UTILITY ALLOWANCE STUDY

CONVENTIONAL

Prepared For:

The Housing Authority of the City of Fort Myers

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1 Basis for Utility Allowance in Public Housing

Under the provisions of the US Housing Act of 1937, as amended, HUD provides housing assistance to approximately 1.3 million households living in public housing across the country. This assistance is provided through approximately 3,100 Public Housing Agencies. HUD has responsibility for the oversight of federally assisted public housing and establishes regulations to guide these PHAs in how they implement the federal housing assistance.

In order to keep assisted housing affordable to the lower-income households, federal housing law directs that the resident's share of rent in federally assisted public housing should equal 30 percent of the household's adjusted monthly income. In interpreting the federal housing law, HUD has defined the Total Resident Payment for "rent" to include both shelter costs and the costs for a reasonable amount of utilities. The amount the Housing Authority determines as necessary to cover the resident's reasonable utility cost is known as the utility allowance.

Such allowances are estimates of the expenses associated with different types of utilities and different utility uses. The utilities for which allowances may be provided include electricity, natural gas, propane, fuel oil, wood or coal, and water and sewage service, as well as trash and garbage collection. The functions, or end-uses, covered by an allowance may include space heating, water heating, cooking, refrigeration, lighting, and appliances. Note that allowances are not provided for telephone or television cable service.

Whether a household receives an allowance for a given utility service generally depends on the way the utilities are metered. Utilities can be metered in one of three ways: master-meter, check-metered, and individually metered. Allowances are provided for check-metered and individually metered utilities, but not master-metered utilities. An allowance may also be provided to residents for some non-metered utilities, because the residents pay for these services directly. Trash services are an example of a utility that is non-metered in some areas.

2 Introduction

The Housing Authority of the City of Fort Myers maintains and operates 572 residential dwelling units, office space and storage areas at three different developments. The developments, Southward Village are duplexes and single family units, Bonair Tower and Royal Palm Towers are high rises, and Horizons Apartments are low rises.

This Utility Allowance Study was performed for the purpose of complying with Federal Register 24 CFR Part 965. These regulations apply to allowances for all applicable types of utilities, regardless of the methodology used to calculate the allowances.

The study was performed with the assistance of the Utility Allowance Guidebook published in September 1998. This study uses the engineering-based methodology, one of two suggested methods that can be used to establish utility allowances. This method is based on engineering calculations and other technical information that is used to estimate the amount of energy or water a household should reasonably require.

The tennants are responsible for individual-metered electric utilities. The units in these developments are very similar to one another, with the basic difference being the number of bedrooms. Therefore, this study recommends utility allowances for ony those utilities based on the number of bedrooms for an individual unit.

Non-metered utility services, such as trash collection, are paid for by the Housing Authority. No utility allowances are provided for these services.

3 Utility Allowance Recommendations

The following Utility Allowance recommendations are for residences of Housing Authority of the City of Fort Myers (Conventional):

Southward Village

Monthly Utility Allowance	1 BR	2 BR	3 BR	4 BR	5 BR
Electric	$73	$85	$99	$112	$144
Total	**$73**	**$85**	**$99**	**$112**	**$144**
Previous					
Change	**$73**	**$85**	**$99**	**$112**	**$144**
Percent Change	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**

Bonair Tower

Monthly Utility Allowance	1 BR	2 BR
Electric	$73	$85
Total	**$73**	**$85**
Previous		
Change	**$73**	**$85**
Percent Change	**#DIV/0!**	**#DIV/0!**

Royal Palm Tower

Monthly Utility Allowance	1 BR	2 BR
Electric	$72	$86
Total	**$72**	**$86**
Previous		
Change	**$72**	**$86**
Percent Change	**#DIV/0!**	**#DIV/0!**

Horizons Apartments

Monthly Utility Allowance	1 BR	2 BR	3 BR
Electric	$75	$87	$109
Total	**$75**	**$87**	**$109**
Previous			
Change	**$75**	**$87**	**$109**
Percent Change	**#DIV/0!**	**#DIV/0!**	**#DIV/0!**

4 Utilities Cost

4.1 Electricity

Monthly Electricity Cost (Southward Village)

Monthly Electricity Cost	1 BR	2 BR	3 BR	4 BR	5 BR
Customer Charge	$11.33	$11.33	$11.33	$11.33	$11.33
Space Heating	$12.42	$14.00	$16.55	$18.57	$38.42
Domestic Hot Water	$20.87	$26.08	$31.30	$36.52	$41.74
Cooking	$7.48	$8.92	$10.22	$11.08	$12.09
Refrigeration	$9.64	$11.51	$13.53	$15.40	$18.27
Lighting	$1.87	$2.30	$2.88	$4.03	$4.89
Miscellaneous Appliances	$9.35	$11.08	$12.95	$14.82	$17.70
Total Electric	**$72.96**	**$85.22**	**$98.75**	**$111.74**	**$144.43**

Monthly Electricity Cost (Bonair Tower and Royal Palm Towers)

Monthly Electricity Cost	1 BR	2 BR
Customer Charge	$11.33	$11.33
Space Heating	$11.25	$15.15
Domestic Hot Water	$20.87	$26.08
Cooking	$7.48	$8.92
Refrigeration	$9.64	$11.51
Lighting	$1.87	$2.30
Miscellaneous Appliances	$9.35	$11.08
Total Electric	**$71.80**	**$86.38**

Monthly Electricity Cost (Horizons Apartments)

Monthly Electricity Cost	1 BR	2 BR	3 BR
Customer Charge	$11.33	$11.33	$11.33
Space Heating	$14.19	$15.79	$27.18
Domestic Hot Water	$20.87	$26.08	$31.30
Cooking	$7.48	$8.92	$10.22
Refrigeration	$9.64	$11.51	$13.53
Lighting	$1.87	$2.30	$2.88
Miscellaneous Appliances	$9.35	$11.08	$12.95
Total Electric	**$74.74**	**$87.01**	**$109.38**

4.1.1 Electric Rates

FPL serves the developments. FPL rates can be found at www.fpl.com FPL rates are as follows:

Customer Charge:	$11.33
Energy Charge (First 1,000kWh) =	$0.14390
Energy Charge (All additional kWh) =	$0.16661

4.1.2 Monthly Energy Charge

Space Heating (Southward Village)

Space Heating	1 BR	2 BR	3 BR	4 BR	5 BR
Electric (kWh)	86	97	115	129	267
Energy Charge ($/kWh)	$0.1439	$0.1439	$0.1439	$0.1439	$0.1439
Energy Cost	$12.42	$14.00	$16.55	$18.57	$38.42

Space Heating (Bonair Tower and Royal Palms Towers)

Space Heating	1 BR	2 BR
Electric (kWh)	78	105
Energy Charge ($/kWh)	$0.1439	$0.1439
Energy Cost	$11.25	$15.15

Space Heating (Horizons Apartments)

Space Heating	1 BR	2 BR	3 BR
Electric (kWh)	99	110	189
Energy Charge ($/kWh)	$0.1439	$0.1439	$0.1439
Energy Cost	$14.19	$15.79	$27.18

Domestic Hot Water

Domestic Hot Water	1 BR	2 BR	3 BR	4 BR	5 BR
Electric (kWh)	145	181	218	254	290
Energy Charge ($/kWh)	$0.1439	$0.1439	$0.1439	$0.1439	$0.1439
Energy Cost	$20.87	$26.08	$31.30	$36.52	$41.74

Cooking

Cooking	1 BR	2 BR	3 BR	4 BR	5 BR
Electric (kWh)	52	62	71	77	84
Energy Charge ($/kWh)	$0.1439	$0.1439	$0.1439	$0.1439	$0.1439
Energy Cost	$7.48	$8.92	$10.22	$11.08	$12.09

Refrigeration

Refrigeration	1 BR	2 BR	3 BR	4 BR	5 BR
Electric (kWh)	67	80	94	107	127
Energy Charge ($/kWh)	$0.1439	$0.1439	$0.1439	$0.1439	$0.1439
Energy Cost	$9.64	$11.51	$13.53	$15.40	$18.27

Lighting

Lighting	1 BR	2 BR	3 BR	4 BR	5 BR
Electric (kWh)	13	16	20	28	34
Energy Charge ($/kWh)	$0.1439	$0.1439	$0.1439	$0.1439	$0.1439
Energy Cost	$1.87	$2.30	$2.88	$4.03	$4.89

Miscellaneous Appliances

Miscellaneous Appliances	1 BR	2 BR	3 BR	4 BR	5 BR
Electric (kWh)	65	77	90	103	123
Energy Charge ($/kWh)	$0.1439	$0.1439	$0.1439	$0.1439	$0.1439
Energy Cost	$9.35	$11.08	$12.95	$14.82	$17.70

5 Consumption Studies

5.1 Space Heating Consumption

The following monthly energy consumption is based on the methodology recommended in the Utility Allowance Guidebook:

Design Outdoor Air Temperature (F):	42
Design Indoor Air Temperature (F):	72
Heating Degree Days:	418
Heat of Electricity (BTU/kWh)	3412

Monthly Energy Consumption Requirements for Heating (Southward Village)

Heating	1 BR	2 BR	3 BR	4 BR	5 BR
Design Load (BTU/hr)	10,570	11,910	14,083	15,803	32,688
Energy (BTU's)	294,551	331,892	392,446	440,377	910,906
Electricity (kWh)	86	97	115	129	267

Monthly Energy Consumption Requirements for Heating (Bonair Tower and Royal Palm Towers)

Heating	1 BR	2 BR
Design Load (BTU/hr)	9,576	12,891
Energy (BTU's)	266,851	359,229
Electricity (kWh)	78	105

Monthly Energy Consumption Requirements for Heating

Heating	1 BR	2 BR	3 BR
Design Load (BTU/hr)	12,077	13,432	23,128
Energy (BTU's)	336,546	374,305	644,500
Electricity (kWh)	99	110	189

5.2 Domestic Hot Water Consumption

The following monthly energy consumption requirements for domestic hot water consumption are based on calculations in HUD's Life Cycle Cost Analysis Handbook, 7418.1 CHG-1. The calculations assume the following:

Inlet Temperature (F):	75
Outlet Temperature (F):	120
Weight of Water (LB/Gallon):	8.33
Specific Heat of Water (BTU/FxLB):	1
Heat of Electricity (BTU/kWh):	3,412
Heat Lost from Tank and Piping:	10%

Monthly Energy Consumption Requirements for Domestic Hot Water

Domestic Hot Water	1 BR	2 BR	3 BR	4 BR	5 BR
Consumption (Gal/day)	40	50	60	70	80
Energy (BTU's)	494,802	618,503	742,203	865,904	989,604
Electricity (kWh)	145	181	218	254	290

5.3 Cooking Consumption

The following is the monthly energy consumption requirements for cooking as recommended in the Utility Allowance Guidebook:

Monthly Energy Consumption Requirements for Cooking

Cooking	1 BR	2 BR	3 BR	4 BR	5 BR
Electricity (kWh)	52	62	71	77	84

5.4 Refrigeration Consumption

The following is the monthly energy consumption requirement for refrigeration. The consumption data is based on an automatic defrost refrigerator/freezer consuming 800 kWh per year for a one bedroom apartment per the Edison Electric Institute. It was assumed that the refrigerator/freezer consumed 20% more energy for each additional bedroom.

Monthly Energy Consumption Requirements for Refrigeration

Refrigeration	1 BR	2 BR	3 BR	4 BR	5 BR
Electricity (kWh)	67	80	94	107	127

5.5 Lighting Consumption

The following is the monthly energy consumption requirement for lighting. The consumption data is based on the number of bedrooms and an average of electric consumption at each development:

Monthly Energy Consumption Requirements for Lighting

Lighting	1 BR	2 BR	3 BR	4 BR	5 BR
Electricity (kWh)	13	16	20	28	34

The following assumptions for lighting usage were developed to estimate the monthly energy consumption for lighting:

Lighting Location	Daily Usage (Hours)
Kitchen/Dining	4
Bathroom	3
Hallway/Foyer	2
Living Room	5
Bedroom	4

Development: Typical Unit
Number of Bedrooms: 1

Location	Number of Lamps	Lamp Size (Watts)	Daily Usage (Hours)	Monthly Energy Consumption (kWh)
Kitchen/Dining	2	13	4	3.12
Bathroom	2	13	3	2.34
Hallway/Foyer	1	13	2	0.78
Living Room	2	13	5	3.9
Bedroom	2	13	4	3.12
Total				13.26

Development: Typical Unit
Number of Bedrooms: 2

Location	Number of Lamps	Lamp Size (Watts)	Daily Usage (Hours)	Monthly Energy Consumption (kWh)
Kitchen/Dining	2	13	4	3.12
Bathroom	2	13	3	2.34
Hallway/Foyer	1	13	2	0.78
Living Room	2	13	5	3.9
Bedroom	4	13	4	6.24
Total				16.38

Development: Typical Unit
Number of Bedrooms: 3

Location	Number of Lamps	Lamp Size (Watts)	Daily Usage (Hours)	Monthly Energy Consumption (kWh)
Kitchen/Dining	2	13	4	3.12
Bathroom	2	13	3	2.34
Hallway/Foyer	1	13	2	0.78
Living Room	2	13	5	3.9
Bedroom	6	13	4	9.36
Total				19.5

Development: Typical Unit
Number of Bedrooms: 4

Location	Number of Lamps	Lamp Size (Watts)	Daily Usage (Hours)	Monthly Energy Consumption (kWh)
Kitchen/Dining	4	13	4	6.24
Bathroom	2	13	3	2.34
Hallway/Foyer	2	13	2	1.56
Living Room	3	13	5	5.85
Bedroom	8	13	4	12.48
Total				28.47

Development: Typical Unit
Number of Bedrooms: 5

Location	Number of Lamps	Lamp Size (Watts)	Daily Usage (Hours)	Monthly Energy Consumption (kWh)
Kitchen/Dining	4	13	4	6.24
Bathroom	4	13	3	4.68
Hallway/Foyer	2	13	2	1.56
Living Room	3	13	5	5.85
Bedroom	10	13	4	15.6
Total				33.93

5.6 Miscellaneous Appliances Consumption

The following is the monthly energy consumption requirement for miscellaneous appliances. The consumption data is based on an apartment having items such as a hand iron, coffee maker, microwave, toaster, hair dryer, home computer, radio, television, VCR/DVD, clock and vacuum cleaner. It was assumed that miscellaneous items consumed 65 kWh per month for a one bedroom and 20% more energy for each additional bedroom. The consumption data below is based on estimated annual electric consumptions for household appliances published by the Edison Electric Institute.

Appliance	Annual Consumption kWh
Hand Iron	50
Coffee Maker	80
Microwave	120
Toaster	35
Hair Dryer	45
Home Computer	125
Radio	35
Television	200
VCR/DVD	40
Clock	17
Vacuum Cleaner	27
Total	774

Monthly Energy Consumption Requirements for Miscellaneous Appliances

Miscellaneous Appliances	1 BR	2 BR	3 BR	4 BR	5 BR
Electricity (kWh)	65	77	90	103	123