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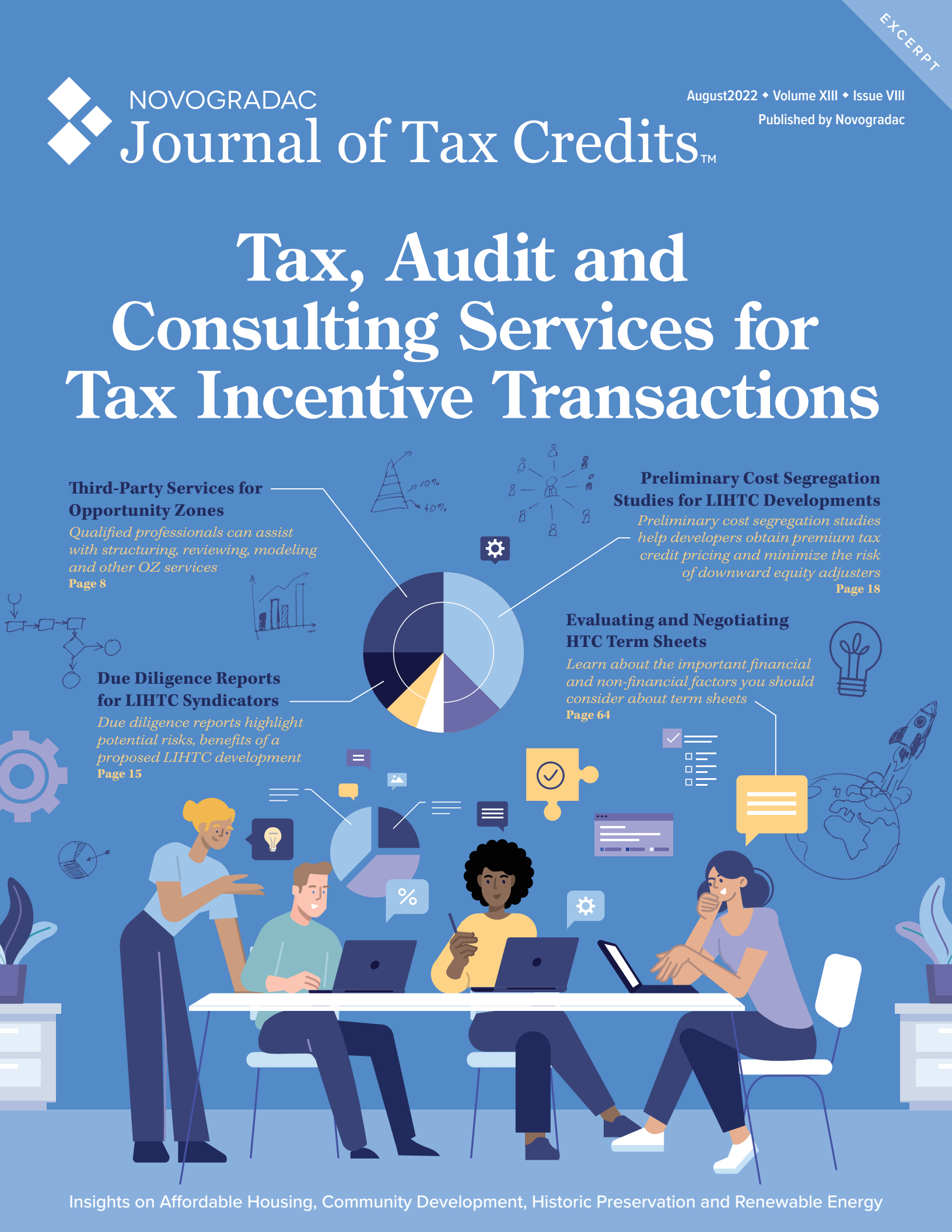


Insights on Affordable Housing, Community Development, Historic Preservation and Renewable Energy

Scale Microgrid Solutions Compiles Assets, Financing to Power Market

NICK DECICCO, SENIOR WRITER, NOVOGRADAC

Technologies to build a more sustainable earth come in numerous forms–solar panels, wind turbines, energy storage, hydropower, harnessing geothermal energy and more.

One approach from Scale Microgrid Solutions aims to blend multiple forms en route to providing reliability, resilience and even energy independence. It's microgrids, a multiplatform technology that fuses sources such as solar, battery energy storage, fuel cells and combined heat and power or combined cooling and power. The microgrids aim to deliver cheap, clean, resilient power for Scale's customers.

Julian Torres, chief investment officer for Scale, sees microgrids as a necessary step in a sector of the industry that is continually growing and adapting.

"It's adjacent to what the marketplace is already doing, kind of an evolution," Torres said. "Things evolve not in massive jumps and leaps, but in increments. Microgrids show incremental progress forward for the industry."

Scale is an integrated distributed energy business, a portfolio company of global private equity firm Warburg Pincus. Warburg Pincus has invested more than $100 billion in more than a thousand companies in 40-plus countries. That association means there's hefty financial force to back up Scale's microgrids in addition to its ability to provide financial solutions to developers and others in the renewable energy marketplace. The capital and the technology help Scale drive in two lanes at once–expanding a market with a fresh technology while also bringing a towering capital stack.

All That Power

Scale focuses much of its efforts in California and the northeastern United States. The company develops and sells modular microgrids with its own internal team. It designs the microgrids, engineers them, procures the components, manages installation and operates the completed systems.

"We are capable, with our funding from Warburg Pincus, to offer all of that in a turnkey microgrid service agreement that requires no [capital expense] up front from our customers," Torres said.

The microgrids are multi-asset capabilities that combine solar, energy storage and dispatchable generation. Some are bespoke microgrids, modified to fit the purchaser's needs. Scale's microgrids typically deliver service over a 20-year window.

Torres said most solar and battery storage systems are designed to operate in parallel with the grid, creating a dependency. Microgrids, on the other hand, deliver the option to work with the grid or, if necessary, provide ease of controls and electronics to manage a facility off grid.

"I think what truly differentiates microgrids from other distributed generating resources is the ability to 'island' the system," Torres said. "In layman's terms, that means a facility can flip a switch and it no longer will import or export electricity from the grid."

In response to customer demand or preferences, Scale sometimes turns to gas-fired turbines to keep the constant flow of energy.

"In our microgrid implementation with solar, battery storage and gas, the gas is really there for the long duration resiliency component," Torres said.

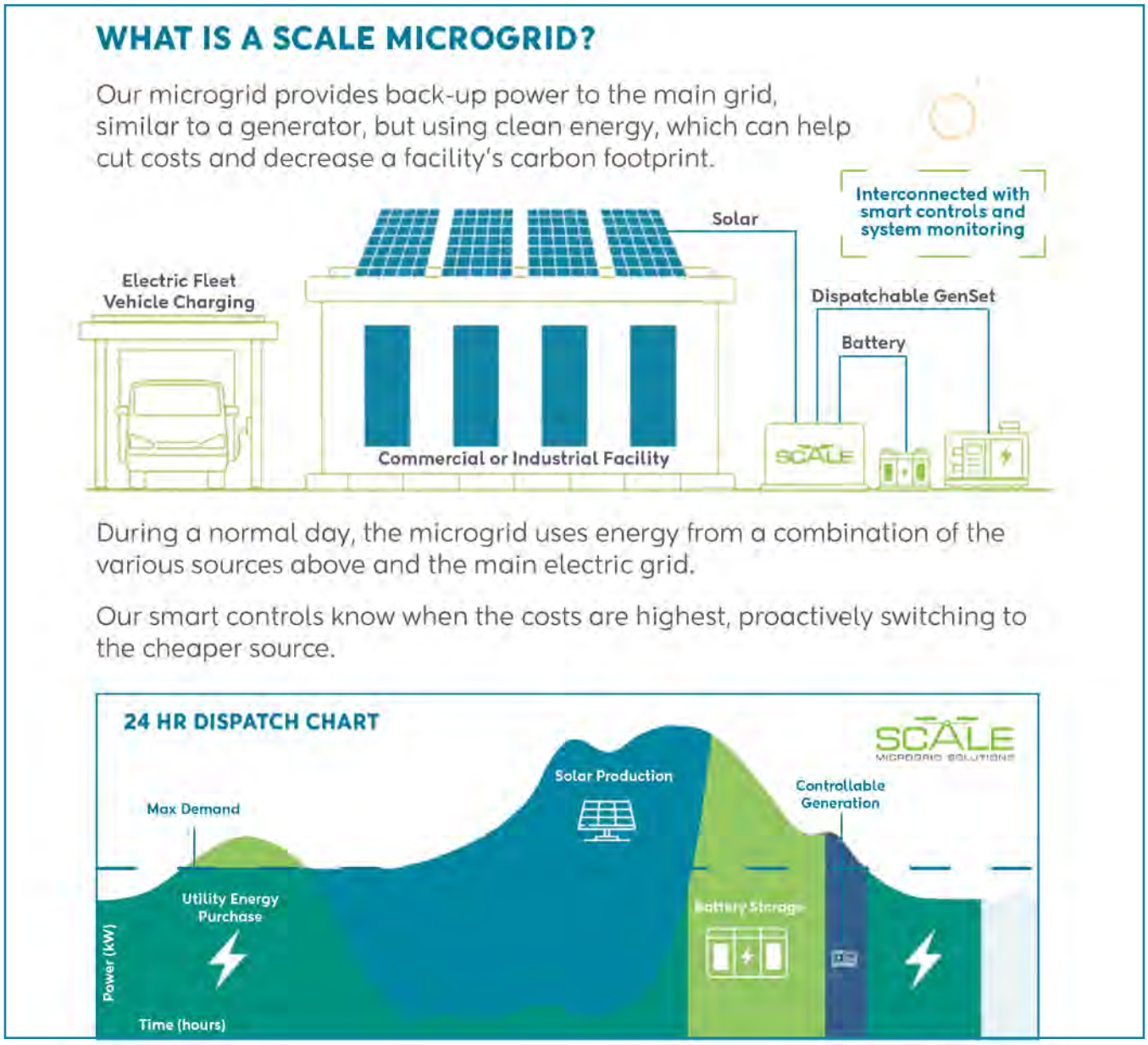
Torres said that even though microgrids incorporate gas-fired generation, they're typically cleaner and dispatched in a more limited basis than a larger gas-fired peaker.

Sustainability, Reliability and Resilience

Torres said building market awareness is the first step for microgrids. "What is a microgrid?" "How can I get one?" and "How can I finance it?" are often some of the initial questions.

Sustainability, reliability and resilience are three key factors from Scale's point of view. Needs vary across the nation, but geography is factor in every application. Some states provide rebates or other incentives for end users. Some markets have high utility rates. Some states simply receive more sun and have more daylight hours, allowing them to make greater use of a tool such as solar panels.

Torres said Scale looks to work in areas that hit the sweet spot for all three elements, which is often California and the northeastern United States. Torres said the northeast often has consistent natural gas



Source: Scale Microgrid Solutions

policy, which makes it an advantageous area for microgrids. California hits the sweet spot for solar sources and state-level storage incentives, but also has a market that sees greater value in being able to generate power separately from the grid.

"Unfortunately, (California faces) a much higher value of resiliency because the grid is not as reliable due to exogenous factors, like seasonal wildfire risk," Torres said.

In places where the grid is congested, microgrids can provide resilience, but also serve the broader grid.

"Bringing all of these components together is a challenge to optimize and balance all of those different and sometimes competing variables," Torres said. "That's more of a function for meeting the needs of our customer."

Microgrids are often positioned as a backstop for energy systems that require a constant power source, making them ideal for campus-type environments such as higher education, health care and assisted living facilities as well as indoor and/or controlled-environment agriculture, hospitality, cold storage and more.

"We see an advantage where the customer needs more than simply net-metered energy from solar, where there's a premium for resiliency or thermal outputs," Torres said.

This means the value of bespoke and modular microgrids is paramount, allowing Scale to deliver a product that fits customer needs in practical terms as well as financial terms.

"We have a lot of proprietary capabilities to optimize assets," Torres said. "All of that work has been done before we are on-site."

Torres said funding electric vehicle infrastructure projects is "a really hot segment for us right now" because fleets are infrastructure-dependent due to charging needs. Microgrids can power delivery fleets or public transit vehicles, which often require large batteries to charge quickly and thus a consume significant volume of electricity, which microgrids can provide.

"Microgrids and EVs, in the energy transition, are very symbiotic products," Torres said.

Financing and Tax Credits

Not only does Scale deliver the hardware, it also brings deep pockets. The company can provide financial solutions to developers and other participants in the marketplace, which takes a variety of shapes, from development capital to acquiring portfolios to repowering or optimizing assets.

Having the backing of Warburg Pincus allows Scale to do its own project financing. The company can agree to terms and conditions knowing it has the balance sheet to support them.

That also means that Scale has a good idea of the right financing tools for its various modular microgrid components, including a list of pre-screened components that work well in tandem, Torres said.

From the tax credit perspective, certain generating components of microgrids (e.g. solar and batteries charged with solar and CHP) qualify for the federal renewable energy investment tax credit. While microgrids as energy property are not currently delineated in the tax code as a single entity, their component systems are. Torres said legislation proposed starting in 2021 would expand tax credits to incorporate the technology needed to create microgrids.

"That would materially expand the eligibility of tax credits for microgrids and put them on par with a non-microgrid behind the meter energy system," Torres said.

Torres said even if legislation passes, that it would need to include cost segmentation to determine which components are eligible and which are not due to the presence of carbon elements.

Under the current setup, 26% of the total installed value of a solar facility can be expected to have a tax credit or tax credit effective rate, given 100% eligibility, which isn't always the case. For microgrids, comparatively, the math can be closer to 10% to 15% under the current setup. Still, Torres said microgrids are eligible for 100% bonus depreciation "just like any other asset that would qualify, whether it's a microgrid or not."

Torres also emphasized the role of microgrids as a tool for energy transition as a whole as more aspects of the economy that previously relied upon fossil-fired energy shift. Torres said Federal Energy regulatory Commission's Order 2222, which allows aggregators of energy resources such as microgrids to compete in regional wholesale electricity markets, also opens greater doors for the technology. Torres said it allows "independent operators to allow behind-the-meter participation in wholesale markets." The rules of the implementation are still being determined, he said.

Looking Forward

Torres said technologies benefit from scale and while economic headwinds are bleeding into the renewable energy sector, he said Scale is less sensitive to the vicissitudes of the market due to Scale's mixture of assets.

Torres said a lot of research and development from the U.S. Department of Energy is for resilient and "nonwires" alternatives to improve the grid, increase the focus of private institutions and on meeting environmental, social and governance goals. He hopes that the societal impact of distributed energy is one of environmental justice.

"Clean, distributed generation is often located in urban environments with dense housing next to commercial and industrial applications where a microgrid like ours would be a net benefit," Torres said. "Pair that use with a clean microgrid from Scale to power an electrified bus depot that previously had emissions from fueling and operating diesel or even hybrid buses, eliminating much of those emissions whether from the pump or from vehicles themselves running their routes with no emission vehicles and virtually no-emission microgrids." ❖

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