FROM THE OFFICE OF THE CITY MANAGER

March 4, 2013

To: Mayor and City Council Members

From: Brian Kischnick, City Manger

Subject: City Council Member Questions and Responses

I have discussed questions advanced by Mayor and Council with Staff, and responses are attached. Thank you for asking questions in advance of the meeting.

Questions Regarding the Solar Panel Field
Subject: Item I-4 Solar Panel Field

Response:
From: Glenn Lapin, Economic Development Specialist

Please note the following responses to recent questions from Council members regarding the DTE Energy Solar Currents Proposal:

1. **Are there issues related to glare? Visuals? Noise? Traffic?**

There is a Questions & Answers section included with the materials that is part of the City Council Agenda Packet for the March 4, 2013 meeting. A copy of the Questions & Answers section, written by the solar project developers, is attached to address the issues mentioned.

2. **How did we make contact with the project?**

GenPoint Energy and Inovateus are the solar project developers that responded to DTE Energy's Request for Proposal (RFP) to identify potential sites for the project. In November of 2012, representatives from GenPoint Energy called several Michigan communities about the project, including Troy. The initial phone call to the City was made to the Troy Engineering Department.

3. **Why not buy the property?**

A GenPoint Energy representative from the solar project development team indicated that the industry practice has been to enter into long term leases rather than purchasing property. The indication is that the utility company does not want to own more property than they need to.

4. **Are radio frequencies/electric and magnetic fields an issue?**

This is addressed in the attached Q&A sheet.

5. **Is there a plan to surround the site with foliage?**

No additional plantings by DTE are anticipated at this time. There is currently a landscaped berm separating the residential area from the proposed solar field. The berm will remain in place. DTE has stated that they would like to have the site visible to the public to help promote the renewable energy activity. Accordingly, they may want to remove some of the existing vegetation, particularly adjacent to I-75. Any removal of existing foliage and vegetation has to be approved by the City.

6. **What are the lease payments expected to be?**

Lease payments need to be negotiated as a part of the Lease Agreement. DTE has not stated what the amount would be. However, we understand that past lease payments for projects of this size have been in the approximate range of $30,000 per year ($2,500/month).

City staff and representatives from the solar project development team will be available at the March 4, 2013 City Council Meeting to answer any questions or provide additional information as needed.

7. **Is there going to be an energy storage "device" on this site as well (battery?) If so, is it above ground, or below ground?**

There is no energy storage device planned for the site. However, as previously stated, there is an above ground transformer that makes a humming noise when electricity is generated. This is addressed in the Q&A sheet previously submitted to Council members. The noise is not expected to be audible at 50 to 150 feet of the array.

8. **Is there going to be overhead lines in the area now that rival the best power lines?**

No additional overhead lines are expected.

9. **Is there going to be the need for underground water to be used for cooling?**

No need for underground water for cooling purposes is expected.

10. **Are these panels going to be pointed in such a way as to not cause sunlight reflections into area homes or drivers eyes?**

This is addressed in the Q&A sheet. Solar panels are designed to absorb solar energy and convert it to electricity. Most new PV panels are designed with anti-reflective coatings that improve the panel's ability to absorb light and minimize reflection and glare.

Question #2
From: Wade Fleming
Subject: Items I-8 and I-9

As you know, I am disappointed about the position we find ourselves in relative to this additional unanticipated Crash Barrier Cost and will probably have some more questions at the meeting tonight.

I would like to try and get some explanation for the $60,613 cost for (HRC) for Design, Testing, and Construction Staking of the Crash Barrier. It seems high at 21.1% of the $287,623 construction cost as compared to what they charged for the initial project.

Response:
From: Steve Vandette, City Engineer

HRC provided the following additional clarification for the costs associated with Contract Amendment #2. Summarized below is an explanation of items listed in the Breakdown for the additional services:

> *There is $18,431.70 associated with discussions with CN that began in early January and continued into mid February about the crash wall. The item also includes time after CN stated a crash wall was required, but prior to starting final design. Since CN didn't specifically tell us the crash wall parameters pertaining to height, length, thickness and foundation needs, we held numerous conference calls to discuss the requirements and provided CN with concept plans for conceptual approval prior to beginning final design. When separating this from the crash wall final design and construction related items, the fee is reduced to $42,181.30 which is a percentage of 14.7% of the estimated construction cost.*

At about 15% for design once the design requirements from CN were made clear, is not high in my opinion, given the complexity of the work, and the approval coordination required with city, contractor, CN and MDOT. The percent range for engineering services in our general consulting engineering contracts that we have with three consulting firms is 9% to 21% depending on the complexity of the design work. I would rate the crash wall high in complexity as it is actually adapting construction elements that are either already constructed (foundation and steel sheeting) or already designed (the entire west elevator/ bridge support tower) and combining them to fit in the new crash wall.

c: Mark Miller, Director of Economic and Community Development
Mayoral Candidates
Lori Grigg Bluhm, City Attorney
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QUESTIONS/ANSWERS FOR PROPOSED GROUND-MOUNTED SOLAR PHOTOVOLTAIC SYSTEM IN TROY

What is the proposed project?

DTE has proposed to construct a solar photovoltaic (PV) installation on approximately four acres of city-owned property located at the southeast corner of I-75 and Long Lake Road. If approved, the City of Troy will enter into a long term lease of the city-owned property to DTE. The property otherwise is expected to be undeveloped. DTE will pay for all costs of the installation and will be responsible for maintaining the site and the solar PV system during the 20-year term of the lease. The site of the solar installation will be fenced for safety and security.

What are the benefits to the city?

The city will be paid rent during the lease term. The rent amount is a negotiated amount comparable to lease rates paid by DTE at other sites in Michigan but adjusted for market conditions following negotiations with city managers. If constructed, Troy will be host to one of the largest solar PV installations in the state. The construction of solar installations in Troy is consistent with the goals of the 2008 Master Plan to increase alternative energy supply in Troy.

What impact will it have on adjacent property?

The impact on adjacent property is considered negligible. There may be some minor increased traffic or noise during construction, which is estimated to take 3-4 months. The nearest residential neighborhoods are separated from the location by an existing berm that shields the residential areas from I-75. To make the site suitable for locating a solar installation, ground cover and trees that could impair visibility and performance of the system will be removed.

How much energy will be generated from the PV installation?

The proposed 1 megawatt installation will produce an estimated 1,114,000 kWh hours of electricity annually. The clean solar energy produced by the system will be equivalent to the energy used by approximately 75 homes over one year and will reduce annual greenhouse gas emissions equivalent to operating 150 passenger vehicles.

What, if any, health risks do chemicals used in solar panels and other devices used in solar PV arrays pose if they are released into the environment?

Because PV panel materials are enclosed and do not mix with water or vaporize into the air, there is negligible risk of chemical releases to the environment during normal use. The most common type of PV panels are made of strong tempered glass and conform to state and federal fire safety, electrical, and building codes. Transformers used at PV installations are similar to the ones used throughout the electricity distribution system in Troy already. Modern electrical transformers typically use non-toxic coolants which if released are not expected to present a risk to human health. Any releases of toxic materials from solid state inverters installed at a solar PV installation are unlikely provided appropriate electrical and installation requirements are followed.

What, if any, health risks do the electric and magnetic fields (EMF) from solar panels and other components of solar PV arrays pose?

Solar PV panels, inverters, and other components that make up solar PV installations produce extremely low frequency EMF when generating and transmitting electricity. The extremely low frequency EMF from PV arrays is about the same that people are exposed to from household electrical appliances, wiring in buildings, and power transmission lines (all at the power frequency of 60 hertz). In industry studies, the

magnetic field levels at the boundary areas of comparable solar PV site were in a very low range, below the typical levels experienced by most people at home. A concise summary of issues regarding solar PV and electromagnetic fields was prepared by the State of Oregon in connection with a large proposed PV installation, and can be found here: www.oregon.gov/odot/hwy/oipp/docs/emfconcerns.pdf.

How do ground-mounted solar PV arrays adjacent to residential neighborhoods influence the property values in those neighborhoods?

There is little evidence that ground-mounted solar arrays influence nearby property values. Some research concludes that residential solar PV installations increase the home property values on the houses on which they are installed.

What public safety issues arise from people's (including children) access areas where the solar arrays are installed? Can electrical and other equipment associated with solar projects cause electrical fires?

This site, like most ground-mounted solar PV arrays, will be enclosed by fencing. This prevents children and the general public from coming into contact with the installations, thus preventing unsafe situations. The National Electric Code has mandatory requirements to promote the electrical safety of solar PV arrays. The solar industry and firefighters provide training and education for emergency personnel to ensure that the proper safety precautions are taken. Leading solar PV modules are certified to Underwriters Laboratories (UL) safety standards for electrical devices.

Do the inverters, transformers or other equipment used as part of ground-mounted solar PV create noise that will impact the surrounding neighborhood?

Ground-mounted solar PV array inverters and transformers make a humming noise during daytime, when the array generates electricity. At 50 to 150 feet from the boundary of the arrays, any sound from the inverters is typically inaudible. Sound levels along the fenced boundary of the planned PV system are expected to be at background levels.

How significant is glare and potential visual impacts from solar projects?

Solar panels are designed to absorb solar energy and convert it into electricity. Any reflective light therefore represents a loss in the amount of energy that is created. Most new PV panels are designed with anti-reflective coatings on the front glass surface that improves the ability of the PV module to absorb light and therefore increase solar energy production. These anti-reflective coatings minimize the amount of reflection and, therefore, glare. Many projects throughout the U.S. and the world have been installed near airports with no impact on flight operations. Also, design of the array, including the proper utilization of trees and berms, can minimize any potential glare to surrounding areas.

Will the solar PV site attract birds or small animals?

As with other structures in open areas, birds or small animals may tend to seek out the small cracks and crevices of the solar array frame to take residence. The frame structures are designed with caps of any openings that might be attractive to animals. DTE will be responsible for operating and maintaining the system on a routine basis and will clean the site and the array to minimize opportunities for small animals or birds to settle.

Will signs be located at the site of the solar installation?

As part of its solar program, DTE requires that signage be installed identifying the solar array as constructed and owned by DTE. Any signage will comply with the City of Troy sign ordinance requirements.