

UTILITY ALLOWANCE STUDY

Newport Village

Prepared For:

Monroe County Housing Authority

101009 Overseas Highway
Key Largo, Florida 33037

Prepared By:

Abbie J. Weist, Inc.

9230 Crystal View Ct.
Ft. Myers, FL 33967
abbieweist@comcast.net

With

KN Consultants, LLC
P.O. Box 1212
Safety Harbor, Florida 34695-1212
jkellype@tampabay.rr.com

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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 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

Monroe County Housing Authority maintains and operates 50 residential dwelling units and office buildings known as Newport Village. The development was constructed in 1993. In addition, the office building also contains a maintenance shop.

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 on 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 reasonable require.

The tenants of Newport Village are responsible for individual metered electric, water and sanitary sewer 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 only those utilities based on the number of bedrooms for an individual unit.

Non-metered utilities such as trash collection are paid for by the Housing Authority. No Utility Allowances are provided for these services.

Monroe County Housing Authority is unique because there are no heating degree days and no heating provided in the dwellings. In addition, air conditioning is not provided by the Housing Authority. Residents may install unit air conditioners which they purchase and are responsible for paying for its electric consumption. No utility allowance is provided for air conditioning or heating.

Another unique situation for Monroe County Housing Authority is that Key Largo, Florida has no natural gas distribution system. In addition, bottled propane is relatively expensive. Therefore, converting to an alternative energy supply is not an option.

3 Utility Allowance Recommendations

The following Utility Allowance recommendations are for residences of Newport Village based on the number of bedrooms.

| Monthly Utility Allowance | 1 BR | 2 BR | 3 BR | 4 BR |
|---------------------------|--------------|--------------|--------------|--------------|
| Electric | \$69 | \$76 | \$85 | \$92 |
| Water | \$41 | \$45 | \$49 | \$53 |
| Sewer | \$44 | \$46 | \$48 | \$51 |
| Total | \$154 | \$167 | \$182 | \$196 |
| Previous | \$140 | \$154 | \$170 | \$184 |
| Increase | \$14 | \$13 | \$12 | \$12 |

4 Utilities Cost

4.1 Electricity

Monthly Electricity Cost

| Monthly Electricity Cost | 1 BR | 2 BR | 3 BR | 4 BR |
|--------------------------|----------------|----------------|----------------|----------------|
| Customer Charge | \$31.23 | \$31.23 | \$31.23 | \$31.23 |
| Domestic Hot Water | \$15.82 | \$19.77 | \$23.72 | \$27.68 |
| Cooking | \$5.67 | \$6.76 | \$7.74 | \$8.40 |
| Refrigeration | \$7.31 | \$8.72 | \$10.25 | \$11.67 |
| Lighting | \$1.53 | \$1.53 | \$1.85 | \$2.18 |
| Miscellaneous Appliances | \$7.09 | \$8.40 | \$9.82 | \$11.23 |
| Total Electric | \$68.65 | \$76.41 | \$84.61 | \$92.39 |

4.1.1 Electric Rates

Electric utility rates are based on Florida Keys Electric Cooperative rates. Florida Keys Electric Cooperative can be reached at (305) 743-5344 or www.fkec.com.

Customer Charge: \$1.00 per day + Tax Adj. = \$31.23

Energy Charge (First 1,000kWh) = \$0.1091

Energy Charge (All additional kWh) = \$0.1434

4.1.2 Monthly Energy Charge

Domestic Hot Water

| Domestic Hot Water | 1 BR | 2 BR | 3 BR | 4 BR |
|------------------------|----------|----------|----------|----------|
| Electric (kWh) | 145 | 181 | 218 | 254 |
| Energy Charge (\$/kWh) | \$0.1091 | \$0.1091 | \$0.1091 | \$0.1091 |
| Energy Cost | \$15.82 | \$19.77 | \$23.72 | \$27.68 |

Cooking

| | | | | |
|------------------------|----------|----------|----------|----------|
| Cooking | 1 BR | 2 BR | 3 BR | 4 BR |
| Electric (kWh) | 52 | 62 | 71 | 77 |
| Energy Charge (\$/kWh) | \$0.1091 | \$0.1091 | \$0.1091 | \$0.1091 |
| Energy Cost | \$5.67 | \$6.76 | \$7.74 | \$8.40 |

Refrigeration

| | | | | |
|------------------------|----------|----------|----------|----------|
| Refrigeration | 1 BR | 2 BR | 3 BR | 4 BR |
| Electric (kWh) | 67 | 80 | 94 | 107 |
| Energy Charge (\$/kWh) | \$0.1091 | \$0.1091 | \$0.1091 | \$0.1091 |
| Energy Cost | \$7.31 | \$8.72 | \$10.25 | \$11.67 |

Lighting

| | | | | |
|------------------------|----------|----------|----------|----------|
| Lighting | 1 BR | 2 BR | 3 BR | 4 BR |
| Electric (kWh) | 14 | 14 | 17 | 20 |
| Energy Charge (\$/kWh) | \$0.1091 | \$0.1091 | \$0.1091 | \$0.1091 |
| Energy Cost | \$1.53 | \$1.53 | \$1.85 | \$2.18 |

Miscellaneous Appliances

| | | | | |
|--------------------------|----------|----------|----------|----------|
| Miscellaneous Appliances | 1 BR | 2 BR | 3 BR | 4 BR |
| Electric (kWh) | 65 | 77 | 90 | 103 |
| Energy Charge (\$/kWh) | \$0.1091 | \$0.1091 | \$0.1091 | \$0.1091 |
| Energy Cost | \$7.09 | \$8.40 | \$9.82 | \$11.23 |

4.2 Water**Monthly Water Cost**

| | | | | |
|--------------------|----------------|----------------|----------------|----------------|
| Monthly Water Cost | 1 BR | 2 BR | 3 BR | 4 BR |
| Customer Charge | \$17.04 | \$17.04 | \$17.04 | \$17.04 |
| Water Charge | \$24.05 | \$27.94 | \$31.83 | \$35.71 |
| Total Water | \$41.09 | \$44.98 | \$48.87 | \$52.75 |

4.2.1 Water Rates

Water utility rates are based on Florida Keys Aqueduct Authority rates. Florida Keys Aqueduct Authority can be reached at (305) 296-2454.

| | |
|--|---------|
| Customer Charge (\$/mo): | \$17.04 |
| Water Charge 0 to 6,000 gal (\$/1000 gal): | \$7.16 |
| Water Charge 6,001 gal to 12,000 gal (\$/1000gal): | \$10.46 |

4.2.2 Monthly Water Charge

| Water | 1 BR | 2 BR | 3 BR | 4 BR |
|------------------------------------|----------------|----------------|----------------|----------------|
| Water Consumption (gal) | 3,359 | 3,902 | 4,445 | 4,988 |
| Water Charge (0 to 6,000 gal) | \$24.05 | \$27.94 | \$31.83 | \$35.71 |
| Water Charge (6,001 to 12,000 gal) | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Total Water Charge | \$24.05 | \$27.94 | \$31.83 | \$35.71 |

4.3 Sewer

Monthly Sewer Cost

| Monthly Sewer Cost | 1 BR | 2 BR | 3 BR | 4 BR |
|--------------------|----------------|----------------|----------------|----------------|
| Customer Charge | \$28.56 | \$28.56 | \$28.56 | \$28.56 |
| Sewer Charge | \$15.05 | \$17.48 | \$19.91 | \$22.35 |
| Total Sewer | \$43.61 | \$46.04 | \$48.47 | \$50.91 |

4.3.1 Sewer Rates

Sewer utility rates are based on Key Largo Wastewater Treatment District rates. The Key Largo Wastewater Treatment District can be reached at 305-451-4019.

| | |
|----------------------------|---------|
| Customer Charge (\$/mo): | \$28.56 |
| Sewer Charge(\$/1000 gal): | \$4.48 |

4.3.2 Monthly Sewer Charge

| Sewer | 1 BR | 2 BR | 3 BR | 4 BR |
|---------------------------|----------------|----------------|----------------|----------------|
| Water Consumption (gal) | 3,359 | 3,902 | 4,445 | 4,988 |
| Sewer Charge | \$4.48 | \$4.48 | \$4.48 | \$4.48 |
| Total Sewer Charge | \$15.05 | \$17.48 | \$19.91 | \$22.35 |

5 Consumption Studies

All appliances for Newport Village utilize electricity. Monroe County contains no natural gas distribution system and propane is relatively expensive.

5.1 Space Heating Consumption

Key Largo is located in a tropical weather location that has no heating degree days. The apartments do not require heating, therefore no allowance is provided for space heating.

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 |
|-----------------------|---------|---------|---------|---------|
| Consumption (Gal/day) | 40 | 50 | 60 | 70 |
| Energy (BTU's) | 494,802 | 618,503 | 742,203 | 865,904 |
| Electricity (kWh) | 145 | 181 | 218 | 254 |

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 |
|-------------------|------|------|------|------|
| Electricity (kWh) | 52 | 62 | 71 | 77 |

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 |
| Electricity (kWh) | 67 | 80 | 94 | 107 |

5.5 Lighting Consumption

The following is the monthly energy consumption requirement for lighting. The consumption data is based on 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 |
| Electricity (kWh) | 14 | 14 | 17 | 20 |

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

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

Development: Newport Village

Number of Bedrooms: 1

| 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 | 1 | 13 | 5 | 1.95 |
| Bedroom | 1 | 13 | 4 | 1.56 |
| Total | | | | 13.65 |

Development: Newport Village

Number of Bedrooms: 2

| Location | Number of Lamps | Lamp Size (Watts) | Daily Usage (Hours) | Monthly Energy Consumption (kWh) |
|----------------|-----------------|-------------------|---------------------|----------------------------------|
| Kitchen/Dining | 3 | 13 | 4 | 4.68 |
| Bathroom | 2 | 13 | 3 | 2.34 |
| Hall/Foyer | 2 | 13 | 2 | 1.56 |
| Living Room | 1 | 13 | 5 | 1.95 |
| Bedroom | 2 | 13 | 4 | 3.12 |
| Total | | | | 13.65 |

Development: Newport Village

Number of Bedrooms: 3

| 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 |
| Hall/Foyer | 2 | 13 | 2 | 1.56 |
| Living Room | 1 | 13 | 5 | 1.95 |
| Bedroom | 3 | 13 | 4 | 4.68 |
| Total | | | | 16.77 |

Development: Newport Village

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 |
| Hall/Foyer | 4 | 13 | 2 | 3.12 |
| Living Room | 1 | 13 | 5 | 1.95 |
| Bedroom | 4 | 13 | 4 | 6.24 |
| Total | | | | 19.89 |

Monthly Lighting Energy Consumption for Each Development and Average

| Lighting (kWh) | 1 BR | 2 BR | 3 BR | 4 BR |
|-----------------|-------|-------|-------|-------|
| Newport Village | 13.65 | 13.65 | 16.77 | 19.89 |
| Average | 13.7 | 13.65 | 16.77 | 19.89 |

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.

| <u>Appliance</u> | <u>Annual Consumption kWh</u> |
|------------------|-------------------------------|
| 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 |
|--------------------------|------|------|------|------|
| Electricity (kWh) | 65 | 77 | 90 | 103 |

5.7 Water Consumption

The following is the monthly energy consumption requirements for water consumption based on the Water Consumption Study dated July 10, 2022.

Monthly Water Consumption

| Monthly Water Consumption | 1 BR | 2 BR | 3 BR | 4 BR |
|---------------------------|-------|-------|-------|-------|
| Water (Gal) | 3,359 | 3,902 | 4,445 | 4,988 |