

STUDIO 2028 ***Speculating on Energy, Infrastructure and Architecture***



What will shape and extend our urban and ex-urban areas in the 21st Century?

As peak oil arrives and globalism accelerates, what will the dominate mode of energy storage and generation be? Energy generation in the American Southwest presents numerous challenges and opportunities given simultaneous abundance *and* lack of water, together with its exceptional potential for solar generation.

Hoover Dam is a concrete arch-gravity dam in the Black Canyon of the Colorado River, on the border between the U.S. states of Nevada and Arizona. In the early 20th century, the U.S. Bureau of Reclamation devised plans for this massive dam to tame the Colorado River and provide water and hydroelectric power for the developing Southwest. It was constructed between 1931 and 1936 during the Great Depression, the largest dam in the world at the time of its completion in 1935. This National Historic Landmark stores enough water in Lake Mead to irrigate 2 million acres and serves as a popular tourist destination.

Hoover Dam “is the focus of a distinctly 21st Century challenge: turning the dam into a vast reservoir of excess electricity, fed by solar farms and wind turbines that represent the power sources of the future.” The proposal supported by Mayor Eric Garcetti of Los Angeles and The Los Angeles Department of Water and Power; providing a model for California’s most imminent issue: developing an affordable and efficient power storage mechanism on a very large scale.

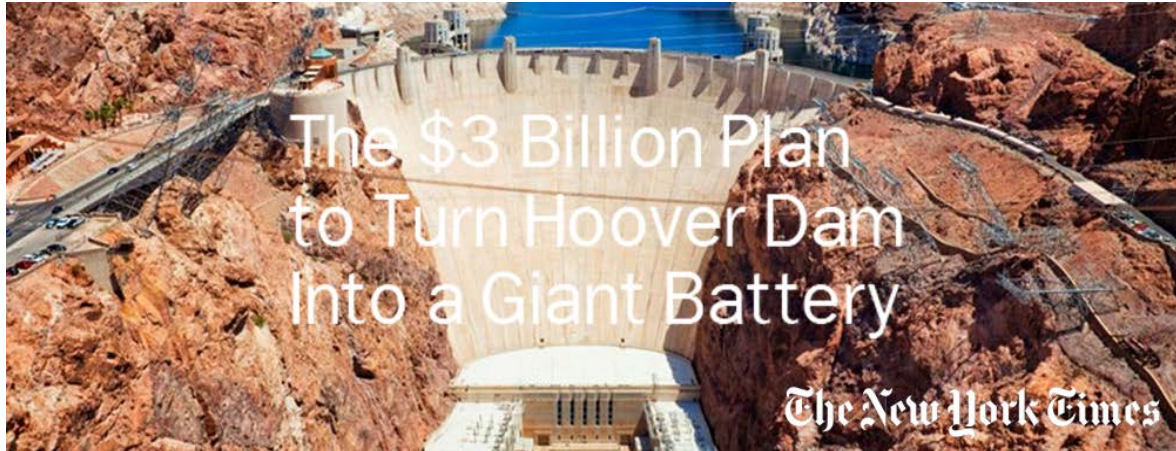
With a project of this scale, what are the unique opportunities for alternative power generation together with cultural production that could catalyze the site?

Can these systems synthesize sustainable development and provide public amenities as well?

California’s population continues to grow at accelerating rates each year. To sustain this increasing population, new forms of energy storage must grow. Most of this new growth must go into existing urban areas: how might remote areas such as this site might change, accommodate, engage and partner with energy production at a very large scale?

Are these systems more reflective of the US’s dominant ideology and easier to implement on a cultural, economic level than the systems modeled on European or Asian prototypes? In utilizing existing infrastructure, rather than conceiving anew, are we selling out our future to reuse what is fundamentally problematic? Is energy generation more likely to shape the urbanisms of the future in the globalized “instant age”? Are there clever methods of reuse that anticipate architecture and figure into the evolution of those systems?

At the core, what unique new hybrids and social arrangements are suggested by these potential future systems?



The \$3 Billion Plan to Turn Hoover Dam Into a Giant Battery, Ivan Penn, The New York Times July 24, 2018

Hoover Dam helped transform the American West, harnessing the force of the Colorado River – along with millions of cubic feet of concrete and tens of millions of pounds of steel – to power millions of homes and businesses. It was one of the great engineering feats of the 20th century.

STUDIO AGENDA

In this studio we will identify issues, imagine strategies, develop programs, and create designs for power storage and transfer, recreation and educational programs to be enacted on a site, twenty miles west of the Hoover Dam on the Colorado River. The class will analyze this complex and extra-large-scale physical environment through many trajectories: geophysical, historical, technological, political, cultural, and economic. We will look to develop proposals beyond the accommodation of the facility and propose public programs to partner at the site as well. The first phase of construction is planned for completion by 2028. Designs should project what life will be like in this near future scenario. Speculate changes in lifestyles, social behaviors, and envision how your designs may impact California's growing population.

Could issues of energy, ecology, together with public interface and recreation be our framework for thinking about Architecture and Infrastructure at this site?

Given this civic act of visionary will and the speculated completion date of 2028, how might architecture engage with this impending infrastructure?

Could this new infrastructure physically connect, and combine various types of industry such as tourism, commerce, entertainment, culture in innovative ways?

What are the potential environmental, scientific and aesthetic impacts of this project on the downstream recreation when considering demographics, land use, terrain, and industry.

Can Architecture be treated as leading or alongside infrastructure rather than an after thought?

How can Architecture galvanize projects around big ideas and capture new value for both the public and infrastructure?

What program would you propose to partner with this initiative?

The term “big” may be interpreted in many scales; is it an accumulation of small installations—or something of a tremendous infrastructural dimension and scope?

STUDIO STRUCTURE

Design work will progress concurrently with the research. Through case studies, comprehensive research, and design investigations, we will work to explore how the systems of energy storage, infrastructure, and ecology are integrated together with architecture in innovative ways. Students will work individually or in teams to develop programs and site strategies at the site location to formulate concept proposals. Each project will be developed as a thesis, and thus, defended and argued for at critical points during the semester.

Energy and sustainability issues are essential components and leading concerns for the studio and the studio projects. To take seriously this imperative, we will work closely with environmental engineers and structural engineers at critical points in the semester to test your ideas. Professor Visilis Fthenakis, an expert in renewable energy from Columbia and Brookhaven National Laboratory will consult with our studio.

Students will begin by critically mapping the site using GIS, among other data sources; and will make assumptions projecting how things may change by 2028 and beyond. The studio will participate in the GSAPP/GIS Tutorials to effectively benefit from the cartographic investigation. Additionally, the Studio will have the use of four 360 Theta Cameras in analyzing the complexities of the site and for immersive visualization of their projects.

The studio will make physical site model(s) and installation formats within which projects will be conceptualized, developed, and presented throughout the semester.

By midterm, each student or team will locate their project in the site to test their proposed strategy. This selected area of study as a detailed architectural proposal will be developed in the second half of the semester.

For the Final Review, students will present their site strategy, the production of a scenario, and the detailed development of their test site at an architectural scale using drawings, models, mock-ups, and large-scale sections.

Week 1- 3 360 Theta Camera Workshop and Concept Studies
Team Research Topics for Studio Colloquium
GIS + Studio Site Model development

Week 4-7 Studio Site models
Studio Research Colloquium
Studio Travel*

Week 8 Midterm

Week 9-11 Advanced Model and 360 Theta Camera immersive representations
¾ Review

Week 12-14 Large Sections
Final Review Documentation
Dec. 11 Final Review

*** TRAVEL - September 27-30**

Preliminary Itinerary: Hoover Dam, Solar One (large solar energy installation), the proposed site, and Double Negative by Michael Heizer.

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