

MEMO

City of West Palm Beach Planning and Zoning Department

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To: City Green Task Force Members
From: John Roach, Senior Planner
Date: April 28, 2009
Re: SkyDrill/Target – Proposal of Vertical Axis Wind Turbine

This memo is being provided to you as a preliminary planning/zoning analysis regarding a request that has been presented before the City. On April 2, 2009, SkyDrill Power Systems, LLC made contact with the City introducing their concept of constructing a vertical axis wind turbine (VAWT) at the new Target retail store under construction on Palm Beach Lakes Boulevard. An additional conference call was held on April 17, 2009, in which Target Corporation was a part of the dialogue, providing insight into their overall strategy regarding the West Palm Beach store.

During the initial discussions with SkyDrill, the VAWT system was presented as a patent-pending design specifically designed to fit into the urban environment. Overall, the system is approximately 100 feet tall from the base to the top of the turbine; the turbine itself is approximately 18 feet wide by 36 feet tall. SkyDrill is still in the early stages of the VAWT system, as a prototype is currently under construction at a test facility in Canyon, Texas.

According to representatives from SkyDrill, the proposed energy production from the VAWT system would result in an approximately 5% reduction in energy consumption for the Target store, which was compared to ten (10) 2,000 square foot homes being taken off of the power grid. These numbers were later updated to an approximately 10% reduction in energy and 17-25 homes.

Upon review of the proposal, the City was certainly excited to hear that one of the City's larger retailers was considering alternative energy-producing technology to reduce the carbon footprint for their structure; however, it was not without concerns. These concerns, which are outlined below for your reference, have been part of an on-going dialogue with SkyDrill, and the City believes that they are worthy of consideration in determining whether or not a VAWT system should be constructed at the Target store.

- **Context with the surrounding area (height, aesthetics, etc.)**

Located on the south side of Palm Beach Lakes Boulevard, west of Congress Avenue, the store under construction consists of an approximately 150,124 square foot retail center with a pharmacy and food/beverage services. While much of the development surrounding the Target parcel is commercial in nature, there are two (2) residential communities immediately to the south (CitySide and Malibu Bay), and several others within close proximity.

Throughout the design of the project, City Staff and Target were sure to reach out to these adjacent communities as development on the parcel was going to impact their residential homes. During this dialogue, concerns arose regarding the height of the retail structure, the aesthetic design of the building, noise, etc. While no formal outreach has occurred to date regarding the VAWT, it is believed that these same concerns would arise regarding the proposed VAWT system.

SkyDrill has indicated that there is no set location on the Target property, but that it would likely be placed along the adjacent canal in either the northeast corner of the property, near Congress Avenue, or in the southwest corner, near the Best Western hotel. In either instance, these locations are immediately adjacent to residential development and a full analysis of the VAWT's impact on these properties would need to be considered. Things like fall zones, visual impact, noise, vibrations, etc. would all need to be considered when determining a location, and because of the nature of the development, the amount of available land for construction of the VAWT is limited.

- **Signage/Precedence**

Upon showing the City their initial proposal, utilizing a rendering of a prototypical store, SkyDrill indicated that it was their desire to include the Target logo on the VAWT system. It was later identified that the VAWT system in-and-of itself was not cost-effective, and that the addition of the signage would help to generate sales, further off-setting the cost.

City Staff had concerns regarding this as it appeared that the VAWT was being taken advantage of to allow for signage that would otherwise be prohibited. As provided in the City's Zoning and Land Development Regulations (ZLDRs), the zoning district that regulates the Target parcel only provides for freestanding signs up to a maximum height of 30 feet, and as mentioned previously, the proposed VAWT is 100 feet in height. Additionally, the current ZLDRs prohibit signs which as "any visible moving parts, visible revolving or rotating part, or visible mechanical movement..." In order to provide for such signage, the City's ZLDRs would have to be amended to allow them, potentially opening the door for other commercial signs. An amendment to the ZLDRs includes a public hearing process and approval by the City Commission, which will certainly bring about more discussion on the topic.

The construction of a 100 foot tall sign would create precedence for future development. Regardless of the effectiveness of SkyDrill's VAWT system, the City would be left with a 100 foot tall "billboard" advertising the Target store, an opportunity that many future retailers would want. Throughout the design of the retail store, City Staff and Target were able to develop a sign program that utilizes low freestanding signs (maximum height of 10 feet). This not only corresponds with the urban design of the structure, but also minimizes the visual impacts on the Palm Beach Lakes corridor, as well as the surrounding residential development.

- **Benefits vs. Impacts...Are there other alternatives?**

As mentioned previously, it is estimated that the proposed VAWT system would reduce the energy consumption of the Target store by approximately 10%. With the equivalent to 17-25 homes being taken off of the power grid, the question arises of whether or not the benefits generated by the VAWT offset the impacts, some of which have been described above. The City is certainly excited about Target's willingness to explore alternative methods of producing energy, but wonders whether or not this is the appropriate location.

Throughout discussions with SkyDrill and Target, it was mentioned that the VAWT system was just one of several measures that was being taken by Target to reduce the carbon footprint of their West Palm Beach store; however, the VAWT system was the only energy-producing technology that has been mentioned. City Staff questions whether or not other energy-producing alternatives would be more appropriate for the Target location, especially when considering the adjacent residential communities. Has Target explored solar panels on the roof? Are there smaller versions of the VAWT that could be utilized? Does the value of the VAWT system take into account the broad spectrum of sustainable concerns, such as environmental, health, and social impacts? These are all questions that need to be explored.

In summary, the VAWT is an excellent opportunity to explore alternative means for producing energy and reducing the overall carbon footprint for a structure, and even the City. However, a complete cost-benefit analysis needs to occur that not only looks at the monetary and energy savings, but takes into consideration the full social cost of installing such a system within a particular area. The Target site has very unique challenges that other properties do not; therefore, all factors should be considered before constructing a VAWT system.