1972) and Jimmy Carter's call to "balance our demand for energy with our rapidly shrinking resources", economic growth and energy consumption were still inextricably linked

64 | United States Department of Commerce Expo '82 News: "The Energy Place", Sl, Larry Zim World's Fair Collection, Box 38.

in the designs of the pavilion's displays. What had been declared a "test [of] character of the American people" and a "moral equivalent to war" by Carter had been reduced to lip-service to conservation and efficiency efforts by the exhibition designers.⁶⁵ The story told in the American pavilion was not so much about past mistakes or necessary adjustments in politics and practices, but rather a reaffirmation of the capitalist energy-intensive society powered by fossil resources and well-established technologies only to be supplemented, not substituted by renewables.

Oil price crises, scarcity and environmental problems were presented as mere bumps in the road to eternal energy bliss while technology was seen as the key to mastering temporary bottlenecks in supply. In fact, it was not so much the energy resource but rather the technology used for its exploitation that was center-staged in Knoxville. This also became clear in corporate exhibits by Sun Co. (Sunoco) featuring solar energy technology, Occidental Petroleum and Tenneco, Inc. showing the extraction of oil from shale or United States Steel's Oilwell Division which exhibited the 'good old' oil well that had already done the job in Chicago in 1933. All these displays relied on the expressive power of technology as humanity's tool in the advancement of civilization.

Consumption practices clad in the untouchable premise of economic growth and a rising standard of living were not questioned. Even efforts in energy efficiency and conservation were propagated not in terms of saving but 'freeing' energy, making it available for even more consumption and industrial growth. The "Home of the Future" by Cathedralite Inc., for instance, was fitted with a state-of-the-art heat reflective roof system, insulated shades, a heat pump for climate control, but also with a machine park of KitchenAid appliances.⁶⁶ The message of this arrangement was clear: Save energy by using efficient technology and you may use as much energy as you like without feeling guilty or having to fear shortages.

Perhaps the most political of the fairs examined in this paper, the Knoxville exposition that had been initiated by Democrat Jimmy Carter "to

65 | Television Speech by President Jimmy Carter, April 18, 1977, WGBH American Experience, <http://www.pbs.org/wgbh/americanexperience/features/primary-resources/carter-energy/>, Accessed: 04.07.2011.

66 | Press Release Sher, Jones, Shear and Associates Inc., SI, Larry Zim World's Fair Collection, Box 38, 3.

think anew of man's relationship with the pervasive force of energy"⁶⁷, turned out to be clearly marked by Republican energy policies. Redefining his predecessor's existential narrative as a narrative of artificial limitation brought about by foreign enemies and misguided policies at home, Ronald Reagan used the fair for propagating energy-intensive production and consumption as assurance against industrial decline, impoverishment and communism:

"We have seen the havoc and felt the pain brought on when vital energy sources outside our influence have been cut off. We have seen our economies manipulated, our industries hamstrung and our people squeezed between scarcity and inflation. [...] The previous administration tried to manage a shortage by interfering with the market process. [...] [I]f America is to provide for her energy security, if we are to continue growing more self-reliant, if we are to free ourselves from foreign pressure, we must press toward the ultimate solution to our energy problems: The decontrol of all our energy sources[.]"⁶⁸

The Knoxville exposition thus forfeited its chance of redefining both the energy narrative and the display modes to convey it. In a way, it even represents a regression from the de-technologized landscapes of modern living that had characterized the American pavilion in 1958. In contrast to Brussels, the Knoxville displays focused on technology as a salutary force in the fight against energy limitations. Simultaneously architectural element and artifact, the individual technological objects displayed were a symbol for America's – real or faked – belief in the omnipotence of technology to overcome any obstacle while remaining silent on any negative consequences for environment, society and culture. It comes as no surprise that the world did not remember Knoxville 1982 for its role in the environmentally informed energy discourse, but for the introduction of 60-minute color photo processing and Cherry Coca-Cola.⁶⁹

67 | "The Exposition", press kit, SI, Larry Zim World's Fair Collection, Box 56, 3.

68 | The White House, Office of the Press Secretary: "Remarks by the President at the Opening of the 1982 World's Fair", May 1, 1982, SI, Larry Zim World's Fair Collection, Box 38, 1-3.

69 | "The 1982 World's Fair. You've Got to Be There!", NARA, RG 306: United States Information Agency, Records Relating to Universal and International Exhibitions, compiled 1966-1999, Entry 1092, Box 2, 3-4.

CONCLUSION

Surveying energy-related displays by governments and companies over the course of almost a century of world's fairs, it has become clear that primarily two types of discourses have been at work. One is the blatantly promotional discourse of utility companies and consumer goods manufacturers. The other one, less overtly but nonetheless influential, is the general narrative of energy abundance underlying even those displays that are seemingly unrelated to energy issues or those emphasizing human ingenuity and/or energy scarcity. Both discourses depend upon each other, but it is the hidden one that has influenced the way we think about and consume energy. The American world's fairs' significance lies in their construction and communication of a careless attitude towards energy consumption which may or may not have been consciously pursued, but which surely served as a role model for many societies. From the early presentations of electricity in Chicago to atomic energy in Brussels to renewable energy technologies in Knoxville, the fairs have perpetuated energy narratives and to some extent contributed to growing energy oblivion. No matter which energy source we are dealing with, the narrative of natural abundance – or its transformed version of ingenious engineering that secures and prolongs that abundance – is shaping the displays. Aided by historical circumstances, industrial and private energy consumption was inextricably linked to economic growth, social progress and individual comfort in all of the fairs discussed.

Nevertheless, although the underlying message stayed the same, the modes of mediation by exhibitionary means changed. While early displays of electricity had been meant to educate and familiarize with a completely new energy source, later fairs concentrated on the contextualization of energy – especially electricity – as fundamental prerequisite for everything that was good about America: modernity, prosperity, democracy. For a certain time in the first half of the 20th century, the technological object was pushed back in favor of the display of readymade consumer goods and utopias of modern living. Understanding how things worked became less important; one only needed to know how to use them. Instead of singular objects, dioramas, mural art and model homes created 'landscapes' of modern life that presented production and consumption as a seamless

process devoid of friction.⁷⁰ Culminating in Brussels, exhibition makers reduced energy technologies to an adjunct of their displays paying tribute to what might be called the ‘consumption sublime’.

The energy crises of the 1970s and to some extent the beginning environmental movement could not go unnoticed by world’s fairs. However, they did not result in a revision of consumption practices – at least not on a large scale – but rather in a return of the technocratic outlook. The problems – and there were many – would be solved if only scientists, engineers, industrialists and consumers believed in technology again. The practices of how this energy technology was used, which technology was to be favored and how to save energy instead of shifting the resources to be tapped was not prioritized. The average consumer as actor in the drama of energy was left out of the picture in most of Knoxville’s displays.

Having taken a look at the world’s fairs discussed in a long line of development, it becomes clear that energy has been dematerialized over the course of the 20th century. As the processes of its production and distribution became disconnected from peoples’ lives, energy was reduced to a commodity coming out of wall-sockets. The raw materials depleted for the production of energy – coal, gas, oil, uranium – and the risks connected with them, were shunned. The fixation on the consumption aspects resulted in increasingly scenic presentations that favored vision and hearing over tactile sensation. Finally, and this makes exhibitions so intriguing to study, these developments at the same time prevented the complete abandonment of object-centered displays. It was exactly *because* of the tendency towards scenography that model homes retained their popularity. Both modes of presentation prove to be mutually dependent in the world’s fairs of the 20th century: While the ‘landscapes of experience’ created imaginative visions permeated with ideology, object-centered displays offered tangibility and points of identification in an increasingly complex (energy) world.

70 | Laura Burd Schiavo: “Modern Design Goes Public. A Photo Essay”, in: Robert W. Rydell, ed. *Designing Tomorrow. America’s World’s Fairs of the 1930s*. New Haven, CT: Yale University Press, 2010, 122.

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