

National Housing & Rehabilitation Association

Utility Allowance Options
for Investments in Energy
Efficiency

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Agenda

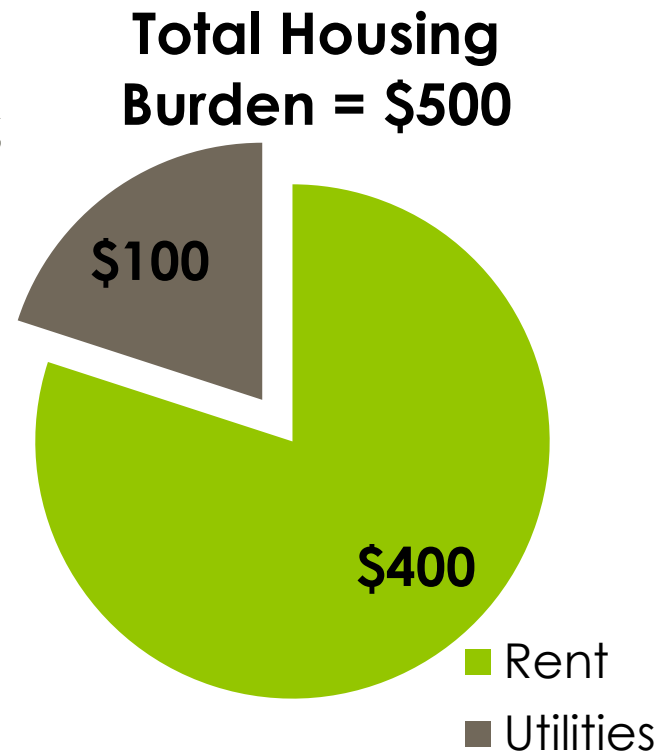
- Introduction to Contents of Enterprise Community Partner's Resource Guide
 - Utility Allowance Options for Investments in Energy Efficiency
- Overview of Standard Utility Allowances (SUA)
- Overview of Utility Allowances for Energy Efficiency Investments
 - Energy Consumption Model (ECM)
 - Energy Efficiency-Based Utility Allowance (EEBUA)
- Case Studies

Purpose of UA Resource Guide

- Identify options for utility allowances for energy efficiency investments
- Summarize rules governing energy efficient utility allowance options
- Describe methodologies, procedures, and examples
- Provide resources

Standard Utility Allowances

- Total housing burden caps
= 30% AMI
- Total housing burden
= *rent + utilities*
- Utility allowances
= *utility cost estimates*



Total housing burden - utilities = rent

Internal Revenue Service:

5 Approaches to Obtaining Utility Allowances

1. Local PHA's UA schedule
 - Engineering-based methodology
 - Consumption-based methodology (billing data)
2. Analysis by local utility (average of local similar buildings)
3. LIHTC agency estimate
4. An engineering/consumption model approved by the state's HFA
5. HUD's Utility Schedule Model: survey of national residential energy consumption

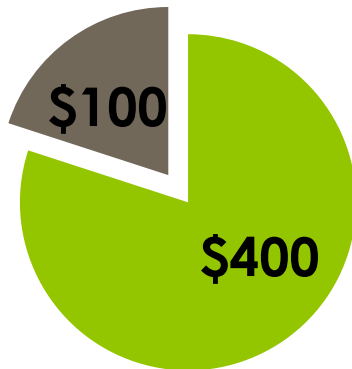
Issues with Standard Utility Allowances (SUA)

- Averages across vintages, considers consumption, price, unit size
- Does not reflect investments in energy efficiency
- Acts as disincentive for such investments
- Typically higher than use in new or significantly rehabilitated properties
- Utility estimates increasingly difficult to obtain
- Compounds the split incentive issue
- Can compromise a projects financial viability

UAs for Energy Efficient Properties

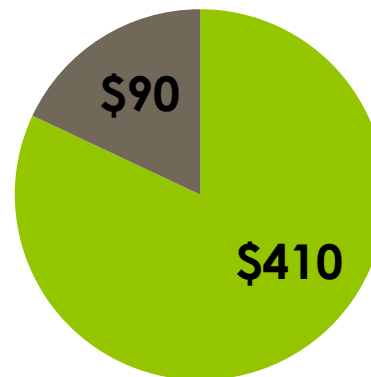
- Allow higher rents, without violating IRS intent of capping housing burden to 30% of AMI
- Increase in the property's cash flow, monthly net
 - Fund more affordable housing, increased tenant services, or building improvements

Total Housing Burden = \$500



■ Rent
■ Utilities

Total Housing Burden = \$500



■ Rent
■ Utilities (EE)



Utility Allowance Options for Energy Efficient Buildings

- **Energy Consumption Model (ECM)**
 - IRS ruling for LIHTC-funded projects – governed by state HFA
 - Project specific
 - Building owner/developer driven
- **Energy Efficiency-Based Utility Allowances (EEBUA)**
 - Based on SUA
 - Lower average for energy efficient projects
 - PHA driven and governed

Benefits to PHAs

- Foster green, quality, comfortable, and financially viable housing stock
- ECM or EEUBA can contribute to:
 - Improving projects' financial viability
 - Increased cash flow
 - Higher quality housing stock
 - More comfortable homes
 - A jurisdiction's energy, sustainability, carbon reduction or green building goals
 - Bringing utility and energy program resources to projects
 - Fostering green job creation

Benefits to Property Owners and Developers

- Improving cash flow
- Increasing ability to service debt
- Improving financial viability
- Overcomes the split incentives
- Reduced maintenance costs and liability
- Fewer tenant complaints and call-backs
- A reputation for providing quality, efficiency, green, and comfortable housing
- Meeting sustainability, carbon reduction or green building goals
- Qualifying for utility or government energy efficiency programs and state funded weatherization programs
 - Incentives, technical assistance, and other resources



Benefits to Tenants

- Slightly lower energy costs
- Better protection from utility price shocks and rate fluctuations
- Quality homes and efficient equipment
- More comfortable homes
- Better indoor air quality from efficient measures
- Increased cash flow to provide tenant services, tenants gain

Energy Consumption Model

- 2008 IRS Ruling
- Project specific
- Applies to LIHTC financed projects only
- State HFA must adopt and govern
- Approved building simulation software
- Approved professional
- The building owner must:
 - Submit ECM schedule to HFA and made available to tenants
 - Incur all costs
 - Review annually the basis (upgrades, utility rates)

Energy Consumption Model – HFA Administration

- The HFA must:
 - Approve the ECM and the building simulation model
 - Establish qualifications for professionals (engineer, etc.)
 - Define under which conditions the model is applicable
 - Govern changes in applicable utility allowance

Energy Consumption Model in California

- The California Tax Credit Allocation Committee (CTCAC) adopted the Energy Consumption Model:
- Developed ECM tool – the California Utility Allowance Calculator (CUAC)
- Applicable only to new construction projects (not retrofit – YET)
 - Substantial rehabilitation projects may be approved case-by-case basis.
- ECM calculated by someone that is:
 - A California Association of Building Energy Consultants (CABEC) Certified Energy Plans Examiner (CEPE), AND
 - EITHER a licensed mechanical or electrical engineer, OR a Home Energy Rater (HERS Rater)



California Utility Allowance Calculator (CUAC)

- Currently Access based tool (soon to be Web-based)
 - User enters information from the energy model
 - Calculates the energy usage of each unit in the building
 - Applies the appropriate utility tariffs
 - Provides a utility allowance
 - Because the CUAC requires information obtained from the energy model, users must create the energy model before using the CUAC
 - Model also required to meet state energy code

Case Studies: ECM - CUAC

The Gardens on Garfield

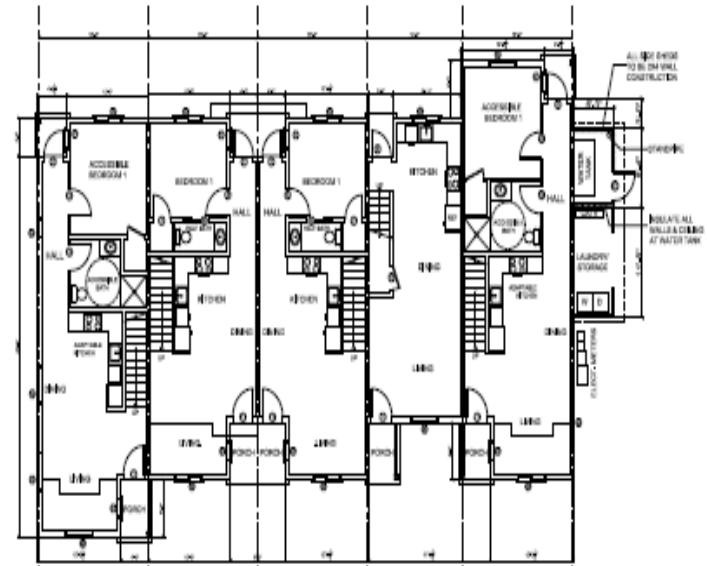
- Developer: Thomas Safran Associates
- Location: Glendale, CA (LA County)
- California Climate Zone: 9
- Number of units: 30
- Exceeded Title-24 by $\geq 16\%$
 - ENERGY STAR® appliances
 - High efficacy lighting
 - Timers for lights in common areas
 - Upgraded roof insulation (R-30)
 - Low-E windows
 - Upgraded HVAC system (heat pump)
- Financial benefits:
 - SUA increased during construction.
 - Using CUAC, avoided losing \$90,000 in loans



Case Studies: ECM - CUAC

Aster Place (in development)

- Developer: Danco Group
- Location: Eureka, CA (Humboldt)
- California Climate Zone: 1
- Number of units: 56
- Designed to exceed Title 24 by > 30%
 - Upgraded insulation (R-22 in wall, R-49 in attic, R-5 slab)
 - Heat pump for space heating (HSPF = 12) and water heating (EF = 2.33)
 - ENERGY STAR appliances
 - LED lighting, and Solatubes for daylighting on 2nd floor
- **Financial benefits:** Additional cash flow of \$520,000



Energy Efficiency-Based Utility Allowances (EEBUA)

- Additional schedule for an 'energy efficient building type'
- Average usage for an energy efficient building
- Applicable to new and rehab (caveat)
- PHA administers
- Grants conditional and final use
- Two paths:
 - New construction: PHA defined threshold (e.g. 15% better than the energy code, or to ENERGY STAR® standards)
 - Retrofitting existing buildings: PHA defined threshold (e.g. 20% improvement over existing conditions or the state energy code vintage default threshold)

Energy Efficiency-Based Utility Allowances (EEBUA)

○ PHA EEBUA Adoption and Implementation Steps

- Set PHA goal to offer an EEBUA and identify resources to leverage and support EEBUA
- Define EEBUA minimum standards and applicability
- Define quality assurance, verification, and documentation requirements
- Develop form and tracking
- Adopt the EEBUA
- Hold orientation for potential EEBUA users
- Update EEBUA when the SUA is updated

Illustration of Financial Impact of an EEBUA

Standard Schedule						
Unit Type	Bedrooms per Unit	Number of Units	Total Cost of Housing per Unit	Monthly Utility Allowance per Unit	Monthly Net Rent per Unit	Yearly Gross All Units
2-BR	2	40	\$604	\$144	\$460	\$220,563
3-BR	3	12	\$604	\$175	\$429	\$61,705
Total Rent per Year						\$282,268
Energy Efficiency Based New Construction Schedule						
Unit Type	Bedrooms per Unit	Number of Units	Total Cost of Housing per Unit	Monthly Utility Allowance per Unit	Monthly Net Rent per Unit	Yearly Gross All Units
2-BR	2	40	\$604	\$131	\$473	\$226,803
3-BR	3	12	\$604	\$161	\$443	\$63,721
Total Rent per Year						\$290,524
Total Rent per Year (w/o Energy Efficiency-Based Utility Allowance)						\$282,268
Difference						\$8,256



Illustration of Financial Impact of an EEBUA

Mortgage Amount	\$963,000	Rental Income (Tier 1)	\$282,268	Other Income	\$4,800
Upgrade Cost	\$5,000	Rental Income (Tier 2)	\$290,524	Operating Expense	\$105,000
Mortgage Rate	4.50%	Vacancy Rate	5.00%	Expenses	3.50%
				Rent and other Rates	2.50%

Standard Schedule

Year	1	2	3	4	5	6	7	13	14	15
Rental Income	\$282,268	\$289,325	\$296,558	\$303,972	\$311,571	\$319,360	\$327,344	\$379,619	\$389,109	\$398,837
Other Income	\$4,800	\$4,920	\$5,043	\$5,169	\$5,298	\$5,431	\$5,567	\$6,455	\$6,617	\$6,782
Gross Income	\$287,068	\$294,245	\$301,601	\$309,141	\$316,869	\$324,791	\$332,911	\$386,074	\$395,726	\$405,619
Vacancy	\$14,353	\$14,712	\$15,080	\$15,457	\$15,843	\$16,240	\$16,646	\$19,304	\$19,786	\$20,281
Effective Gross Income	\$272,715	\$279,532	\$286,521	\$293,684	\$301,026	\$308,551	\$316,265	\$366,771	\$375,940	\$385,338
Operating Expense	\$105,000	\$107,625	\$110,316	\$113,074	\$115,900	\$118,798	\$121,768	\$141,213	\$144,744	\$148,362
Net Operating Income	\$167,715	\$171,907	\$176,205	\$180,610	\$185,125	\$189,754	\$194,497	\$225,557	\$231,196	\$236,976
Debt Service	\$89,669	\$89,669	\$89,669	\$89,669	\$89,669	\$89,669	\$89,669	\$89,669	\$89,669	\$89,669
Residual Cash	\$78,046	\$82,239	\$86,536	\$90,942	\$95,457	\$100,085	\$104,829	\$135,889	\$141,528	\$147,308
Cumulative Residual	\$78,046	\$160,285	\$246,821	\$337,763	\$433,220	\$533,305	\$638,133	\$1,373,580	\$1,515,108	\$1,662,415

Energy Efficiency Based New Construction Schedule

Year	1	2	3	4	5	6	7	13	14	15
Rental Income	\$290,524	\$297,787	\$305,232	\$312,862	\$320,684	\$328,701	\$336,919	\$390,722	\$400,490	\$410,503
Other Income	\$4,800	\$4,920	\$5,043	\$5,169	\$5,298	\$5,431	\$5,567	\$6,455	\$6,617	\$6,782
Gross Income	\$295,324	\$302,707	\$310,275	\$318,032	\$325,982	\$334,132	\$342,485	\$397,178	\$407,107	\$417,285
Vacancy	\$14,766	\$15,135	\$15,514	\$15,902	\$16,299	\$16,707	\$17,124	\$19,859	\$20,355	\$20,864
Effective Gross Income	\$280,558	\$287,572	\$294,761	\$302,130	\$309,683	\$317,425	\$325,361	\$377,319	\$386,752	\$396,421
Operating Expense	\$105,000	\$107,625	\$110,316	\$113,074	\$115,900	\$118,798	\$121,768	\$141,213	\$144,744	\$148,362
Net Operating Income	\$175,558	\$179,947	\$184,445	\$189,056	\$193,783	\$198,627	\$203,593	\$236,106	\$242,008	\$248,058
Debt Service	\$90,134	\$90,134	\$90,134	\$90,134	\$90,134	\$90,134	\$90,134	\$90,134	\$90,134	\$90,134
Residual Cash	\$85,424	\$89,812	\$94,311	\$98,922	\$103,649	\$108,493	\$113,459	\$145,971	\$151,874	\$157,924
Cumulative Residual	\$85,424	\$175,236	\$269,547	\$368,469	\$472,118	\$580,611	\$694,070	\$1,486,277	\$1,638,151	\$1,796,075

Yearly Difference	\$7,378	\$14,951	\$22,726	\$30,707	\$38,899	\$47,307	\$55,937	\$112,697	\$123,043	\$133,660
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HUD Deems use of EEBUA a 'Success Story'

"Success Story – Housing Authority of the City of Riverside"

*Public Housing Energy Conservation Clearinghouse
News, March-April 2004*

"Property owners and tenants alike are benefiting from an energy-efficient utility allowance schedule developed by the Housing Authority of the City of Riverside, California. The new allowance schedule encourages multifamily owners to increase the energy efficiency of their units. By doing so, owners can increase the value and marketability of their properties while reducing utility bills. And, taking lower subsidies into account, the potential cost savings to a housing authority can be substantial. There are advantages to residents, as well, including lower energy costs and increased comfort."



Case Studies: EEUBA

Solara

- Developer: Community Housing Works
- Location: Poway, CA (San Diego county)
- California Climate Zone: 10
- Number of Units: 56

- Exceeded Title 24 by > 15%
- 141 kW Photovoltaic system designed to meet 90% of tenant electricity load
 - Passive strategies: orienting units to capture prevailing breezes to reduce cooling loads, shading windows, and daylighting
 - R-30 ceiling insulation, low-E windows, tankless water heaters, radiant barrier in roof, and ENERGY STAR® labeled appliances, lighting fixtures, and exhaust fans
- **Financial benefits:** Resulted in \$130,000 in additional loans. The owner agreed to pay the electricity bill, eliminating the residents' electricity bills
- First apartment in California to:
 - Be recognized as a Zero Energy New Home (ZENH)
 - Be fully powered by PV
 - Have a carbon footprint that is reduced by 95% compared to a similar sized non-“green” development
 - Green Curriculum: tenant education on energy and water conservation and healthy living



Case Studies: EEUBA

Drake's Way

- Developer: EAH Housing
- Location: Larkspur (Marin County)
- California Climate Zone: 2
- Number of Units: 24

- Exceeded Title 24 by > 15%
- PV system designed to meet 100% of common area electricity load
 - High efficiency furnace (94% AFUE) and water heater, and efficient hot water distribution system
 - Upgraded insulation and low-E windows
 - 75% ENERGY STAR labeled light fixtures and 100% ENERGY STAR appliances
- **Financial benefit:** Allowed developer to increase first mortgage proceeds by \$52,000



Case Studies: EEUBA

San Clemente Place

- Developer: EAH Housing
- Location: Corte Madera, CA (Marin County)
- California Climate Zone: 2
- Number of units: 79
- Exceeded Title-24 by >15%
 - Upgraded windows (low-E, Argon filled)
 - Radiant barrier and upgraded insulation in roof (R-38), R-6 slab insulation
 - Efficient mechanical equipment, lighting, and appliances
- **Financial benefit:** Approximately \$100,000 additional permanent financing



Discussion and Questions

- Other examples of utility allowances for energy efficiency investments?
- What is happening in your state/jurisdiction?