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## **Unique, Powerful Partnership Brings Clean, Renewable Energy to the Denver Housing Authority**

**Denver, CO** – Denver Mayor Michael Hancock joined the Denver Housing Authority in making a landmark public-private partnership announcement that will bring renewable energy to 387 affordable housing buildings throughout the city. The ambitious Solar Power Purchase Agreement spearheaded by DHA and several renewable energy leaders, including Oak Leaf Energy Partners, Enfinity America Corporation, and Namasté Solar, makes DHA one of the first housing authorities in the country to implement such a complex, large-scale, residential solar electric project.

“The Denver Housing Authority continues to serve as an aggressive leader in revitalizing Denver’s inner-city communities. Developing smart, sustainable residential sites clearly makes them an outstanding example of the stewardship that makes us a leader in energy-conscious cities,” stated the Mayor.

The announcement of the 2.513 megawatt solar project was made at DHA’s Quigg Newton Homes, the location for the first of the 668 individual solar installations. For the engineering and installation of the solar electric systems, DHA turned to Namasté Solar, Colorado’s leading solar integrator. Once all of the photovoltaic arrays are installed in April 2013, the systems will collectively generate an average of 3.4 million kilowatt hours of electricity per year, which is an annual reduction of 3,479 tons of carbon dioxide, which is the equivalent to planting 267,624 total trees.

“At DHA, we are constantly looking for better and smarter ways to run our business and carry out our mission. Entering into a Power Purchase Agreement with our partners at Oak Leaf and Enfinity makes good business sense,” adds Ismael Guerrero, DHA’s Executive Director. Through this innovative financing structure, DHA will be able to purchase long-term power, from renewable energy sources located on our housing units, with no upfront capital investment on our part. This is good for DHA, good for the environment, and good for the communities we serve.”

**Oak Leaf Energy Partners** served as the project’s developer, providing site planning, interconnection analysis, tax and financial structuring, and negotiating financing.

“This project was the most complicated and challenging of any of the 35 solar projects we have completed to date – but also, perhaps, the most compelling and beneficial,” said Oak Leaf’s John Hereford. “DHA is unique for a public agency in that they have a real appetite for innovation and are not afraid to try new concepts to advance their mission.”

**Enfinity America Corporation**, the project’s financier, owns and operates the photovoltaic arrays, selling the electricity it generates from the solar electric systems to DHA. Under the contract, DHA will be able to purchase any system at year 6, 10, or 15. Each solar electric system adds approximately \$10,000 in value to a single-family residence, so a sale any time after three years demonstrates a smart, sustainable investment by DHA.

“Enfinity is very pleased to have worked with all of its partners on this effort to bring a viable financing and asset ownership solution to this very important project with the Denver Housing Authority. To bring solar energy to over 650 affordable homes adds a very exciting project to our traditionally more commercially focused portfolio. It took great commitment and coordination by everyone involved to move this project forward,” said Rafael Dobrzynski of Enfinity America Corporation.

**Namasté Solar**, Colorado’s leading solar company is implementing the engineering, design, and installation of this large, complex solar project.

“Each partner brought a level of commitment, experience, and creativity to the process that was critical in enabling this project to become a reality. With more than 40 new hires for this project alone, Namasté Solar now has over 100 employees dedicated to propagating the use of solar electricity in Colorado and beyond,” added Blake Jones, President & CEO of Namasté Solar.

TOTAL PROJECT TECHNICAL DETAILS	
Total Solar System Capacity	2.513 megawatts
Total Properties Installed with Solar	668 individual systems on 387 buildings
Total Number of PV Modules	10,471 panels
Solar Panel Type	SolarWorld 240 watt panels
Annual Electricity Production	3,397,576 kilowatt hours
Estimated Completion	April 2013
ENVIRONMENTAL BENEFITS (every year for 30+ years)	
Annual CO2 Emissions Reduced	3,479 tons
Equivalent Reduction in Vehicle Miles Driven	7,610,570 miles/year
Equivalent Reduction in Number of Trees Planted	267,624 total trees

**ABOUT PROJECT PARTNERS:**



**The Housing Authority of the City and County of Denver (Solar Site Host)**

DHA has set an example in progressive, large scale approaches to energy efficiency. They have been a leading developer of housing incorporating renewable energy measures throughout the City. DHA has launched a portfolio wide Energy Performance Contract that significantly lowers the operating costs of units across the entire City. Today, DHA is implementing one of the largest multi-family housing power purchase agreements in the country. [DenverHousing.org](http://DenverHousing.org)



**Oak Leaf Energy Partners (Project Developer)**

Oak Leaf Energy Partners was founded in 2005 to provide project development and consulting services for renewable energy transactions. The company helps property owners deploy solar and other renewable energy derived power across their portfolio of buildings and properties. Oak Leaf Energy Partners provides full turnkey development solutions, including feasibility studies, site planning and interconnection analysis, tax and financial structuring and negotiating financing and EPC contracts. Since its founding, the company has emerged as one of the largest and most active solar energy developers in the Rocky Mountain West, with a growing regional and international footprint and pipeline. [OakLeafEP.com](http://OakLeafEP.com)



**Enfinity America Corporation (Financier & Owner)**

Founded in 2005, Enfinity is an established leader in renewable energy (the sixth largest in the world in its sector), with operations in Europe, North America, and Asia-Pacific. The company finances, develops, and builds solar photovoltaic projects and also owns a portfolio of renewable energy installations. Enfinity has been selected to build some of the largest renewable energy projects across the globe, with 200 MW installed and operational worldwide. [EnfinityCorp.com](http://EnfinityCorp.com)



**Namasté Solar (Installer)**

Namasté Solar is an employee-owned cooperative dedicated to bringing clean, reliable, and affordable renewable energy to homes, businesses, and nonprofits in Colorado and beyond. As the leading solar company in Colorado, with more in-state installations than any other company, Namasté Solar has installed more than 1700 photovoltaic systems, totaling over 16 megawatts, since its inception in 2005. Its unique business model includes employee ownership, democratic decision-making, community collaboration, an innovative solar grant program, zero-waste initiatives, and holistic profit measurement. [NamasteSolar.com](http://NamasteSolar.com)

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# A Solar Power Project in Progress at DHA

## Commitment to Clean Renewable Energy & Long-term Sustainability

### Public-Private Partnership

The Housing Authority of the City and County of Denver (DHA) is one of the first housing authorities in the nation to implement a landmark renewable energy project with the installation of 668 solar electric systems on 387 DHA resident buildings, totaling 2.513 megawatts. Utilizing 10,471 240-watt panels, these collective arrays demonstrate DHA's commitment to environmental sustainability by reducing carbon emissions by 3,479 tons per year.

Enfinity America Corporation, which financed, owns, and operates the systems, worked with Oak Leaf Energy Partners to develop an innovative public-private partnership, enabling the Denver Housing Authority to secure clean power generation through a long-term contract known as a Power Purchase Agreement. As a result, DHA's new solar electric systems will be cost effective from the very first day of operation. Engineered, designed, and installed by Namasté Solar, Colorado's leading solar company, this unique 2.513 MW solar project uses state-of-the-art technology to maximize solar electricity generation.



### TOTAL PROJECT TECHNICAL DETAILS

<b>Total Solar System Capacity</b>	2.513 megawatts
<b>Total Properties Installed with Solar</b>	668 individual systems on 387 buildings
<b>Total Number of PV Modules</b>	10,471 panels
<b>Solar Panel Type</b>	SolarWorld 240 watt panels
<b>Annual Electricity Production</b>	3,397,576 kilowatt hours
<b>Estimated Completion</b>	April 2013

### ENVIRONMENTAL BENEFITS (every year for 30+ years)

<b>Annual CO2 Emissions Reduced</b>	3,479 tons
<b>Equivalent Reduction in Vehicle Miles Driven</b>	7,610,570 miles/year
<b>Equivalent Reduction in Number of Trees Planted</b>	267,624 trees

\*The amount of carbon offset by buying a certain amount of REC's is calculated based on the state average carbon dioxide emissions coefficient for electric utilities, 1997-99, as published in "U.S. Department of Energy and U.S. Energy Information Administration Form EIA-1605 (2001), Voluntary Reporting of Greenhouse Gases, Appendix C: Adjusted Electricity Emissions Factors by State." For the Rocky Mountain Region, each of the ten states' carbon emissions per kilowatt-hour is calculated and then averaged for the entire region. The pounds of carbon dioxide produced for each kilowatt-hour of electricity generated in Colorado is 2.048.

\*\*The number of cars removed from the road is calculated based on driving a car that gets 21.4 mpg for 11,904 miles (the national average) per year. (The average miles driven per year is derived from the "Monthly Energy Review, February 2001" published by the Energy Information Administration. The figure averages car miles driven and SUV miles driven.) This yields 556 gallons of gasoline used. Pounds of CO2 produced per gallon of gasoline burned is 19.564 (from "Instructions for Form EIA 1605B Voluntary Reporting of Greenhouse Gas Emissions, Appendix B," U.S. Department of Energy and the Energy Information Administration.) This driving thus produces 10,883 pounds of CO2 per year. This amount is then correlated to the amount of CO2 produced by electricity generation averaged over the Rocky Mountain Region.

\*\*\*The estimated amount of CO2 that a tree will take up in a year is 26 pounds. This is based on a figure from American Forests as cited by the Natural Resources Defense Council, "OnEarth Magazine," Winter, 2005 (<http://www.nrdc.org/onearth/05win/livgreen2.asp>) Actual amounts of atmospheric CO2 taken up by trees varies with the age of the tree, the species, local climate, the tree's health, etc.

\*\*\*\*Source: Docket 08I-267E at the Colorado PUC. See page 14 in Xcel's "ECA" filing.

### Solar Power Project Partners:



## Project Inception

In early 2011, the DHA Real Estate department began exploring opportunities for a comprehensive Solar Power Purchase Agreement (PPA) for its existing affordable housing portfolio. The goals for DHA were to: (1) Purchase energy production from renewable source; (2) Create green jobs; (3) Establish long-term financial sustainability; and (4) Create opportunity for long-term ownership and operation of energy efficient systems. With proven capabilities in innovative green building and complex financing, DHA began in earnest to seek a viable PPA partnership that could be developed through groupings of existing multi-family properties and housing units for a large-scale solar electric project.

Through major community revitalization initiatives such as Benedict Park Place and the new Mariposa redevelopment that incorporates solar electricity, geothermal, and other energy efficient design elements, the Denver Housing Authority has firmly established itself as a leading developer of sustainable residential sites. As a result, all new construction buildings have reduced DHA's operating costs by 50%. In addition, DHA recently launched a portfolio-wide Energy Performance Contract that significantly lowers the operating costs of its units located across the entire city.



### DHA PROPERTY DETAILS

Property	Total Units	Units with Solar	Total kW
Quigg Newton Homes	380	148	415
North Lincoln Homes	156	114	358
Columbine Homes	200	65	211
Dispersed South	427	129	551
Dispersed East	340	78	301
Dispersed West	323	110	441
Westwood	24	24	236
<b>TOTAL</b>	<b>1850</b>	<b>668</b>	<b>2.513 MW</b>

## Project Summary

The DHA Solar Power Partnership represents one of the largest multi-family housing solar electric projects in the country– and DHA continues to serve as a leading example of the stewardship that makes Denver a leading energy-conscious city.

- This 2.513 megawatt solar project will include 668 solar electric systems at no upfront cost to DHA
- After 6 years, DHA has the option to purchase the solar arrays at a discount or maintain the lease
- Leverages DHA's assets with proven financial management capacity
- Long-term, predictable energy costs for DHA in a volatile fossil fuel environment
- DHA will utilize the energy savings for roof replacements and other building improvements
- This solar project created 40+ new Denver jobs
- The collective solar arrays will reduce carbon dioxide emissions by 3,479 tons per year
- Supports commitment by HUD and DHA to sustainability, including clean renewable energy

### Solar Power Project Partners:





# A Solar Power Project in Progress at DHA

## 4580 – 4590 Navajo at Quigg Newton Homes

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### QUIGG NEWTON HOMES FACTS

<b>Total Number of Units</b>	380
<b>Year Built</b>	1952
<b>Total Acres</b>	27.5 acres (approx.)
<b>Total Number of Families</b>	378
<b>Average Family Size</b>	2.5
<b>Average Annual Income of Families</b>	\$10,000

### 4580 – 4590 NAVAJO AT QUIGG NEWTON HOMES : SOLAR PROJECT TECHNICAL DETAILS

<b>Total Solar System Capacity</b>	11.53 kilowatts
<b>Properties Installed with Solar</b>	4 individual systems on 1 building
<b>Total Number of PV Modules</b>	48 panels
<b>Solar Panel Type</b>	SolarWorld 240 watt panels
<b>Annual Electricity Production</b>	15,919 kilowatt hours

### SOLAR ENVIRONMENTAL BENEFITS (every year for 30+ years)

<b>Annual CO2 Emissions Reduced</b>	16 tons
<b>Equivalent Reduction in Vehicle Miles Driven</b>	35,659 miles/year
<b>Equivalent Reduction in Number of Trees Planted</b>	1,253 trees

\*The amount of carbon offset by buying a certain amount of REC's is calculated based on the state average carbon dioxide emissions coefficient for electric utilities, 1997-99, as published in "U.S. Department of Energy and U.S. Energy Information Administration Form EIA-1605 (2001) Voluntary Reporting of Greenhouse Gases, Appendix C: Adjusted Electricity Emissions Factors by State." For the Rocky Mountain Region, each of the ten states' carbon emissions per kilowatt-hour is calculated and then averaged for the entire region. The pounds of carbon dioxide produced for each kilowatt-hour of electricity generated in Colorado is 2,048.

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