

DOOSAN

The Clean Energy You Count On



Fuel Cell Solutions For Education

ACHIEVE CAMPUS SUSTAINABILITY OBJECTIVES WITH CLEAN, AFFORDABLE ONSITE ENERGY

Energy use and costs continue to escalate, reducing the resources available to reinvest in your campus' future. Doosan Fuel Cell's combined heat and power solution will help you achieve your financial and environmental goals through everyday energy cost savings and ultra-low emissions. With a PureCell® Model 400 as part of your long-term energy strategy, you will have clean, onsite power generation to drive your facilities' sustainability metrics.

Consider This

- The PureCell system is three times more effective than solar PV in reducing CO₂ footprint with 1/200th the land intensity
- With emergency power capability fueled by natural gas, the PureCell Model 400 is the cleanest continuous-duty dispatchable resource for microgrids



The Future: Doosan's Clean Energy Fuel Cells

The Doosan PureCell Model 400 system is an ultra-low emission, clean power solution that is helping high school and college campuses achieve their sustainability and resiliency objectives.



* Annual savings from one PureCell Model 400 compared to traditional energy sources. CA Example.

FUEL CELL BENEFITS

Cost-effective: Low cost of ownership – 85,000 hour overhaul and 98% fleet availability

Scalable: From a single unit to multi-megawatts

Reliable: Resilient onsite generation provides peace of mind 24/7

Ultra-clean: Runs with minimal greenhouse gas emissions, improves air quality & community health

Quiet operation: Will not disturb students or faculty

Flexible siting: Small footprint can stand alone and be placed inside or outside or in a multi-story design

Microgrid-ready: The cleanest continuous-duty dispatchable resource to anchor campus microgrids

LOW COST OF ENERGY

Equipment

- Includes 30% federal tax credit
- Includes CA SGIP incentive
- Financed over 20 years

Service

- 20-year comprehensive plan
- Includes overhaul after 10 years

Natural Gas

- PureCell Model 400 operates on low pressure gas (no gas booster required)
- Reduces campus heating through 50% heat recovery

90%
System Efficiency

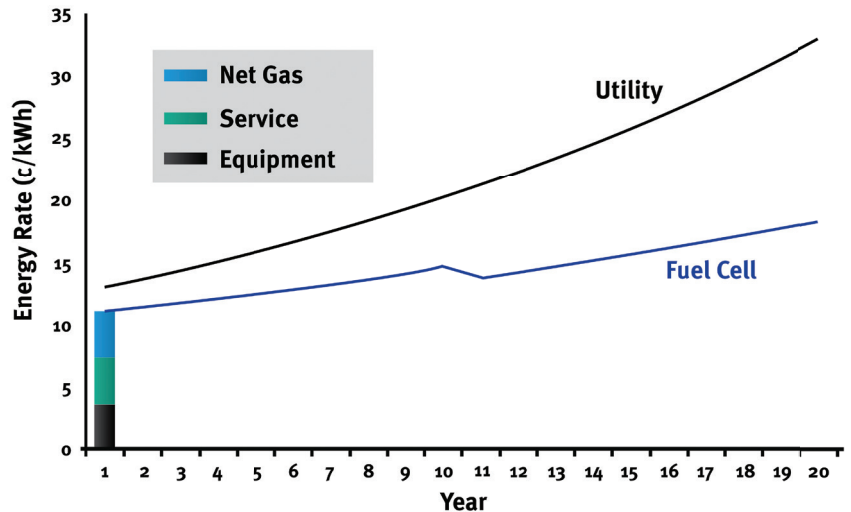
10-Year
Cell Stack Life

98%
Fleet Uptime

20-Year
Service Plans

Electric Generation	C/KWH	20-YEAR COST
Utility	13.4	\$16.0 M
PureCell® System	10.3	\$9.6 M

PureCell System Cost of Energy vs. Utility



Notes and assumptions:

- CA example
- 5% escalation on T&D and commodity electricity. Net amortized equipment includes federal and state incentives (CA SGIP) and is based on a finance rate of 8% over 20 years
- Service is a 20-year comprehensive plan with 3% escalation per year
- Net gas includes fuel cell gas minus the heating gas savings due to heat recovery (50% heat utilization)
- \$5.50 natural gas price with 3% escalation

Flexible Acquisition Models Match Your Business Needs

Doosan has strong partnerships with finance providers who have experience with distributed energy projects. They can help structure creative financial solutions to help you reduce and control your utility expenses by locking in long-term low energy costs/rates. We will work with you to evaluate the economic benefits of a PureCell Model 400 system for your facility to maximize your return on energy investment.

Energy Security When It Matters Most

A Doosan fuel cell can provide electricity, hot water, heat and cooling in parallel with – or completely independent of – the utility grid. When an energy emergency strikes, you can count on a Doosan fuel cell to keep your campus operations running without interruption.



"We believe it is our responsibility to continually look for the most efficient and innovative ways we can operate our campus...Fuel cells represent a significant step toward achieving our aggressive sustainability goals, plus they offset electricity costs and ensure continued growth while we remain one of the most energy-efficient universities in the state."

Lindsey Rowell / Director of Energy Management and Utility Services / Cal State San Marcos



University of Connecticut: 400kW

One PureCell Model 400 installed in 2012

Provides critical power to research labs and offices

831 metric tons of CO₂ avoided annually

Reduced NO_x emissions equivalent to removing 110 cars from the road

1.5 million gallons of water saved annually



Eastern and Western CT State Universities: 800kW

One PureCell Model 400 installed at Eastern in 2012 & one at Western in 2013

Provides combined heat and power for space heating and cooling

1,356 metric tons of CO₂ avoided annually (Eastern)

\$25,000 annual net savings (Western)



Rochester Institute of Technology: 400kW

One PureCell Model 400 installed

Provides combined heat and power for space heating and cooling

Contributes to building's 50% energy efficiency increase while reducing emissions

Provides grid-independent power in the event of a utility outage



Hamden High School: 400kW

One PureCell Model 400 installed in 2011

400kW provides 90% of the high school's annual electricity requirements

Heat recovery used for swimming pool & school

Reduces school's energy costs by \$800,000 over 10-year contract



Norco College: 400kW

One PureCell Model 400 installed in 2014

Heat recovery for space heating and domestic hot water

Saves 1.4 million gallons of water annually



Cal State San Marcos: 880kW

Two PureCell Model 400 systems installed in 2015

Saves 2.5 million gallons of water annually

Talk To Us About Your Campus' Plans and Goals

Building a fully integrated, high-performance clean energy system that meets your school's environmental objectives requires high-level planning and flawless execution. Doosan delivers a complete solution – from design inception through deployment, plus the comprehensive services, maintenance and support required to transform a strategy into an operations reality. We'd like the opportunity to help you achieve your campus' sustainability and financial objectives.



Clearcell Power, Inc.
420 Lexington Avenue, Suite 1718
New York, NY 10070
646.661.5777
info@ClearcellPower.com



PureCell® is a registered trademark of Doosan Fuel Cell America, Inc. and the Doosan logo is a registered trademark of Doosan Corp. ©2015 Doosan Fuel Cell America, Inc. All Rights Reserved. All other trademarks are the property of their respective owners. Information subject to change without notice.

