The power of planning: ASU expert explores how retired nuclear power plants could be reused

By Dolores Tropiano, ASU News
October 14, 2026

Story highlights

- ASU Professor Martin Pasqualetti's recently published study explores what we should be considering when planning the repurposing of decommissioned power plant sites.
- 39 of the nation’s 72 commercial nuclear power stations have reached the end of their operating lives, leaving behind massive industrial sites.
- Pasqualetti says we need more precise guidance regarding the recycling potential of former power plant sites, and that it should involve local planning authorities, as well as mandatory and meaningful consultation with community stakeholders.

Nuclear power plants, like people, need plans for their retirement.

But during the building boom in the ‘60s and ‘70s, when power plants sprang up across the country to meet soaring electricity demands, a post-power plant world was not in the picture.

Over time, 39 of the nation's 72 commercial nuclear power stations reached the end of their operating lives, leaving behind massive industrial sites. While some became parks and others became preserves, many became symbols of short-sighted visions — and for people in communities built around many of these plants, they became an episode of Netflix's "Worst Neighbor Ever" brought to life.

According to Martin Pasqualetti, "Neither the utilities nor the regulatory authorities provided significant guidance on how power plant sites would be used after decommissioning."

Today, with renewed interest in nuclear plants, Pasqualetti, a professor at Arizona State University's School of Geographical Sciences and Urban Planning whose research focuses on energy and society, energy and land use, and renewable energy development, is exploring ways to reuse these abundant but abandoned sites.

"These places already have transportation access, electrical transmission infrastructure and a long history of supporting energy production," he said. "The question is how we can build on those assets to benefit communities in the future."

Pasqualetti, a fellow of both the American Association for the Advancement of Science and the American Association of Geographers, published a study exploring that question, "Recycling Nuclear Landscapes: The Unsettled Legacy of Power Plant Decommissioning."

ASU News spoke with him to learn more about it.

Note: The following interview has been edited for length and clarity.

Question: What prompted this study?

Answer: Look just about anywhere in our overcrowded world, and you will encounter conflicts between energy and land use. People need electricity, but they rarely consider the full range of impacts that result from producing it: wind turbines in view, mining scars, dead forests, oil-stained beaches and the risks of radioactive waste disposal. This latter topic has lately attracted my attention, but with a twist. Not only do we need to figure out how to separate ourselves from the hazardous residue left by nuclear power plants, but we should also consider what to do with the sites once they've been cleared.

Q: Why is this a concern for the general public?

A: As with the decommissioning of just about all energy facilities, there are always lingering questions about soil and water contamination and alterations to natural landscapes and land cover. With nuclear facilities, there is an added dimension of possible — or perceived — hazards from residual radiation, despite what experts might purport to be safe for unrestricted future use of the land. And, of course, no one in a position of authority is likely to question whether the site of a decommissioned power plant is "safe enough" for unrestricted use. They will simply refer questioners to a regulation that says it is, and be done with it.

The accumulation of decommissioned power plants begs the question of how these sites will soon be repurposed. It is a particularly salient question when the power plants are near rapidly-growing cities like Buckeye, Arizona, for example. Will the public be willing to settle on land previously dedicated to nuclear facilities? Will the public be OK with having their children play on land

previously used by nuclear facilities? How will the former location of nuclear facilities affect land use planning and land values? No one is considering these questions.

Q: For your study, you looked at 30 decommissioned nuclear plants. What finding surprised you the most?

A: When I investigated the question of recycling nuclear power plant sites, I found no firm answers, little regulatory guidance and an absence of thought to long-term planning, either by managing utility companies or by relevant planning authorities.

The Achilles' heel of nuclear power in the U.S. is that there is simply nowhere to permanently store high-level, long-lived radioactive waste from commercial nuclear power. So, for the foreseeable future, this waste is to be stored at the site of the power plant in a secure area, even as all the other parts of the power plant may be removed. There is no structure, protocol or guidance regarding what is in store for any individual site. That uncertainty, which translates to an opaque decision-making process, is one of the problems we uncovered.

Q: Nuclear power has been debated for decades. Why do you think we've spent so little time talking about what happens after these plants close?

A: The most common response I encountered was essentially, “Why should I worry about that when it could be decades into the future?” No one likes to think too far ahead, especially when the status quo continues to provide what we need today, whether it is money or electricity. But, as with plastics, aluminum, discarded computers and out-of-fashion clothes, the time has come to consider how we might “recycle” nuclear power plant sites.

Q: In your study, you mention the Palo Verde Generating Station, one of the nation's largest power producers for nearly 30 years. Given that the Arizona plant could operate for decades more, what should we begin thinking about today?

A: We should have been thinking about it years ago. The Phoenix metro area is steadily creeping westward. When I first came to ASU, Palo Verde was at least 40 miles west of the nearest subdivision. Now it is less than half that distance. What is going to happen in another decade or so? Will residential communities “envelop” Palo Verde? Will land values decline the closer they are to the power plant? Will the perceived hazards of proximity result in housing that is relegated to poorer households? Is the power plant site to remain “off-limits” forever? Will the public ever accept it as a close neighbor?

Q: If you could change just one policy related to recycling nuclear power landscapes, what would it be?

A: We should develop more precise guidance regarding the recycling potential of former power plant sites. Such guidance should involve local planning authorities and mandatory and meaningful consultation with community stakeholders.

Related

Powering the nuclear comeback: ASU, 2 other universities form consortium to close critical workforce gap

Nuclear power returns to the spotlight: Soaring demand for electricity and advancing reactor technologies are reshaping how America thinks about keeping the lights on

---

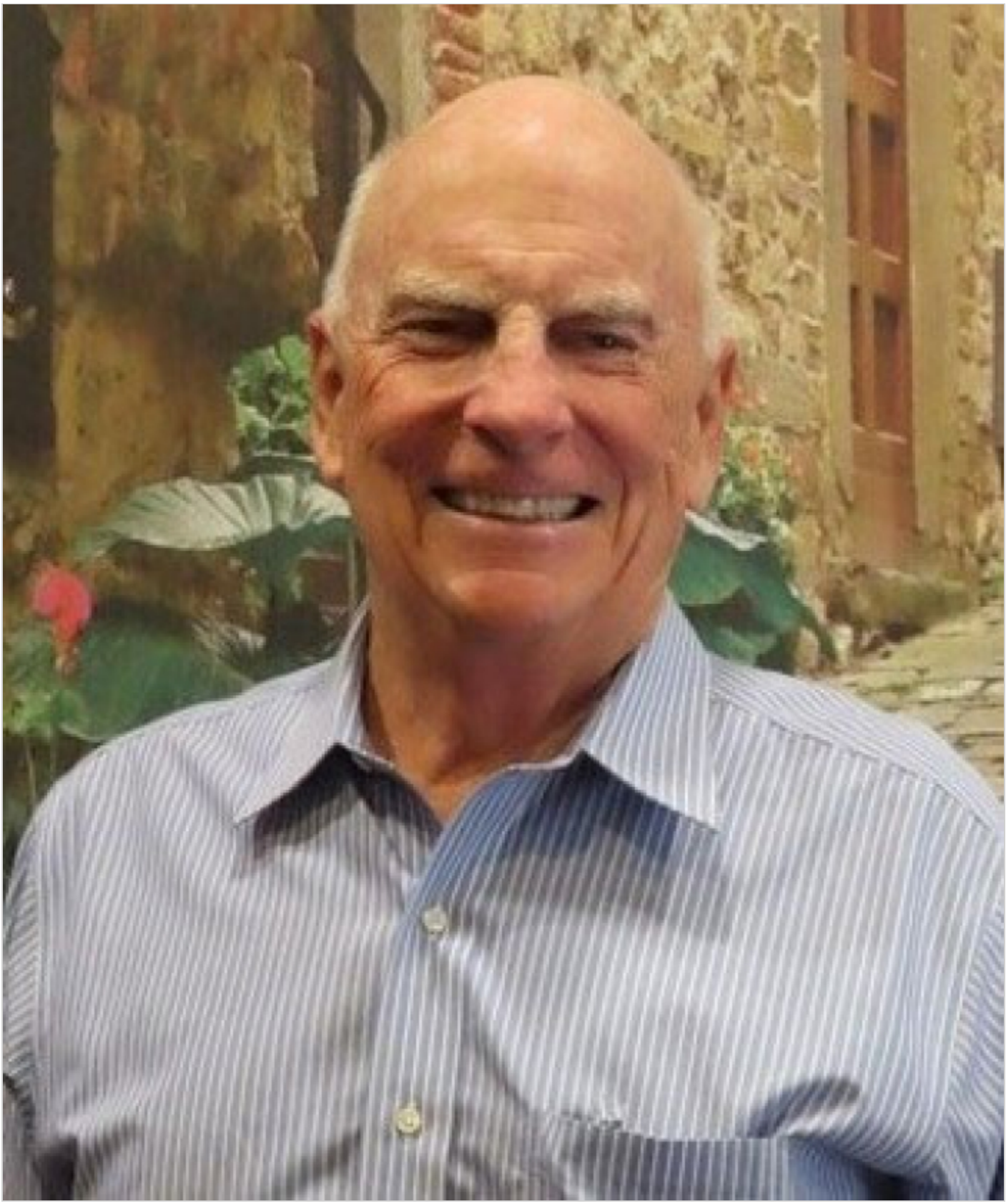
This story originally appeared on ASU News.

Main image



Graphic by Arden Kay-Yazbek/ASU

Text image(s)



Martin Pasqualetti