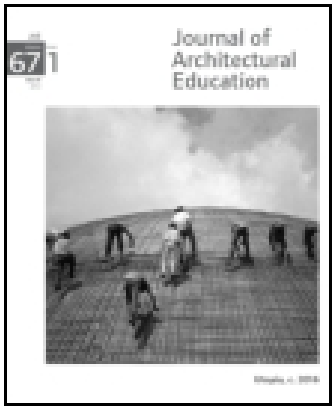

Journal of Architectural Education
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/rjae20

Energy Regions: Production Without Representation?

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Published online: 14 Oct 2014.

To cite this article: Rania Ghosn (2014) Energy Regions: Production Without Representation?, Journal of Architectural Education, 68:2, 224-228, DOI: 10.1080/10464883.2014.937240

To link to this article: http://dx.doi.org/10.1080/10464883.2014.937240

Energy Regions
Production Without Representation?

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Projections about oil depletion, the surging global demand for power, and the need to manage climate change combine to cultivate imaginaries in the form of energy regions. For governments and corporations, some change needs to occur, whether technological innovations or geopolitical realignments, to fix the present energy condition and ensure that markets are securely supplied. Shifting from decentralized technologies to incorporation into the design of landscapes, cities, and regions, the design challenges of renewable energies have been recast into discourses that celebrate the sustainability of productive regionalism. Such projects bring to the forefront questions of the "politics of sharing" embodied in landscapes of production, particularly as these visions often extend beyond the boundaries of the nation-state to define new regions. How do these projects negotiate the "character" and "capacity" of regional identity while simultaneously delimiting spatial boundaries? And equally significant, who occupies the privileged insides of such productive regionalisms, and who is relegated to the marginal outsides? This micronarrative is about the politics of representation in the construction of regions of energy. It asks: what is the proposed political contract and what constitutes the form of the collective for resource sharing at the scale of the region?

The 1970s marked the end of cheap, abundant, and guilt-free petroleum. Long queues at the pump materialized the threats of foreign oil dependency following the 1973 Arab oil embargo. The world came to consider the finitude of resources, risks of supply, and environmental costs of fossil fuels. Widely circulated books like Rachel Carson's *Silent Spring* (1962), Paul Ehrlich's *The Population Bomb* (1968), and Club of Rome member Donella H. Meadows's *The Limits to Growth* (1972)[1] argued that humanity's lack of concern for the environment produced a dangerous imbalance in the ecosystem. Architecture's response to the crisis, as documented by the Canadian Centre for Architecture exhibition and catalog, *Sorry, Out of Gas*, triggered research on renewable energy sources and sparked social experiments on a world no longer accustomed to a plentiful supply of inexpensive fossil fuels.[2] While many projects right after the oil crisis built on the lineage of the solar house experiments and its potential relevance to urban living, others drew on an integrated, ecologically interrelated approach as suggested in earlier decades by Buckminster Fuller's *Operating Manual for Spaceship Earth* (1968) and *World Game* (1961).[3] World Game offered teams or individual players the means of exploring the use of resources available on Earth toward a better standard of living for humanity. According to its creator, the objective of World Game was to "to make the world work, for 100% of humanity, in the shortest possible time, through spontaneous cooperation, without ecological offense of the disadvantage of anyone."[4] Fuller's work constitutes a salient legacy for contemporary practices in a few ways. First, the implementation of the World Game, an educational simulation, required compiling an expansive database of quantitative and qualitative statistics on the question of the distribution of global resources, a model that cultivates and proliferates tools often associated with contemporary practices of "design research."[5] Second, the framing of the energy question at scales beyond that of the detached building favored a mode of practice that privileged not only systemic thinking and a larger-scale approach to technology but also a model of the world that operates for the benefit of all its inhabitants.

Some contemporary practices have similarly expanded the planning for energy transitions from the scale of the building to that of the region. Over the last decade, AMO, the design research arm of the Office of Metropolitan Architecture (OMA), has explored the possibilities of a new energy policy in Europe in relation to climate and security concerns in projects such as *Zeekracht* (2008), *Roadmap 2050: A Practical Guide to a Prosperous, Low-Carbon Europe* (2010), and *WWF Energy Report* (2011).[6] Toward this new architecture, AMO has contributed graphic narratives about the geographic, political, and cultural implications of a zero-carbon power sector. Echoing Buckminster Fuller's 1969 proposal for the creation of a "Global Energy Electric Grid," AMO has also proposed configurations of energy networks that capitalize on geographical diversity to integrate renewable energy sources in continental energy grids.

In 2010, AMO proposed *Roadmap 2050: A Practical Guide to a Prosperous, Low-Carbon Europe,* sharing a vision for a decarbonized power sector that capitalizes on Europe's geographical diversity to integrate renewable

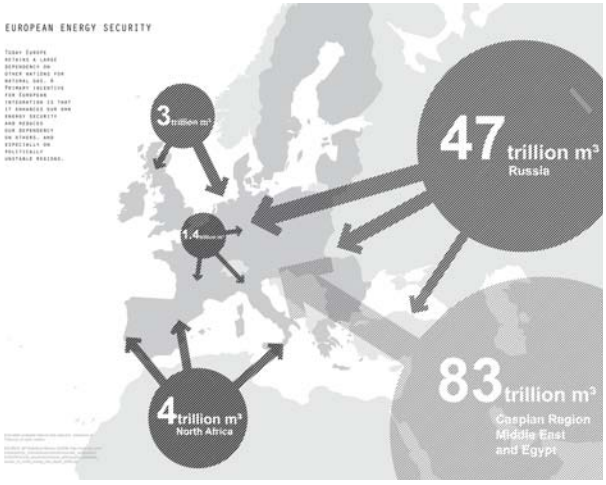


Figure 1. European Energy Security. From *Roadmap 2050*, 2010. (© OMA)

Figure 2. Map of Eneropa. From *Roadmap 2050*, 2010. (© OMA)

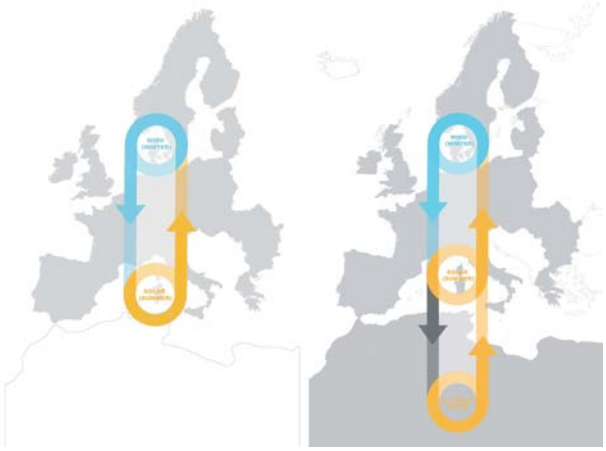


Figure 3. Diagram of Benefits of North African Solar. From *Roadmap 2050*, 2010. (© OMA)

energy sources in a continental power grid. The report defines the mission of *Roadmap 2050* as follows: "to provide a practical, independent and objective analysis of pathways to achieve a low-carbon economy in Europe, in line with the energy security, environmental and economic goals of the European Union."[7] *Roadmap 2050* proposes the reduction of geopolitical dependence on "unstable regions," such as the Gulf region, Russia, and North Africa by conceptually reconfiguring the geography of the continent away from well-rehearsed political boundaries and into emerging energy regions (Figure 1). Eneropa, the new energy region, redefines European territories by their energy sources; Ireland and the western half of England are the "tidal states," while the eastern half forms part of the "isles of wind." Former Yugoslavia is reunited as "Biomassburg." Most of Spain, Italy, Greece, and some of North Africa become "Solaria" (Figure 2).

The semantic and visual language of *Roadmap 2050* extends AMO's contributions to the construction of a regional imaginary and an enlarged Europe. Recognizing both the agency of recasting landscape imaginaries and the efficacy of geopolitical renaming, AMO branded a generic subjectivity of the European Union, allowing this "self" to produce its own order of productively heterogeneous space. In May 2001, following the treaty of Nice in which Brussels was appointed capital of the European Union, AMO was invited to collaborate in a series of brainstorming sessions about the needs and functions of a European capital. Beyond addressing Europe's presence in Brussels through the architecture of institution buildings, AMO emphasized the importance of an iconographic Europe to communicate the significance of redrawing economic and political boundaries to a general public. In 2004, AMO was commissioned by the European Union to study its methods of visual communication and, in response, designed a series of illustrations, or "image-bites," the most salient of which is a colored "barcode" flag for the EU combining the flags of all of the member states. Similarly, the Roadmap 2050 "image-bites" do for EU energy regions what the "barcode" flag did for its economic regions, representing the promise of proposed global resource infrastructures on the European landscape. A series of images, one per energy region, populate "natural" infrastructures with inflatables, sunshine, and children's

Figure 4. Rendering of Solaria. From *Roadmap 2050, 2010*. (© OMA)

smiles, rendering effective and desirable the promises of energy sources in the eyes of European consumers.

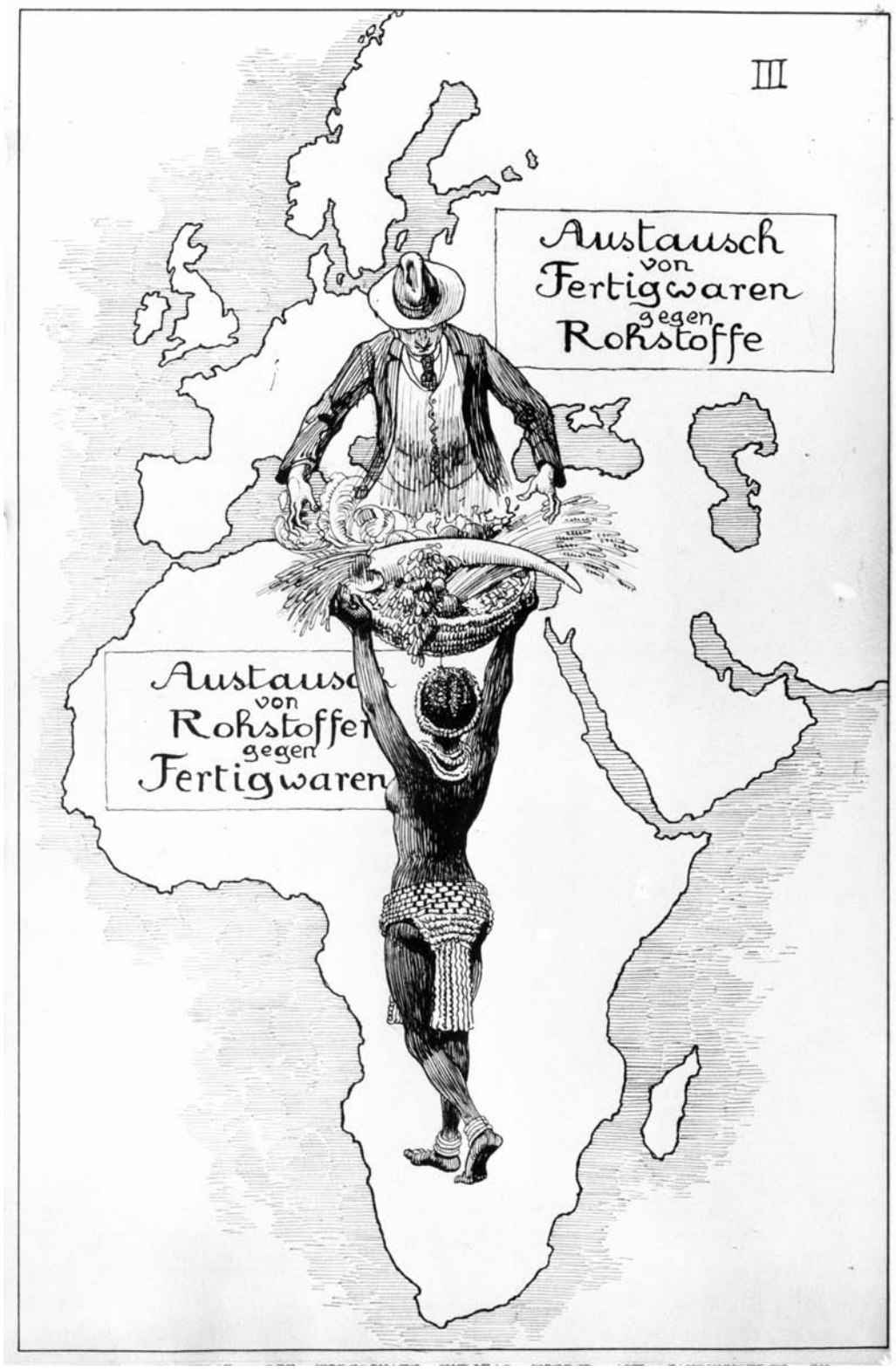
Such images of consensual difference are disturbed by the geographic contradictions at work in *Roadmap 2050*, particularly with respect to the paradoxical status of Solaria in the project. By drawing Spain, Italy, and Greece, three of the European Union's most troubled economies into a unit with North Africa around the sunny Mediterranean, Solaria propagates known "southern" geographical stereotypes within the body of the European Union. Furthermore, in extending to the African side of the Mediterranean, Solaria represents North Africa as a necessary component for a productive European energy network, while eschewing its inclusion as a desirable part of the EU political body.

AMO's narrative for Solaria reads as follows. The proposed 100% Renewable Pathway requires the introduction of solar technologies from North Africa.[8] However, investments in North African energy "raise a lot of issues … about dependence and geopolitics."[9] Solaria embodies the geographic paradox of North Africa: it expands the scale of the EU energy network to North Africa, while maintaining the propriety and stability of the political body of Europe. The *Roadmap 2050* diagrams illustrate how the geography is selectively represented: within the exchange cycle between North and South and outside of the political reconstruction of Eneropa (Figure 3). The associated rendering, "Parisian Energy from Sahara Sun," further illustrates Europe's historical relationship to its North African productive hinterlands (Figure 4). On one side of the Mediterranean, France is embodied in the Parisian Eiffel Tower; while on the other side, a caravan of camels travel across a field of solar panels. The Sahara is significant only insofar as it hosts the territorial demands of energy technologies measured in square meters. The image simultaneously decomposes the energy system into insular solar panels, while exiling the geography of production to a distant tabula rasa recognizable only to its camel inhabitants.

Can such designed regions represent something new, or are they simply a reconfiguration of latent power relationships? The positioning of Solaria, *within* production and *outside of* political representation, echoes a genealogy of European visions and projects for North Africa in which Nature is called upon to perform and procure, while simultaneously naturalizing and depoliticizing the geographies it occupies. In the 1920s, Herman Sörgel, a German architect collaborating with Peter Behrens and Erich Mendelsohn, designed a reclamation megaproject called "Atlantropa," which encompassed the Mediterranean Sea Basin and the Sahara (Figure 5).[10] The proposal called for a 35-kilometer-long hydroelectric dam across the Strait of Gibraltar, representing the Mediterranean South as a huge power plant that could ensure energy and economic security for an enlarged Europe. The project remained hypothetical; however, later in the century, subaqueous gas pipelines laid under the Mediterranean Sea linked the oil and gas fields of Africa to European markets.

Design practices and visions, such as *Roadmap 2050*, rightly expose the environmental costs of fossil fuels, propose a shift in modes of energy use and consumption, and emphasize the increasing spatial demands of energy systems as the shift from mineral-excavation to surface-based production systems is realized. Provocatively, however, by equating regions with their "natural capacity," the proposed low-carbon scenarios present techno-natures as salvation, echoing a longer history of natural fixes to social problems. In 1833, Joseph Adolphus Etzler, a young German engineer, published a utopian treatise promising a *Paradise within the Reach of All Men, Without Labor, by Powers of Nature and Machinery*. The inscription on the frontispiece offered an immediate gloss to this spatial ideal, "where the whole face of nature is changed into the most beautiful form of which it

Figure 5. Illustration depicting the economic exchanges between Europe and Africa. Drawing by Herman Sörgel.



be capable. ... Nature affords infinite powers and wealth."[11] Conceptualizing energy as the ability "to make nature do work" evades the basic question of what social values and cultural costs these projected landscapes will materialize.[12] "Clean" energy seems to purge, or at least mask, dirty matters of geography, simultaneously perpetuating a series of myths, notably, that "any newly discovered source of energy is assumed to be without faults, infinitely abundant, and to have the potential to affect utopian changes in society. These myths persist until a new source of energy is deployed to the point that its drawbacks become apparent and the failure to establish a utopian society must be reluctantly admitted."[13]

Furthermore, the externalization of geography continues to sustain the myth of eco-friendly growth, because it slides costs to the periphery, the desert, out of sight. In the age of fossil fuels, the production of energy, in distant grounds and underground, contributed to keeping the infrastructure of energy out of sight in territories of extraction. Indeed, high-energy urbanism rests on the industry's capacity to divest itself of the environmental and political transformations brought about by the global expansion of the extractive frontier. Why does it matter that energy regions be geographically imagined? The conversion of energy is essentially a political-ecological project, and the naturalization of the space of energy leaves unaddressed the basic question of what political and environmental relations such landscapes will materialize. A geographical imagination unfolds the spaces of energy and renders visible transformations in landscapes and livelihoods that occur as regions are incorporated into systems of energy.[14] The geography of energy emphasizes the political assumptions underlying such visions—the actors involved, the negotiations that characterize their operations, and their ecological repercussions. Optimistically, the lively debate over the (next) mode of energy will invite a geographic examination, foreseeing, and possibly avoiding, the perpetuation of uneven power geographies in the sunbelts, fields, and wind corridors of the world.

Author Biography

Rania Ghosn is an Assistant Professor of Architecture at Massachusetts Institute of Technology and partner at Design Earth. Her work critically frames the urban condition at the intersection of politics, aesthetics, and technological systems. Ghosn holds a Doctor of Design from Harvard Graduate School of Design. She is Founding Editor of the journal *New Geographies* and Editor-in-Chief of the third issue, *NG2: Landscapes of Energy*. Her recent publications include essays for *Thresholds*, *Bracket*, *Perspecta*, *JAE*, *MONU*, and *NG6: Grounding Metabolism*.

Notes

1 Rachel Carson, *Silent Spring* (Boston: Houghton Mifflin, 1962); Paul Ehrlich, *The Population Bomb* (New York: Ballantine Books, 1968); Donella H. Meadows, *The Limits to Growth* (New York: Signet Books, 1972).

2 Giovanna Borasi, Mirko Zardini, et al. *Sorry, Out of Gas: Architecture's Response to the 1973 Oil Crisis* (Montreal: Canadian Centre for Architecture; Montova: Corraini Edizioni, 2007).

3 Buckminster Fuller, *Operating Manual for Spaceship Earth* (Carbondale: Southern Illinois University Press, 1968). For an overview of World Game, see Joachim Krausse, "World Game," *Your Private Sky: R. Buckminster Fuller* (Baden, Switzerland: Lars Müller, 1999), 464–497.

4 Borasi et al., *Sorry, Out of Gas* (see note 2 above), 193. For more on the subject, see R. Buckminster Fuller, "World Game," in his *Critical Path* (New York: Saint Martin's, 1981): 198–226. On the history of the Solar House, see Daniel A. Barber, "Experimental Dwellings: Modern Architecture and Environmental Research at the M.I.T. Solar Energy Fund, 1938–1963" in *A Second Modernism: Architecture, MIT and the "Techno-Social" Moment*, ed. Arindam Dutta (Cambridge, MA: MIT Press, 2013): 283–316.

5 See, e.g., Amy Kulper and Sheila Crane, "Designing Agency: The New Heuristics," *Journal of Architectural Education* 68, no. 1 (March 2014): 2–4.

6 OMA/AMO, *Zeekracht: A Masterplan for a Renewable Energy Infrastructure in the North Sea*, 2008, http://oma.eu/projects/2008/zeekracht; see also OMA, "Zeekracht," in *Ecological Urbanism*, edited by Mohsen Mostafavi and Gareth Doherty (Baden, Switzerland: Lars Müller, 2010), 72–77; OMA/AMO, *Roadmap 2050: A Practical Guide to a Prosperous, Low-Carbon Europe*, 2010, http://www.oma.eu/projects/2010/roadmap-2050/; for full reports, see http://roadmap2050.eu/reports. OMA, WWF & Ecofys, *The Energy Report: 100% renewable Energy by 2050*, 2011, https://www.wwf.or.jp/activities/lib/pdf_climate/green-energy/WWF_EnergyVisionReport.pdf.

7 OMA/AMO, *Roadmap 2050* (see note 6 above), 27.

8 European Climate Foundation, *Roadmap 2050* (2010): 176, http://roadmap2050.eu/attachments/files/Volume3_VersionA.pdf.

9 Ibid.

10 Peter Christensen, "The Mediterranean as Expansionist Theater: The Case of Atlantropa," in *New Geographies #5: The Mediterranean*, ed. Antonio Petrov (Cambridge, MA: Harvard Graduate School of Design, 2013), 165–178.

11 John Adolphus Etzler, *The Paradise within the Reach of All Men, without Labor, by Powers of Nature and Machinery: An Address to All Intelligent Men* (London: John Brooks, 1836). See also Dolores Greenberg, "Energy, Power, and Perceptions of Social Change in the Early Nineteenth Century," *American Historical Review* 95 (1990): 693–714.

12 Ivan Illich, "The Social Construction of Energy," in *New Geographies #2: Landscapes of Energy*, ed. Rania Ghosn (Cambridge, MA: Harvard Graduate School of Design, 2010), 11–19.

13 George Basalla, "Some Persistent Energy Myths," in *Energy and Transport: Historical Perspectives on Policy Issues*, ed. George H. Daniels and Mark H. Rose (Beverly Hills, CA: Sage, 1982), 27.

14 Rania Ghosn, "Where Are the Missing Spaces? The Geography of Some Uncommon Interests," in *Perspecta 45: Agency*, ed. Kurt Evans, Iben Falconer, and Ian Mills (Cambridge: MIT Press, 2012): 109–116.