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ALTERNATIVE ENERGY DEVELOPMENT AND RAINWATER CAPTURE
SANTA FE COUNTY, NEW MEXICO

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I. Proposed Draft Green Development, Energy and Rainwater Capture Regulations for a new Santa Fe County Land Development Code (SLDC)

GREEN BUILDING DENSITY INCENTIVE PROGRAM.

6.1. Purpose. The purpose of the Santa Fe County Green Building Program ("GBP") is to meet the following objectives:

6.1.1. Comprehensive Plan Goals. To preserve the health, safety and welfare of the County's citizens and businesses and to meet the goals of the Comprehensive Plan, including but not limited to the following:

6.1.1.1. Assist local businesses to lower financial and regulatory risks and improve their economic, community, and environmental sustainability.

6.1.1.2. Work with the private sector to meet the County's greenhouse gas emission reduction goals.

6.1.1.3. Require the use of local renewable energy resources, including appropriate applications for wind, solar, and biomass energy.

6.1.1.4. Require sustainable building design and management practices in residential, commercial, and industrial buildings to serve the needs of current and future generations.

6.1.1.5 Require rainwater recapture systems

6.1.2. Energy Efficiency. Require the use of energy efficient technologies and design in new and remodeled buildings in the County.

6.1.3. Environmental Stewardship. Require environmental stewardship through reduction in nonrenewable fuel uses.

6.1.4. Economic Development. Encourage local investment in efficiency as a substitute for out-of-state resources.

6.2. Green Development. The County requires all new building construction and major renovations of existing buildings to meet the Green Development Standards of the SLDC. All developers are required to include specific green building components in site plans and subdivision plats and commit to becoming, either : (a) certified under the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED™) program at the Silver or higher level; or (b) meet equivalent LEED silver standards through design and performance standards. All rehabilitation of existing projects which achieve a silver or greater LEED or equivalent standard shall earn a density bonus as set forth in Table 6. All new projects or construction which achieve a gold or greater LEED or equivalent standard shall earn a density bonus as set forth in Table 6.

6.2.1 Floor Area Ratio Premiums. All new or rehabilitation construction that achieves a gold or greater LEED standard or equivalent shall be awarded floor area ratio (FAR) premiums shall be available as specified in Table 6, Maximum Floor Area Ratio Premiums, in all zoning districts where FARs are used to guide density, subject to the provisions of this article and provided all other requirements of this zoning ordinance are met.

Table 6
Maximum Floor Area Ratio Premiums

LEED Level	Commercial/Industrial	Residential
Silver (Rehab only)	0.15	0.20
Gold	0.35	0.40
Platinum	0.45	0.50

6.3 High Performance Buildings High performance buildings, as defined below, are eligible for up to two (2) FAR bonuses in some zoning districts:

6.3.1. Submission of a High Performance Building Plan. The applicant shall submit a High Performance Building plan that includes all information to demonstrate, to the satisfaction of the County review staff, a minimum of 35 percent increase in overall building energy efficiency as compared to the average building of like type in the County. Commercial buildings shall be compared to commercial buildings and residential buildings shall be compared to residential buildings. Full participation and compliance with the USGBC's LEED™ program at not less than the silver level. Documentation of the 35 percent increase in overall building efficiency, third party verification or commissioning as described below, and County program approval are necessary. The High Performance Building Plan shall also include specific provisions for mitigating non-compliance with the designated energy efficiency performance standard

sufficient to generate an equivalent reduction of CO2 and other pollutants, and other any other provisions necessary to demonstrate compliance with this section.

6.3.2. Energy Efficiency Defined. Energy efficiency is to be defined by the use of purchased (generated or refined at a separate site) or on-site-generated fuels consumed per square foot of occupied space. Calculations can take into account the use of the following:

6.3.2.1. On-site generated renewable energy, including photovoltaic, wind, or hydro generation of electricity; passive solar systems using solar heat or light; geothermal source; or other use of renewable fuels displacing the use of non-renewable fuels in the building's systems.

6.3.2.2. Efficiency of all building mechanical systems that burn, convert, or transform the energy in natural gas, electricity, oil, coal, steam, or purchased heat or cold in any form.

6.3.2.3 Calculations shall not include manufacturing or mechanical processes for which the State of New Mexico has not set a minimum standard.

6.4. Energy Efficiency Measured. Energy efficiency shall be measured consistent with the following methodology:

6.4.1. Identify and describe energy using systems covered by the American National Standards Institute ("ANSI"), American Society of Heating, Refrigerating and Air Conditioning ("ASHRAE"), Illuminating Engineering Society of North America ("IESNA") Standard 90.1-2007, including heating, cooling, fans and pumps, lighting, equipment plug loads, and domestic hot water.

6.4.2. Identify and describe the base operating assumptions for the project, including hours of use, temperature set-points, supply/exhaust/ventilation air flow, interior humidity deadband, cooling and heating distribution and equipment types, and all other base operating assumptions necessary to calculate energy use and energy savings consistent with ANSI/ASHRAE/IESNA Standard 90.1-2007 standards or current equivalent.

6.4.3. Identify and describe the energy-saving strategies to be incorporated in the design, the strategy-improved parameters exceeding the ANSI/ASHRAE/IESNA Standard 90.1-2007, and the location within the building where each strategy will be implemented.

6.4.4. Provide a report outlining energy savings model estimates for each energy-saving strategy as compared to the code compliant design for both energy consumption (BTUs, KWHs, and electric demand in KW) and energy costs using

current energy rates. Energy savings estimates are to be determined using the DOE2.1E annual hourly thermal and daylighting simulation model (or most recent substitute) utilizing a Santa Fe County Municipal AP TMY3 weather file (or most recent substitute). A Code compliant model will be established set to the minimum standards identified in the ANSI/ASHRAE/IESNA Standard 90.1-2007 as adopted by the County in the SLDC. Isolated strategy savings will be estimated by simulating each strategy separately and then by subtracting the annual results from the code compliant model results.

6.4.5. Estimate the integrated energy savings impact of all strategies incorporated into the design by simulating all strategies in one model and comparing the results to the SLDC compliant model. The savings results of this model shall use at least 35% less energy to operate than the SLDC compliant model.

6.4.6. Provide a set of plans to County at 90% Construction Document (CD) completion for review of energy savings strategies identified. County will issue a CD review report (within three weeks of receipt of the drawings) to identify if all strategies and related parameters have been adequately incorporated into the design documents.

6.5. Verification. At the time of building occupancy, County will, by special inspector, conduct onsite verification that all designed energy savings strategies are installed and functioning as per design specification, and will issue a report of its findings. The applicant may, as an alternative to County's special inspector, submit a third party Commissioning report showing all energy systems and energy efficiency measures to be installed and functioning according to design specifications. The Commissioning process shall be consistent with ASHRAE Guideline 1.1 (HVAC&R Technical Requirements for the Commissioning Process) or the most recent version. Commissioning of non-HVAC systems shall use the process described in ASHRAE 0-2007, or subsequent ASHRAE variations for non-HVAC equipment.

6.6. Enforcement. The applicant shall post a bond or file a letter of credit prior to issuance of the first Certificate of Occupancy. The bond or letter of credit amount shall be calculated based on the size of the bonus density approved multiplied by the average annual rental rate for space in the specific area of the County, as calculated by the County.

> **6.6.1. Commissioning Failure** - Energy-saving strategies that do not perform to specification or are missing must be brought to design specification or installed within 90 days of Model Community's verification report or submittal to County of a third party Commissioning report by a licensed engineer.

6.6.2. Default. If a project fails to achieve the promised LEED certification after receiving the bonus density, the bond or credit amount defaults to the County.

II. Solar and Wind Renewable Energy Systems and Rainwater Capture

An exhaustive study conducted by California's Sustainable Building Task Force established that incorporating green features into a building's design would generate a tenfold return on investment over the life of the building. The findings were substantial; even without solar energy, green buildings consume 30 percent less energy. Green buildings with solar energy consumed 80 percent less energy, 30 to 50 percent less water and produced 50 to 75 percent less construction waste.[i]

Solar power presents extraordinary potential; in the United States alone, solar energy amounts to 10,000 times as much electric power as is consumed in the country.[ii] Solar domestic hot water collectors are affordable and efficient, can be paid off in ten years, and replace the second most expensive element of home utilities after heating and air conditioning.[iii]

The cost of a single-family solar facility is currently about $25,000, with monthly utility rates of electricity averaging $400. An 80 percent savings of $320 per month from solar energy would take only six and one-half years to recoup the solar investment. The savings over the life of a thirty-year mortgage loan would create savings of $90,240.

The nationwide problem with building solar facilities is that housing developers must pay the $25,000 per dwelling cost without any certainty that a home's sales price will cover even a part of the cost, especially when meager state and federal subsidies are paid directly to the homeowner.

Rainwater capture systems too represent extraordinary potential. The cost of water is rising rapidly, especially in the drought-ridden Southeast and Southwest. By installing cisterns, pervious driveways, and swales in place of culverts, major rainwater retention and treatment results in huge savings of cost and supply. But as with solar energy modifications, developers must pay the initial cost of rainwater capture systems.

A simple solution is to monetize the cost of solar and rainwater systems through grants or loans to the developer by the electric or water utility, a special district, or the homeowner's association, which will be amortized by utility rate surcharges, special district assessments, or homeowner's association dues on the homeowner. Normally special assessments and utility rates are used for public capital facilities, but the courts and state legislatures are opening the door for public and/or special district assessments for solar energy and rainwater capture.

In *Stenos v. City of Santa Fe*,[iv] the court ruled that a municipality or utility had the authority to impose rate surcharges on a property owner's use of water to pay for the cost of purchasing available water in addition to providing hard physical treatment plants and distribution lines.[v]

The same result has been achieved to pay for the costs of conservation to meet the stringent stormwater discharge regulations issued by the EPA under the 1987 Water Quality Act. Communities have created "storm water utilities" that pass the cost of construction directly to the property owners served by the system through monthly assessments, using a concept of equivalent dwelling units (EDUs) uses.[vi]

Lastly, direct assessments can be levied against the homeowners by the homeowner's association. These assessments will be used to amortize the utility or special district's grant or loan to the developer.[vii]

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[i] *See* FREILICH & WHITE, *supra* note 23, at 13.

[ii] DAVID GOODSTEIN, OUT OF GAS: THE END OF THE AGE OF OIL 104 (2004).

[iii] GREG PAHL, THE CITIZEN POWERED ENERGY HANDBOOK, COMMUNITY SOLUTIONS TO A GLOBAL CRISIS ix (2007).

[iv] 143 P.3d 756 (N.M. App. 2006).

[v] *See Board of Trustees of Washington County Water Conservancy Dist. v. Keystone Conversions*, 103 P.3d 686 (Utah 2004) (fee levied for developing secondary water sources did not violate the Impact Fees Act, UTAH CODE ANN. §§ 11-36-101 to 11-36-501).

[vi] *See Bloom v. City of Fort Collins*, 784 P.2d 304 (Colo. 1989) (upholding creation of transportation utility for repair and maintenance of arterial and collector roads through utility rates imposed on existing development); American Planning Ass'n, Public Investment, A Utility Approach to Stormwater Management, PAS Memo, June 1991; *Parking Benefit Districts Make Headway in Texas and the West*, NEW URB. NEWS, Mar. 2006, at 9.

[vii] *See* Steven Siegel, *The Public Role in Establishing Private Residential Communities*, 38 URB. LAW. 860, 861 (2006) (public service homeowner exactions to cover public governmental operating costs).