



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

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[www.ct.gov/csc](http://www.ct.gov/csc)

January 3, 2018

Matthew B. Galligan  
Town Manager  
Town of South Windsor  
1540 Sullivan Avenue  
South Windsor, CT 06074-2786

**RE: PETITION NO. 1078** – Town of South Windsor declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the installation of a 5 megawatt fuel cell facility located at 515 John Fitch Boulevard, South Windsor, Connecticut.

Dear Mr. Galligan:

The Connecticut Siting Council (Council) is in receipt of your correspondence dated December 20, 2017 regarding the minor project changes to the above-referenced declaratory ruling that was originally approved by the Council on December 17, 2013 and modified on September 5, 2017.

Pursuant to Condition No. 3 of the Council's Decision on September 5, 2017, your request to change the approved fuel cell units from two 2.8 megawatt Fuel Cell Energy SureSource 3000 units to eleven 460-kilowatt Doosan Fuel Cell units and the associated site plan modifications filed on January 2, 2018, including, but not limited to, concrete pad, fence, retaining wall, and utility connections is hereby approved with the condition that the project comply with the Department of Energy and Environmental Protection (DEEP) Noise Control Standards at the property boundaries.

The Council notes that the requested changes result in a reduction of approximately 389 square feet of site disturbance and in a reduction of the project's visual profile of approximately 12 feet. Please be advised that the conditions of the Council's September 5, 2017 approval remain unchanged, including:

1. A current version of the Emergency Response Plan shall be provided to the Council prior to commercial operation of the fuel cell facility;
2. A decommissioning plan shall be provided to the Council prior to commercial operation of the fuel cell facility; and
3. Approval of any minor project changes be delegated to Council staff.

This approval applies only to the minor project changes dated December 20, 2017 and additional information received on January 2, 2018. Any significant changes to the project require advance Council notification and approval.

Thank you for your attention and cooperation.

Sincerely,



Melanie A. Bachman  
Executive Director

MB/MP

c: Parties and Intervenors  
Council Members  
Bruce McDermott, Esq., Murtha Cullina LLP



# Town of South Windsor

1540 SULLIVAN AVENUE • SOUTH WINDSOR, CT 06074-2786

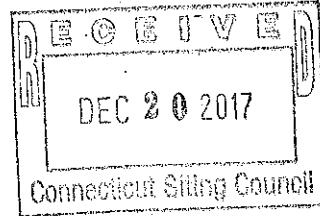
AREA CODE 860/644-2511

FAX 860/644-3781

MATTHEW B. GALLIGAN  
Town Manager

December 20, 2017

Melanie A. Bachman  
Acting Executive Director and Staff Attorney  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051



Re: Petition 1078, Town of South Windsor Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is required for the Installation of a 5 Megawatt Fuel Cell Facility Located at 515 John Fitch Boulevard, South Windsor, Connecticut

Dear Attorney Bachman:

The Town of South Windsor ("Town") requests the Connecticut Siting Council ("Council") approve a minor change to the fuel cell energy project previously approved by the Council in Petition 1078. Specifically, the Town requests that the Council approve the use of Doosan Fuel Cell America, Inc. ("Doosan") fuel cells instead of FuelCell Energy fuel cells. The change will result in air emissions comparable to the already low levels approved previously by the Council and will eliminate water consumption by the project altogether. All other aspects of the project will remain as approved previously by the Council.

**Background:** On October 18, 2013, CTS Energy, LLC petitioned the Council that no Certificate of Environmental Compatibility and Public Need was required for the installation of a 4.98 megawatt ("MW") fuel cell facility to be located on 245 Chapel Road in South Windsor, Connecticut. The Council approved the petition on December 12, 2013 (the "December 2013 Decision").

Subsequent to the December 2013 Decision, (i) the Power Purchase Agreement ("PPA") between CTS Energy and The Connecticut Light & Power Company ("CL&P") was approved by the Public Utilities Regulatory Authority ("PURA") on October 4, 2013 in Docket No. 13-06-27, (ii) the PPA was assigned by CTS Energy to the Town and (iii) the PPA between the Town and CL&P was approved by PURA on March 2, 2017. Finally, on July 26, 2017, the Town requested that the Council modify its December 2013 Decision by modifying the address of the location of the project to 515 John Fitch Boulevard, South Windsor. The Council approved the request on September 5, 2017. The Council's September 2017 approval included three conditions:

1. A current version of the Emergency Response Plan is to be provided to the Council prior to commercial operation.
2. A Decommissioning Plan is to be provided to the Council prior to commercial operation.
3. Approval of any minor project changes is delegated to the Council's staff.

**Request:** Pursuant to Condition #3 of the Council's September 2017 approval, the Town requests that the Council staff approve the following minor change to the project:

In its October 2013 petition, CTS Energy proposed the use of two DFC-3000 custom designed fuel cell systems, at 2.49 MW each, by FuelCell Energy. The Town now desires to use of eleven (11) Doosan fuel cells. As there will be no fuel combustion, virtually no harmful emissions will be generated by the Doosan fuel cells. As set forth below, the project's power production is almost entirely absent of nitrogen oxide, sulfur dioxide, particulate matter, carbon monoxide and volatile organic compounds and the use of the Doosan fuel cells will produce emissions comparable to the FuelCell Energy fuel cells approved previously:

Pollutant	FuelCell Energy (October 2013) <sup>1</sup>	Doosan Fuel Cell America (November 2017) <sup>2</sup>
Oxides of Nitrogen (NOx)	<0.01 lbs/MWh	<0.01 lbs/MWh
Sulfur Oxides (SO <sub>2</sub> x)	<0.0001 lbs/MWh	
Sulfur Dioxide (SO <sub>2</sub> x)		Negligible
Particulate Matter (PM)	<0.005 lbs/MWh	Negligible
Carbon Monoxide (CO)	<0.1 lbs/MWh	<0.02 lbs/MWh
Volatile Organic Compounds (VOC)	<0.02 lbs/MWh	<0.02 lbs/MWh

In addition to the improved air emissions levels that will result from the use of the Doosan fuel cells during full power operation there will be no water consumption associated with the Doosan fuel cells<sup>3</sup> as compared to 13,000 gallons/day with the use of the FuelCell Energy fuel cells.<sup>4</sup>

<sup>1</sup> July 26, 2017 Request for Modification, page 4.

<sup>2</sup> See attached PureCell Model 400 specifications.

<sup>3</sup> See attached PureCell Model 400 specifications.

<sup>4</sup> July 26, 2017 Request for Modification, page 4.

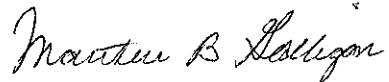
Melanie A. Bachman

December 20, 2017

Page 3

As set forth above, the change in the fuel cell technology to be used at the project will be a beneficial improvement of the already *de minimis* environmental impacts from the project and therefore the Town respectfully requests that the Council modify its previous decision by permitting the use of Doosan Fuel Cell America fuel cells at the project location at 515 John Fitch Boulevard, South Windsor.

Very truly yours,



Matthew B. Galligan

Town Manager

Town of South Windsor



# PureCell® Model 400

## PURECELL SYSTEM BENEFITS

### Energy Security

Proven PAFC fuel cell technology that is setting durability records

### Energy Productivity

Increased efficiency and continuous on-site generation reduces energy costs

### Energy Responsibility

Ultra-low emissions equals sustainability

## PURECELL SYSTEM COMPETITIVE ADVANTAGES

### Long Life

Industry leading 10-year cell stack life assures high availability and low service cost

### Modular & Scalable

Solutions for multi-megawatt applications to meet growing energy demand

### Experience

Most knowledgeable and experienced team in the industry

### High Efficiency

Up to 90% total CHP Efficiency

### Grid-Independence

Proven performance delivering power when the utility grid fails

### Load Following

Capable of dispatching power to match building needs

### Small Footprint

Highest power density among clean generation technologies

### Flexible Siting

Indoor, outdoor, rooftop, multi-unit

## RATED POWER OUTPUT: 460kW, 480VAC, 50/60Hz

Characteristic	Units	Operating Mode	
		Power 460kW	Eco 440kW
Electric Power Output <sup>1</sup>	kW/kVA	460/541	440/518
Electrical Efficiency	%, LHV	43%	45%
Peak Overall Efficiency	%, LHV	90%	90%
Gas Consumption <sup>1</sup>	MMBtu/h, HHV (kW)	4.09 (1,200)	3.77 (1,104)
Gas Consumption <sup>1,2</sup>	SCFH (Nm <sup>3</sup> /h)	3,995 (107)	3,674 (98.4)
High Grade Heat Output @ up to 250°F <sup>1</sup>	MMBtu/h (kW)	0.72 (212)	0.55 (162)
Low Grade Heat Output @ up to 140°F <sup>1</sup>	MMBtu/h (kW)	1.03 (301)	1.00 (292)

## FUEL

Supply ..... Natural Gas  
Inlet Pressure ..... 10 to 14 in. water (2.5 - 3.5 mbar)

## EMISSIONS<sup>3,4</sup>

NOx	0.01 lbs/MWh (0.006 kg/MWh)
CO	0.02 lbs/MWh (0.009 kg/MWh)
VOC	0.02 lbs/MWh (0.009 kg/MWh)
SO <sub>2</sub>	Negligible
Particulate Matter	Negligible
CO <sub>2</sub> <sup>1</sup> (electric only)	998 lbs/MWh (454 kg/MWh)
(with High-Grade heat recovery)	815 lbs/MWh <sup>5</sup> (371 kg/MWh)
(with full heat recovery)	485 lbs/MWh <sup>5</sup> (220 kg/MWh)

## OTHER

Ambient Operating Temp	-20°F to 104°F (-29°C to 40°C)
Sound Level	<65 dBA @ 33 ft. (10m)
Water Consumption	None (up to 86°F (30°C) Ambient Temp.)
Water Discharge	None (Normal Operating Conditions)

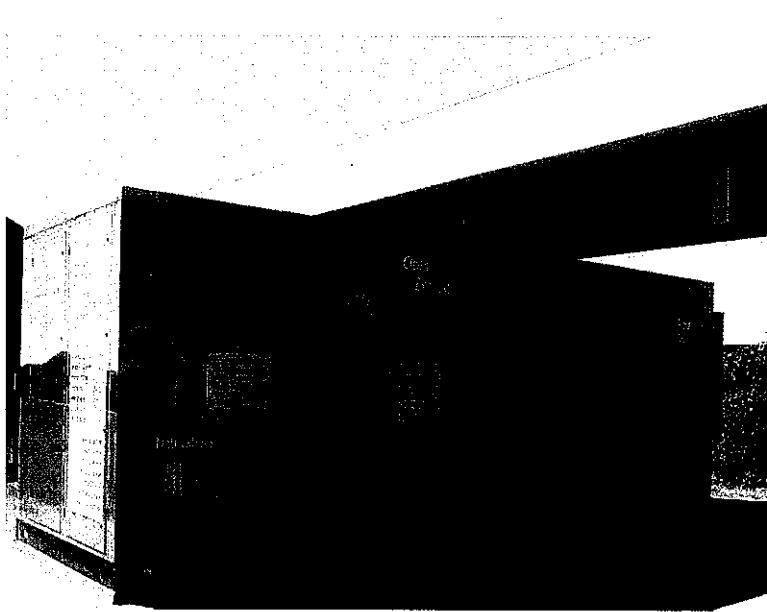
## CODES AND STANDARDS

ANSI/CSA FC1-2014: Stationary Fuel Cell Power Systems

UL1741-2010: Inverters for Use With Distributed Energy Resources

## NOTES

1. Average performance during 1st year of operation.
2. Based on natural gas higher heating value of 1025 Btu/SCF (40.4 MJ/Nm<sup>3</sup>)
3. Emissions based on 440 kW operation.
4. Fuel cells are exempt from air permitting in many U.S. states.
5. Includes CO<sub>2</sub> emissions savings due to reduced on-site boiler gas consumption



**Doosan Fuel Cell America, Inc.**  
Corporate Headquarters  
195 Governor's Highway  
South Windsor, CT 06074  
860.727.2253  
[www.doosanfuelcell.com](http://www.doosanfuelcell.com)

The manufacturer reserves the right to change or modify, without notice, the design or equipment specifications without incurring any obligation either with respect to equipment previously sold or in the process of construction. The manufacturer does not warrant the data on this document.

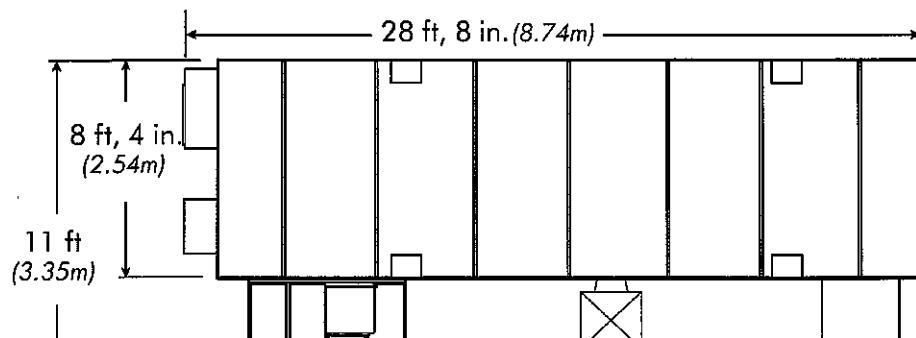
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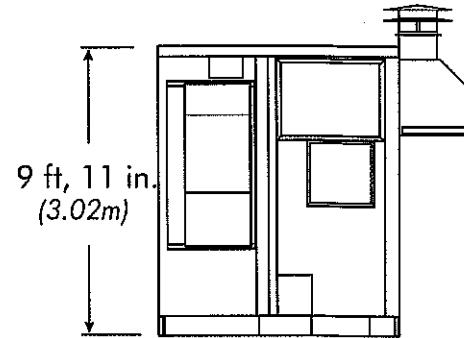
# PureCell® Model 400

## SYSTEM DIMENSIONS

### Power Module

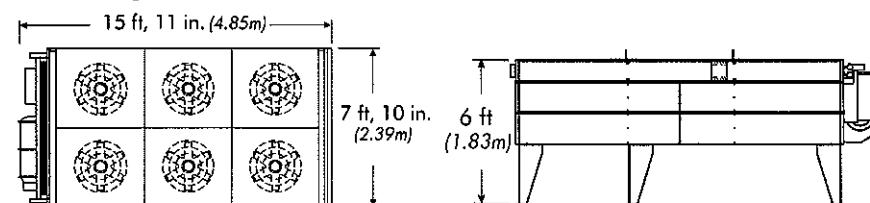


Top View



Side View

### Cooling Module



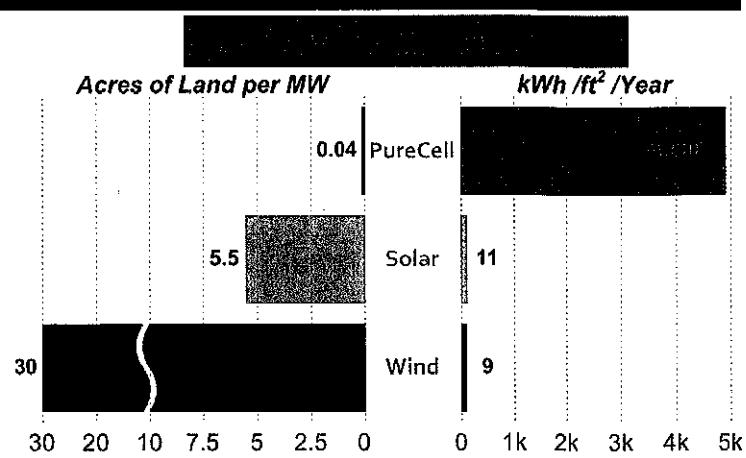
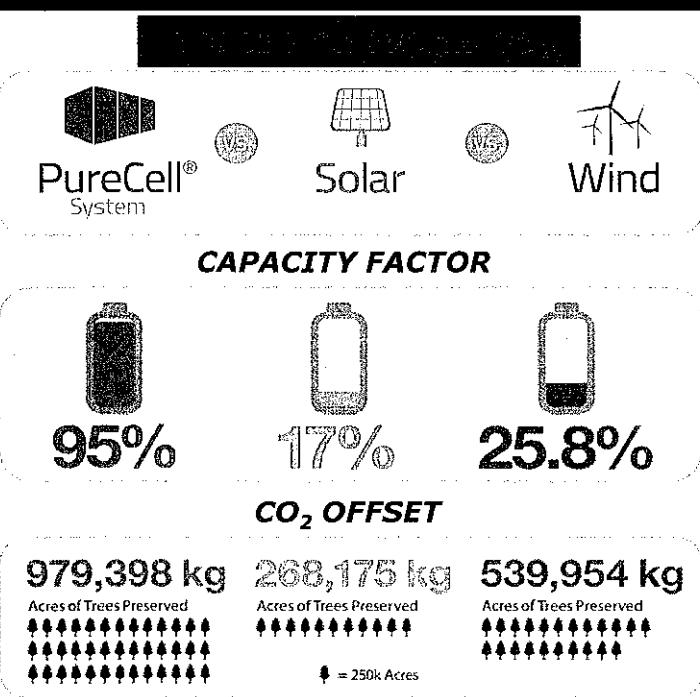
Top View

Side View

### PHYSICAL SPECIFICATIONS

	Power Module	Cooling Module
Length	28' 11" (8.74m)	15' 11" (4.85m)
Width	8' 4" (2.54m)	7' 10" (2.39m)
Height	9' 11" (3.02m)	6' 0" (1.83m)
Weight	57,000 lb (27,216 kg)	3,190 lb (1,447 kg)

### PURECELL ADVANTAGE



Doosan Fuel Cell America, Inc.  
Corporate Headquarters  
195 Governor's Highway  
South Windsor, CT 06074  
860.727.2253  
[www.doosanfuelcell.com](http://www.doosanfuelcell.com)

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# Town of South Windsor

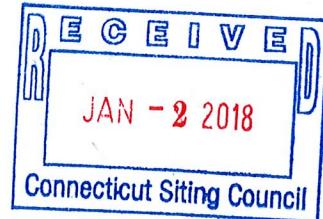
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AREA CODE 860/644-2511

FAX 860/644-3781

MATTHEW B. GALLIGAN  
Town Manager

December 28, 2017



Attorney Melanie Bachman  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

Dear Atty. Bachman:

Enclosed for your review pursuant to your request are copies of revised site plans reflecting the change from FCE fuel cells to Doosan fuel cells. It should be noted that the change results in a net reduction of approximately 389 sq ft of impacted area. Additionally the profile of the Doosan units are approximately 12 feet lower than the FCE units. The result is a dramatically reduced visual impact to the adjacent properties. Please advise if we can be of further assistance.

Sincerely,

*Matthew B. Galligan*

Matthew B. Galligan  
Town Manager  
Town of South Windsor

