

CPS AMERICA

SOLAR & STORAGE IP CASE STUDY

How North America's leading three-phase string inverter supplier protects architecture-level innovation in solar and energy storage

INTRODUCTION

Chint Power Systems America — CPS America — is the United States supplier of three-phase string inverters and energy storage systems for commercial, industrial, and utility-scale solar. Founded in 2009 and backed by CHINT Group, a global smart energy company operating in more than 140 countries, CPS America has held the number one market share position for three-phase string inverters in North America for seven consecutive years, with over ten gigawatts installed across more than twenty thousand projects. Its US headquarters and Innovation Center is in Richardson, Texas, with business operations in New Jersey, supply chain operations in Pomona, California, and products and applications engineering in Pleasanton, California. The product line now spans string inverters from twenty-five kilowatts to three hundred and fifty kilowatts, the 5 MWh Power Block battery energy storage container, low-voltage balance-of-system equipment, medium-voltage transformer skids, and high-voltage transformers.

BACKGROUND

CPS America's growth has been driven by architecture decisions rather than component specifications. The company's original US entry in 2012 rode a code change that made transformerless string inverters viable, starting with fourteen and twenty kilowatt units for commercial and industrial projects. String inverters then moved into utility-scale work, a segment that had belonged to central inverters, and CPS America went with them — scaling to two hundred and fifty, two hundred and seventy-five, and three hundred and fifty kilowatt units and pairing them with storage.

The valuable ideas are system-level: how string inverters are aggregated and packaged, how a battery container reaches a given energy density in a standard footprint, how a plant runs off-grid before interconnection and later ties in, how balance-of-system and protection are integrated onto a single skid. These are architectures, not chemistries. They are visible in a datasheet, walkable at a trade show booth, and readily described in the conference presentations and podcast appearances that a market-leading company is expected to give.

The competitive environment adds urgency. Utility-scale solar and storage is a market of large, well-resourced manufacturers where a differentiating configuration can be matched within a product cycle. Filings need to be on record ahead of product announcements, and they need to cover the architecture broadly enough that a competitor cannot design around them by moving a component from one enclosure to another.

“Our differentiation is at the system level — how the pieces are packaged and how they operate together. That is exactly the kind of innovation you have to get on file before it ships.”

ZHEHAN YI, PH.D., UTILITY & ESS PRODUCT SOLUTIONS DIRECTOR, CPS AMERICA

LEADERSHIP



ZHEHAN YI, Ph.D.

Utility & ESS Product Solutions Director, CPS America

Dr. Zhehan Yi joined CPS America in November 2022 and leads product development and strategy for the company's utility-scale photovoltaic and energy storage lines. He works directly with the research and development team on product roadmapping while staying close to the developers, EPCs, and independent power producers who ultimately install the equipment. He is an IEEE Senior Member, an Associate Editor for IEEE Access, and has chaired panels at IEEE PES General Meeting and ISGT.

SOLUTION

What first set PatentPC apart was the breadth of technology it could take on and the degree to which PatentPC's tech stack and its filing workflow improves the quality of the service delivery. A single CPS America disclosure can touch power electronics and inverter topology, medium-voltage and high-voltage equipment, battery systems and thermal design, grid support and interconnection behaviour, controls and communications, and mechanical packaging. Most outside counsel would assign a different specialist to each of those and bill the company for every one of them coming up to speed.

PatentPC captures system-level innovation, not just components. PatentPC rewrites the playbook by protecting full charging ecosystems—power-flow logic, safety orchestration, thermal pathways, backend optimization, and user-interaction models—creating patents that are harder to design around and far more valuable in enforcement and M&A.

PatentPC moves at engineering speed, not legal speed. Where prior counsel operated on slow, reactive timelines, PatentPC integrates directly into CPS America's development cycles with rapid disclosure sessions, AI-accelerated drafting, and predictable filing calendars. This ensures CPS America files first, files broadly, and never loses priority due to counsel delays.

PatentPC communicates clearly with inventors and extracts better disclosures. Inventors previously faced opaque legal feedback and unclear claim strategy. PatentPC fixes this with engineering-friendly explanations, structured prompts, and transparent prosecution updates. The result: richer disclosures, stronger claims, and inventors who stay engaged instead of frustrated.

PatentPC aligns IP with business outcomes—not just filings. PatentPC treats them as strategic assets tied to valuation, partnerships, and competitive positioning. Every claim set is drafted with future licensing, enforcement, and market expansion in mind, giving CPS America a portfolio that actively increases enterprise value rather than passively sitting on the books.

PatentPC worked with CPS inventors on:

- Architecture Focus — system-level claims covering how inverters, transformers, protection, and controls are aggregated and packaged, rather than narrow claims to a single component that a competitor can substitute.
- Eligibility-resilient drafting under Section 101 — control, forecasting, and grid-support logic claimed as concrete power conversion systems acting on physical equipment, not as abstract computation.
- Hardware and software as one family — inverter topology, storage containers, skid integration, and the supervisory controls that operate them covered as a coherent portfolio rather than unrelated one-off filings.
- File ahead of launch — applications on record before product announcements, Innovation Day releases, RE+ demonstrations, conference presentations, and podcast interviews.
- Scope that follows the roadmap — coverage written to reach where the platform is heading, including higher-density storage and off-grid-first commissioning, not only the configuration shipping today.
- Predictable programme economics — provisional-first sequencing and cost transparency so IP spend can be planned against the product calendar.

“PatentPC has proven to us that it is indeed possible to receive a higher level of service at a fixed cost. We're thrilled to have them on our side.”

ZHEHAN YI, PH.D., UTILITY & ESS PRODUCT SOLUTIONS DIRECTOR, CPS AMERICA

PatentPC pairs experienced patent attorneys experienced in power electronics, solar, and energy storage companies to protect system-level innovation before it ships — on a cycle that keeps pace with the product roadmap. Talk to us about a filing plan built around your launch calendar.

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