

## **Fairfield High School Solar Carport Proposals**

### **About the Project:**

- 980 kilowatts of photovoltaic solar energy systems will be mounted on carport structures in the student parking lots at Fairfield Ludlowe and Fairfield Warde High Schools.
- Once completed, the schools will produce about 2/3 of their electricity from solar power. The absolute minimum electricity savings from the carports will exceed \$1.2 Million.
- If approved before the end of the school year, the project can be completed during the summer of 2017.

### **A Major Step Toward a Clean Energy Future:**

The Town of Fairfield is known for many wonderful things, including beautiful neighborhoods, outstanding schools, terrific beaches and open spaces, and an amazing sense of community and shared history. Increasingly, Fairfield is also known in Connecticut as a leader in the implementation and use of clean energy – in particular, solar. In recent years, Fairfield has completed dozens of clean energy projects that have improved our air quality, reduced dependence on unstable fuel supplies, enhanced the security of our energy sources, and provided long term savings. To-date, clean energy projects have an annual energy cost savings of \$2.4 million for the Town.

The high school solar carport projects are a huge, next step forward in realizing a clean energy future for Fairfield – but it also promises tremendous tangible benefits for our community **today**. Serving as a real educational opportunity for our entire student population to learn first-hand about clean energy -- the systems will serve as a striking symbol of Fairfield's clean energy leadership and our commitment to helping secure a better, more sustainable future for our families, our Town, and the world at large.



*Artistic rendering of the proposed solar carports at Fairfield Warde High School*

### ***Powerful Benefits, Both Today and Tomorrow:***

- ***Energy Cost Savings:*** The Town will save an average of \$60,000 per year on electricity costs. Over the 20-year life of the contracts, there is an estimated minimum ***\$1.2 Million in economic benefit to the Town***, assuming no future increase in utility rates. If a conservative 3% utility increase is assumed, ***the estimated savings is well over \$2 Million.***
- ***Amenities for Communities:*** The installation will provide covered parking for students and visitors providing shelter from the elements and the occasional foul ball 😊
- ***A Positive Impact on Air and Health:*** Under a power purchase agreement (PPA) with solar vendor Skyview Ventures, the Town's cost for installation or maintenance of the system is ***zero.***

### ***How a Power Purchase Agreement (PPA) Works:***

Under the PPA, the solar power facility will be designed, financed, constructed, operated, insured, and maintained by Skyview, ***with zero cost for Fairfield.*** The Town simply agrees to purchase the solar-generated power at a lower rate than ***today's*** electricity rates, fixed for the next 20 years. After 20 years, the Town can own the solar system or can opt to have it removed. Solar systems have a typical lifespan of at least 30 years, so the remaining 10 years or more would be ***incredibly inexpensive power*** for the Town providing an additional \$2.4M plus in savings. The economic benefits of solar PPAs are greatly enhanced by federal and state incentives for such projects. Fairfield has successfully used PPA agreements on over two dozen solar projects in Town.



***Artistic rendering of the proposed solar carports at Fairfield Ludlowe High School***

For more information, please contact Scott Thompson, Town of Fairfield Clean Energy Task Force at [fairfieldcleanenergy@gmail.com](mailto:fairfieldcleanenergy@gmail.com) or 203-912-0211.

## **Frequently Asked Questions**

### **1. Will the solar system reduce the number of parking spaces at schools?**

There will be no permanent loss of parking spaces from the project. During construction (late June through end August 2017), parking spaces will be temporarily closed by construction activities. At Warde, an alternative drop off area for the on-site daycare center, which is in use during summer months, will be identified for use during construction of north section system.

### **2. Will the solar carports limit the ability of snow removal?**

No, the carports are high enough for plows to go under them. Our experience with the Rec Center solar carports shows us that, unless the snow is very drifty, the amount of plowing will be reduced because only the gaps between the carports will need to be plowed. In fact, there have been no snow-related issues at the carports at the Rec Center over the past 3 winters.

### **3. What will happen if the parking lot needs to be paved in the future?**

Paving equipment can fit under the carports. When raising the asphalt truck's dump body (which is higher than the carports), aversion techniques will be used similar to those used when working under tree canopies or power lines. Per correspondence from the Dept. of Public works, there will be no anticipated increase in future paving costs due to the carports.

### **4. How do the carport structures affect the existing overhead lighting in the parking lot?**

There will be LED lighting provided under the carport structures so that students or visitors can continue to park safely and securely. Some overhead lights may therefore no longer be necessary and will be removed, thereby reducing neighborhood light pollution.

### **5. How will the parking structures affect the parking experience?**

Traffic entering the parking lot will flow around the structures via existing traffic patterns for safe and efficient queueing. Cars parked under the carports will be shielded from weather, including snow and damaging UV radiation from the sun, representing an amenity for users. Several walkways will be covered by the carports and will provide protected means of egress across sections of the lots.

### **6. What color will the carport columns be?**

The columns will be painted a custom color to closely match the schools' exterior.

### **7. If hail, foul balls, or other objects fall or are thrown on the carports will the panels break? If they do, who is responsible for cleanup and replacing the panels and for those costs?**

The solar modules are rated for golf-ball sized hail and can, in most cases, withstand the impact of a foul ball. The modules are tempered glass; if damaged there will be no debris falling from the array. When necessary, modules will be replaced by Skyview at no cost to the Town. If panel damage issue is severe/chronic, netting may be erected by Skyview (at no cost to Town). Skyview is responsible for all maintenance of the solar system and carport structures.

## **8. How will carports affect general traffic?**

Columns should serve as traffic “calming” features. Busses, fire trucks, and plows can all fit under low point of canopy (12’). Large tractor trailers may not fit under low end (signage can be placed) but will have adequate pathways to make deliveries. We have consulted with the school Transportation Manager, John Ficke, and he has corresponded that he has no concerns. At Ludlowe, two speed tables on the approach from Unquowa are planned to be added by the Town to further calm traffic.

## **9. What happens if the solar vendor goes bankrupt?**

The project will be fully bonded, so the bonding entity would identify a replacement vendor and use the bond money to complete the project.

## **10. Will neighbor views be affected?**

At Ludlowe there are no evident visual impacts to neighbors. At Warde the visual impact from homes on Knapps Hwy during leaf-on conditions is minimal/negligible but the system will be more visible during leaf-off (winter) conditions. The system may be visible to residents on Old Farm Rd during leaf-off conditions. We are working with the Tree Warden and, if possible, will add vegetative screening along the northern end of the Warde array.

## **11. What neighborhood and community outreach has been conducted?**

A public meeting was held on February 27, 2017 to receive input from Fairfield Warde High School neighbors. Letters were sent to over 200 abutting and nearby neighbors and notices were posted through PeachJar and on the Town website. Eighteen people attended the meeting and no objections to the project were raised. Further email and door-to-door contact with neighbors has garnered more support. The Warde PTA was briefed on the project on March 8, 2017 and the Ludlowe PTA will be briefed at a future date.

## **12. Who is potentially liable if snow or ice or any other cause stemming from the carports and/or solar panels causes injury or property damages to cars or people?**

Skyview, as the owner of the solar system, is responsible for damage caused by the carports. Snow guards will be erected to prevent snow from sliding off in sheets. The Town will handle plowing, salting, and sanding.

## **13. Do the solar panels generate any electricity if there is snow on them?**

While generation will be reduced, the panels do have potential to generate some electricity while covered in snow. The estimated production of the system, and associated cost savings to the Town, takes into account loss of power due to snow cover.

## **14. Water discharged to the ground could result in freezing and cause safety hazards. How is melting snow runoff dealt with?**

The existing stormwater drainage system will remain unchanged. Salt and sand will be applied to prevent or address potential ice formation.

## **15. What “smart” features will be included in the carports?**

*Prepared by Fairfield’s Clean Energy Task Force – April 6, 2017*



The carports will be equipped with LED lighting, 120V exterior electrical outlets, and security cameras. The lighting and outlets will be timer-controlled. The security cameras will be tied to the school/FFPD system. The solar production will be recorded on a website for educational use by students.

**16. Is electric vehicle (EV) charging provided? What is the cost?**

Trickle charging an EV is possible using a standard wall outlet (120V) and an EV's portable cord. Outlet use will be on a timer and restricted to school hours for student use only. The electricity cost for a student charging an EV for 5-hours/day for 180 days/year would be \$150/year. If EV charging becomes prominent (e.g., 3 or more users), the school may choose to require a permit for EV charging. Assuming a 50% usage rate, the recommended permit fee would be \$75/year.

**17. Can the carport parking spaces be considered "premium" parking?**

The carports will provide protection from the elements, including precipitation and the sun's UV rays. Due to this amenity, the school may choose to designate the carport spaces as "premium" parking, and consider charging a higher parking fee to students. There are approximately 160 covered spaces at Warde and approximately 140 covered spaces at Ludlowe. If a \$25/year premium parking fee were charged per space, \$150,000 in additional revenue could be generated over the 20-year contract.

**18. What other towns have installed solar carports?**

Towns throughout Connecticut have installed solar systems. Carport mounted systems have been installed in parking lots in Fairfield (Rec Center), Woodbridge, Plainville, and Hamden among others.

**19. What happens at the end of the 20 year PPA agreement?**

The Town may opt to buy the system thereby getting free electricity, have the vendor remove the system, enter into an extended O&M agreement, or enter into a new solar agreement.

**20. Is there a danger that, at the end of 20 years, the Town will be "stuck" with outmoded technology?**

Solar technology, like most electronics, changes periodically. One could always wait for better technology, but while waiting would not experience the benefits of existing technology, financial or other. Solar panels have a life-span of 30 years, and will save the Town money and reduce emissions throughout that lifespan.

**21. Was the selection of Skyview a competitive process?**

Yes, Skyview was selected as one of the Town's system solar vendor through a competitive process administered by the Town. Skyview will also have to compete for the renewable energy credit incentives awarded by CT Green Bank for this project during the ZREC bidding process, before the PPA is finalized. Lastly, Skyview's proposal offers competitive solar power at a fixed 20-year rate that is lower than today's current utility prices.

**22. What happens in case of a collision with a column?**

Cushioning pads will be placed on the columns so that minor impacts to vehicles can be mitigated. In the case of significant damage, that would be expected to be resolved between the insurance companies of the owner of the system, Skyview, and the vehicle operator, not the Town.

**23. Will pick up or drop off areas be affected?**

There will be no effect on pick up or drop off areas or their associated traffic patterns in the lots.

**24. What are the environmental benefits of the project?**

The environmental benefits are numerous, and include reduced air pollution and carbon emissions. Also, the parking lot, which is a highly degraded ecosystem, is turned into productive use, thereby reducing the need for solar development in other more sensitive areas.

**25. What is the anticipated project schedule?**

We are seeking approval of the project's conceptual design and PPA rates from BOE by May 9, 2017. Upon subsequent approval of the PPA by BOS, the detailed design will be finalized, final permits will be obtained, and materials will be ordered. Construction will be completed during summer months when school is out, and is expected to take about 10 weeks.

**26. Will work impact other summertime construction activities?**

Work will be coordinated with other simultaneous construction activities. Pre-construction phase planning has been initiated through the Fairfield School Construction and Safety office, and will continue to be coordinated with them in greater detail during construction.

**27. Will school security be impacted?**

The Fairfield Police Department has reviewed the proposal and "is in agreement with the project as it pertains to schools security." The Fairfield Fire Department has also reviewed the proposal and has no concerns. The carport structures may affect existing sight-lines. Security cameras will be mounted under the carports and connected to each buildings' security systems, providing a net security benefit.

**28. How much will this project cost?**

The project costs the Town nothing and the net savings, stated above, is significant. There is no capital investment required from the Town. The system is designed, built, operated, maintained, insured, owned, etc. by a 3<sup>rd</sup> party. The Town will agree to purchase power made by the system at a rate that is lower than current conventional electricity, and is fixed for 20 years. A Power Purchase Agreement will be developed and executed based on standard template that has been used for over 20 other Town solar projects.

**29. What are the educational benefits of the project?**

The solar carports will serve as a very tangible learning tool for the high schools. AP Environmental Science and AP Physics classes may benefit from the study of solar power production and low emissions vehicles. All grade levels can use these real structures as touchpoints or field trip destinations to study renewable, clean energy. The Clean Energy Task Force can support the integration of these learning tools into the school's curriculum and will continue its mission of raising awareness of these technologies and their benefits within the entire Fairfield community.