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Mr. Nasseri,

Please find the comments of the Natural Resources Defense Council on Energy Efficiency and Sustainable Design Standards for New Federal Buildings attached for the docket. We are also resubmitting the comments we wrote for the Interim Final Rule on the Energy Efficiency Standard for Federal Buildings, which were submitted on January 30, 2007, as Annex A to our new comments.

Thank you for the opportunity to comment,

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NATURAL RESOURCES DEFENSE COUNCIL

# Comments of the Natural Resource Defense Council on
Energy Efficiency and Sustainable Design Standards for New Federal Buildings; Notice of Proposed Rulemaking

Docket Number: EE-RM/STD-02-112
RIN 1904-AC13

August 12, 2010

## Introduction

On behalf of the Natural Resources Defense Council and our more than 1.3 million members and online activists, we respectfully submit these comments[1] on the Department of Energy's notice of proposed rulemaking on Energy Efficiency and Sustainable Design Standards for New Federal Buildings, 75 Fed. Reg. 29933 (May 28, 2010) ("Notice of Proposed Rulemaking").

Buildings are the single largest energy end-use in the United States, accounting for about 40 percent of our total energy use. Government-owned buildings account for 24 percent of commercial floor space in the US.[2] Thus, the Department of Energy ("DOE") has a significant opportunity in regulating federally owned and leased buildings not only to reduce the Federal government's own energy costs and environmental footprint but also to set an example for state and local governments and all new residential and commercial buildings. The regulation of Federal buildings is an important tool for educating the public about energy efficiency and sustainable design. These buildings also provide a means of introducing a new feature or design strategy which can be used to transform the design and construction industry. For all these reasons, it is critical that Federal buildings meet the highest design standards.

NRDC urges DOE to complete this rulemaking expeditiously and to initiate rulemakings on other issues related to the sustainability of Federal buildings that are past due under the deadlines established by Congress, such as the fossil fuel reduction requirement under 42 USC §6834(a)(3)(D)(i)(I) and the requirement for new energy efficiency standards based on revised model codes under 42 USC §6834(a)(3)(B).

The following comments respond to select items in the Notice of Proposed Rulemaking.

## Comments

A. *Scope of Proposed Rulemaking and Consideration of Life-Cycle Costs*

[1] NRDC is also submitting a separate set of joint comments with Earthjustice.
[2] http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/2003set5/2003pdf/b18.pdf

DOE proposes to revise the definition of "new Federal building" to include buildings "built for the purpose of being leased by a Federal Agency, and privatized military housing" as directed by the Energy Independence and Security Act of 2007, Pub. L. 110-140 ("EISA"). DOE is also considering limiting this definition of "Federal building" to "new leased buildings in which a Federal agency has significant control over the design of a building (*e.g.* 'lease-constructs')." 75 Fed. Reg. at 29934. **NRDC does not believe that DOE should limit the definition of leased buildings**. EISA explicitly requires DOE to include all leased buildings, so **limiting the definition in this way would go against the statutory requirement**. Furthermore, the term "significant control over design" is vague.

In addition, DOE's proposed rule erroneously requires a determination of life-cycle cost-effectiveness in order for sustainable design principles to be implemented in all new Federal buildings and major renovations unless (i) the building is a public building for which a transmittal of a prospectus to Congress is required or (ii) the cost of the building or major renovation is at least $2.5M. *Id.* at 29942 and 29946. NRDC believes DOE's interpretation of the statutory requirement is incorrect. As more fully discussed in our joint comments with Earthjustice, EISA amended the Energy Conservation and Production Act, 42 U.S.C. §6834 ("ECPA") to **require the application of sustainable design principles to all new Federal buildings, without limitation and without determination of life-cycle cost-effectiveness**, as well as to major renovations, which (i) in the case of public buildings, require a prospectus to be transmitted to Congress or (ii) cost at least $2.5 million. 42 U.S.C. § 6834(a)(3)(D)(i). NRDC believes the proposed rule needs to be amended to comply with EISA as more fully elaborated on in the joint comments submitted with Earthjustice.

B. *Practicability Limitation*

DOE proposes to limit the implementation of sustainable design principles for siting, design and construction in Federal buildings "to the extent practicable." 75 Fed. Reg. at 29942 and 29946. In addition, DOE requests comments on whether or not to add the limit of 3 percent of total first costs to integrate features to comply with this rule to the definition of "to the extent practicable." *Id.* at 29935. **NRDC does not believe that DOE's addition of the "to the extent practicable" limitation is permissible under the plain language of EISA.** 42 U.S.C. § 6834(a)(3)(D)(i)(III). EISA contains no practicability limitation, and DOE has not provided any justification for its interpretation of EISA. Even if the practicability limitation is permissible, the 3 percent of total first cost limitation should not be added to the definition of "to the extent practicable" because this limitation based on percentage of first cost is arbitrary.

C. *Definition of Major Renovation*

DOE proposes to define "major renovation" as any renovation that exceeds 25 percent of the building's replacement value and applies only to the portion of the building or individual building system undergoing renovation, such that a replacement of watering system for landscaping would trigger the outdoor water use rule. 75 Fed. Reg. at 29942 and 29945. **NRDC agrees with this proposed definition and supports the limitation of the rule to the specific portion of the building or system being renovated.** Many potential cost-effective efficiency and sustainability improvement projects only address a sub-portion or sub-system of a building and would not constitute 25 percent of the entire building's replacement value, and it is important for Federal agencies to capture these opportunities.

D. *Solar Hot Water Heaters*

The Notice of Proposed Rulemaking reflects the EISA requirement that 30 percent of hot water demand in new Federal buildings and major renovations be met by solar water heaters if life-cycle cost-effective *Id.* at 29942, 29945-6. The availability of solar hot water heaters for the commercial marketplace

continues to be a problem in the private sector, so **we recommend that DOE direct the agencies to consider volume purchasing arrangements with specific manufacturers of these units**, similar to the volume purchasing program DOE has initiated for super high performance windows. These negotiated costs should be used when calculating the cost-effectiveness of solar hot water heaters, particularly for multi-family and commercial buildings.

E. *Federal Leadership in High Performance and Sustainable Building – Guiding Principles*

The Notice of Proposed Rulemaking lists several industry standards and solicits comments as to whether these or other nationally recognized sustainable design standards should be deemed to comply with the sustainable design requirements in the DOE rules. Specifically, DOE lists ASHRAE 189.1P-2009 and the International Green Construction Code (IGCC) under development as candidates for compliance with the design standards. *Id* at 29935. **NRDC believes that these two codes and standards are strong potential candidates for fulfilling the sustainability requirements and recommends that DOE further analyze them both** (under the assumption that the IGCC will be finalized in time for this rulemaking) to determine whether they do indeed meet all the statutory requirements for the standards for Federal Buildings.

1. *Integrated Design Principles*

The Notice of Proposed Rulemaking would require all Federal agencies to employ commissioning practices and lists several requirements of these practices. *Id*. at 29943. **NRDC agrees that commissioning buildings to ensure that they perform as intended is critical to achieving sustainable buildings** and is pleased to see that DOE has included this requirement. **NRDC recommends that DOE also add a requirement that Federal agencies address any problems that are identified in the commissioning process.** If a building is not performing as intended, the Federal agency should be required to fix the problem or explain why it cannot be fixed.

2. *Optimize Energy Performance*

DOE expands the energy-related requirements of the final rule previously published on December 21, 2007, 72 FR 72565, by adding renewable energy and solar hot water requirements when cost effective. However, the Notice of Proposed Rulemaking does not modify the rule in regards to energy efficiency. 75 Fed. Reg. at 29936. **The energy efficiency standards for Federal buildings should be revised immediately, either as a part of this rulemaking or in a separate rulemaking to be undertaken immediately.** As NRDC commented (see Annex A)[3] in response to the previously published final rule, 10 CFR §433.4 and §435.4, the rule explicitly ignored Section 109 of the Energy Policy Act of 2005, Pub. L. 109-58 ("EPAct"), which amended Section 305 of ECPA to require DOE to **set a standard** to achieve **at least** 30 percent less energy consumption compared to the International Energy Conservation Code or ASHRAE Standard 90.1. 42 U.S.C. §6834(a)(3)(A). Instead of establishing **an actual standard** that would meet this statutory requirement, the previously published final rule leaves discretion entirely up to the builder and design team to achieve up to 30 percent savings if they determine that the energy efficient designs are life-cycle cost-effective. 10 CFR §433.4 and §435.4. Furthermore, Section 109 of EPAct 2005 requires DOE to revise the standard not later than 1 year after revisions in the model codes, and DOE has missed this deadline for both the IECC and ASHRAE Standard 90.1. 42 U.S.C. §6834(a)(3)(B). **DOE should revise the energy efficiency standard immediately to meet the statutorily-required energy savings target and to set an explicit standard.**

[3] NRDC is attaching its comments previously submitted to DOE on January 30, 2007 as Annex A.

3. *Protect and Conserve Water*

The requirements contained in the proposed rule regarding water saving targets for indoor water and outdoor water are deeply flawed. 75 Fed. Reg. at 29943. **The key shortcoming in these proposals is the requirement to achieve a percentage reduction of water use compared to a baseline level of consumption.** For new construction, the lack of a calculable baseline is to be addressed with building water use indices issued by the Federal Energy Management Program ("FEMP") for a building of the same type. This formulation poses three problems. First, although the proposed rule would extend the water saving requirement to new federal residential construction, the FEMP indices address apartments and dormitories but not single-family construction. Second, the FEMP indices for outdoor water use are not specific to climate zone, a key omission for a rule with nationwide applicability. Third, the indices are based on information that is at least 16 years old and are not consistent with more recent published data on water consumption in commercial and institutional buildings.[4]

In lieu of the problematic baseline formulations contained in the proposed rule, three specifications should be incorporated by reference. **First, we recommend that new single-family construction simply be required to be built to the US EPA WaterSense specification for new single-family homes**, which addresses both indoor and outdoor water use and aims for performance that is at least 20% better than typical new single-family homes.[5]

**Second, for multifamily residential and non-residential buildings, we recommend that the proposed rule incorporate by reference Chapter 4 ("Water Efficiency and Conservation") and sections 602.5, 602.7, 603.4.3, and 603.4.4.4 (setting insulation requirements and maximum volumes for hot water distribution piping) of the 2010 Green Plumbing and Mechanical Code Supplement published by the International Association of Plumbing and Mechanical Officials ("IAPMO")**. The indoor water use baseline can be established as the performance of a new building (of the same type as the proposed building) that is minimally compliant with the above-cited portions of the IAPMO Green Code Supplement. The 20 percent water saving target for indoor potable use should then be calculated against this baseline.

Similarly, for outdoor water use at multifamily residential and non-residential buildings, **we recommend that the proposed rule incorporate by reference the performance requirements of the 2009 California Model Water Efficient Landscape Ordinance**.[6] This model ordinance was recently updated after an extensive stakeholder process. In addition, the core of the performance requirement is keyed to the reference evapotranspiration of cool season turf grass. Because reference ET for cool season turf is published and available for locations across the United States, the applicability of the performance requirements of the Model Ordinance is not confined to California. With performance based on the Model Ordinance established as the baseline for outdoor water use of a proposed new building, we recommend that consideration be given to setting a savings target for outdoor potable use that is somewhat lower than the 50 percent contained in the proposed rule, such as 20 to 30 percent.

4. *Enhance Indoor Environmental Quality*

[4] See for example Dziegielewski et al, *Commercial and Institutional End Uses of Water*, Denver, AWWA Research Foundation, 2000.
[5] http://www.epa.gov/watersense/docs/home_finalspec508.pdf
[6] http://www.water.ca.gov/wateruseefficiency/docs/MWELO_TbContent_Law.pdf

The Noticed of Proposed Rulemaking would require use of ASHRAE Standards 62.1 and 62.2 for commercial and high-rise residential and low-rise residential buildings, respectively. DOE also requests comment on whether a voluntary industry standard addressing moisture control, such as the ASHRAE "Indoor Air Quality Guide: Best Practices for Design, Construction and Commissioning" (2009). *Id.* at 29937. **NRDC agrees with the use of ASHRAE Standards 62.1 and 62.2 and recommends that DOE incorporate the ASHRAE Indoor Air Quality Guide to the rule as well.**

5. *Reduce Environmental Impacts of Materials*

DOE requests comments on whether requirements related to waste diversion and ozone depletion should be included in this rule making. *Id*. at 29937. **NRDC agrees with DOE that both of these issues should be included in this rulemaking and that DOE should also include the global warming potential ("GWP") and total equivalent warming impact ("TEWI") of materials.** NRDC recommends that agencies should have to use building materials and substances with lower GWP and TEWI when available.

6. *Building Siting*

The Notice of Proposed Rulemaking would require the site selection for Federal building construction to comply with all applicable Federal rules, Executive Orders and other Federal actions. It also gives a list of priorities for site selection. *Id*. at 29944. **NRDC agrees with the list of priorities given but believes that some of them should be firm requirements rather than priorities.** NRDC's comments on the list of priorities are as follows:

> A. Building orientation to maximize energy efficiency of the building should remain a priority.
> B. **Location in a central business district or rural town center should be made a requirement.**
> C. Selecting a **site well-served by transit should be a requirement.** Specifically, if the area is served by bus or rail transit the building must be located within walking distance of it.
> D. **Site design elements that ensure safe and convenient pedestrian access should be a requirement**.
> E. Consideration of transit access and proximity to housing affordable to a wide range of Federal employees. "Transit access" is redundant with C and should be deleted. Proximity to affordable housing should remain a priority.
> F. Adaptive reuse or renovation of buildings should remain a priority.
> G. Avoiding development of sensitive land resources. **DOE should require Federal buildings to avoid development on sites that are wetlands, USDA prime farmland, steep slopes, and/or habitat of endangered or imperiled species** (the LEED-ND Imperiled Species and Ecological Communities Conservation prerequisite should be used as a resource in determining the exact definition). Not developing on greenfields should be a priority rather than a requirement, as the definition of greenfield is not precise.
> (H) Evaluation of parking management strategies. **NRDC recommends that DOE change this to a requirement to "minimize the amount of land devoted to parking."** This change is necessary to promote walking, biking, transit, using the land efficiently and avoiding pedestrian-unfriendly "seas of parking" that need to be crossed.

NRDC also suggests that DOE examine and potentially reference definitions for siting criteria in the prerequisites and credits for the Sustainable Sites section of the LEED commercial rating

system and the location related criteria in LEED for Homes and LEED for Neighborhood Development.

F. *Life-Cycle Cost-Effectiveness*

DOE requests comments on whether it should attempt to quantify externalities from other types of environmental benefits beyond direct economic benefits from energy and water savings. *Id*. at 29937. **NRDC believes that DOE should attempt to quantify such benefits when practicable and incorporate them into life-cycle cost analyses.** These non-economic environmental benefits can be significant and should be balanced against the costs of the project. NRDC also recommends that non-economic benefits be considered when evaluating life-cycle cost-effectiveness even in cases where such benefits cannot be quantified (i.e. if a measure is not life-cycle cost-effective but has distinct benefits that cannot be quantified, then those non-economic benefits should be taken into consideration and potentially outweigh the fact that the measure is not life-cycle cost-effective.).

G. *Green Building Certification Systems*

In the Notice of Proposed Rulemaking, DOE writes that it is considering a requirement for Federal agencies to demonstrate that the energy use of a certified green building, at least within the first year, is consistent with the energy use targets identified as part of the green building certification process and if not, potentially removing the building's green building certification. *Id.* at 29938. Although NRDC agrees with DOE conceptually that we should verify that Federal buildings are actually meeting their energy use targets, we do not believe at this time that removal of the certification after only one year of data is the correct line of action. We do, however, agree with the idea that agencies should be required to measure and verify their building's energy performance. **If a Federal building is not meeting its energy use target, the agency should be required to implement a plan to reduce the building's energy use to targeted levels within four years** (one year of initial data collection, one year to devise a plan, and two years to implement it). If after four years collected data show a building is still underperforming and if measures have not been taken to correct the problem, NRDC believes the green building certification should be removed.

In the Notice of Proposed Rulemaking, DOE noted that GSA identified LEED Silver as a green rating system and level that meets the criteria expressly identified in the statute. DOE requested comment on other green rating systems and associated levels/points that also would meet the statutory criteria. *Id*. at 29938. NRDC comments that LEED Silver on its own does not by definition meet the statutory requirements for energy efficiency and sustainability standards and therefore should not automatically be used as a pathway for compliance. **DOE should specify that a building must achieve at least 30% better than ASHRAE 90.1-2007 as part of the LEED Silver certification.**

## Conclusion

DOE has a huge opportunity with this rulemaking and other rulemakings related to energy efficiency and sustainability of Federal buildings to set an example for the rest of the country and help transform the building and construction industry. We hope that DOE takes the above comments into consideration as they finalize the current rule. **Most importantly, NRDC stresses that it is critical for DOE to reevaluate the energy efficiency standards for Federal buildings**. As discussed, the previous rule was insufficient and DOE is past due for revising the standard to reflect updated codes.

Thank you for the opportunity to comment,

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**ANNEX A**