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# City of Gainesville Policy Program Preliminary Research & Analysis

**TOPIC: City-Sponsored Energy Efficiency Programs** 

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**REQUESTED BY: Commissioner Ward** 

#### **OBJECTIVE**

An analysis of city-sponsored energy efficiency programs, including lightbulb exchanges and air conditioning improvement initiatives, that could be implemented in the City of Gainesville.

#### **EXECUTIVE SUMMARY**

City-sponsored energy efficiency programs commonly consist of accessible energy solutions that can be easily implemented by city neighbors. Examples of these programs include exchange programs which allow neighbors to trade in inefficient units and appliances for more efficient ones, such as those for light-emitting diode (LED) lightbulbs or more efficient air conditioner units, and utility rebate programs, which allow neighbors to receive money back when they switch to more efficient appliances. LED lightbulb exchange programs conducted by city governments are generally popular amongst citizens and result in high turnout because they only require residents to remove their current inefficient bulbs before exchanging them with energy efficient bulbs. Additionally, rebate programs for efficient appliances, such as improved air conditioning units, offer residents the ability to earn money back on their utility bills if their appliances meet certain efficiency standards. These

Witt et al., 2019)https://www.mdpi.com/2071-1050/11/14/3965

<sup>&</sup>lt;sup>2</sup> https://www.tampaelectric.com/residential/saveenergy/heatingcooling/

rebates offer neighbors incentives to upgrade appliances and the ability to save money, both through the rebate and through the increased efficiency of their new units.

Although LED lightbulb exchange programs are commonly used in city programs, programs designed to support improvements in utilities in resident homes are typically not run by city governments alone. This is largely due to the differences between city operations and utility suppliers. In Gainesville, electric services are offered by Gainesville Regional Utilities (GRU) which is part of the City of Gainesville. However, many other cities utilize privately owned services.<sup>3</sup> Thus, city initiatives targeted at improving air conditioning and utility efficiency are typically outsourced to utility providers. Most utility or air conditioning improvement programs are also offered through federal funding and programming rather than city programming. Additionally, participation in these programs is highly influenced by the monetary incentive associated with them.

## HISTORY/BACKGROUND INFORMATION

## **Potential Cost Savings for Energy Efficiency Improvements**

LED lightbulb usage has been proven to decrease utility bills for residents. According to the U.S. Department of Energy's consumer resource website, LED lightbulbs use at least 75% less energy than incandescent bulbs and last up to 25 times longer which allows for savings on replacement bulbs and utilities.<sup>4</sup>

Efficient air conditioning upgrades have also shown to save money for residents long-term. David Lee, Supervisor for the Residential Building Technologies Program, and Sam Rashkin, Chief Architect for the Residential Building Technologies Program, estimate a higher efficiency air conditioning unit can save 20-40% of cooling energy costs. Units should have a seasonal energy efficiency ratio (SEER) of at least 15 to see energy savings. Additionally, window units tend to be less energy efficient than central air conditioning units as central air conditioning allows for the use of programmable thermostats that automate inside temperature, a feature which window units typically do not have. However, window units can be useful for occupants of single-bedrooms as it only focuses energy on cooling a single room.

## **Federal Energy Efficiency Initiatives**

Energy improvement programs are popular in government initiatives, especially as the current federal administration moves towards improving national energy usage. For example, the Department of Energy has proposed that most common lightbulbs should meet federal standards

<sup>&</sup>lt;sup>3</sup> https://www.electricchoice.com/blog/how-cities-and-city-governments-acquire-electricity-in-the-united-states/

<sup>4</sup> https://www.energy.gov/energysaver/led-lighting

<sup>&</sup>lt;sup>5</sup> https://www.energy.gov/articles/you-asked-we-are-answering-your-home-efficiency-questions

<sup>&</sup>lt;sup>6</sup> https://www.washingtonpost.com/national/which-is-better-a-window-ac-or-central-air/2011/04/26/AF17HEdF story.html

for energy efficiency. There are also statewide initiatives aimed at improving lightbulb efficiency. For example, California and Nevada have state regulations requiring all lightbulbs meet 45-lumen-per-watt standards, which excludes incandescent bulbs as they cannot meet this requirement. 8

There are also several programs that exist to provide funding to assist low-income families with energy improvements. Two significant energy efficiency programs offered federally are the Low-Income Home Energy Assistance Program (LIHEAP) and the Weatherization Assistance Program (WAP). LIHEAP offers income-qualifying families assistance with home heating and cooling prices. For residents of Florida, these funds are distributed by the Florida Department of Economic Opportunity (DEO) and can be accessed by contacting a local agency provider. There are income limits placed on eligibility depending on the size of the family in the home and monthly income. <sup>10</sup>

The Weatherization Assistance Program (WAP) allows households at or below 200% of the poverty line and receive either Supplemental Security Income (SSI) or Aid to Families with Dependent Children (AFDC) to receive weatherization upgrades. The program offers air filtration solutions, attic/floor insulation, attic ventilation, solar reflective coating for manufactured homes and solar screens. Additionally, WAP will repair or replace inefficient heating/cooling units and water heaters.

Another program that can be used to increase the energy efficiency of utilities, including air conditioning, is the usage of rebate programs. These programs encourage neighbors to switch to more efficient units by offering money back to neighbors whose appliances meet certain efficiency standards.

## Rebate and LED Exchange Programs in Gainesville

In Gainesville, GRU offers rebate programs for improving natural gas equipment for residents and some rental property owners. For residential water heaters, the minimum incentive price is \$300 per unit and goes up to \$500 per unit; for residential furnaces, the minimum incentive price is \$200 per unit and up to \$500 per unit. Additionally, GRU currently offers the Low-Income Energy Efficiency Program that allows low-income customers to lower their electric bill by making energy

<sup>&</sup>lt;sup>7</sup> https://www.aceee.org/press-release/2021/08/biden-administration-takes-major-step-ensure-light-bulbs-dont-waste-energy

<sup>8</sup> https://www.aceee.org/press-release/2021/08/biden-administration-takes-major-step-ensure-light-bulbs-dont-waste-energy

<sup>&</sup>lt;sup>9</sup> https://www.needhelppayingbills.com/html/lheap\_assistance.html

<sup>&</sup>lt;sup>10</sup> https://www.floridajobs.org/community-planning-and-development/community-services/low-income-home-energy-assistance-program

<sup>11</sup> https://www.energy.gov/eere/wap/how-apply-weatherization-assistance

<sup>12</sup> http://floridajobs.org/community-planning-and-development/community-services/weatherization-assistance-program

http://floridajobs.org/community-planning-and-development/community-services/weatherization-assistance-program

<sup>14</sup> https://programs.dsireusa.org/system/program/detail/1450

<sup>15</sup> https://programs.dsireusa.org/system/program/detail/1450

efficient improvements to their homes.  $^{16}$  Rebates are given to the partnered contractors rather than to the customer.  $^{17}$ 

Kinnzon Hutchinson, Interim Chief Customer Officer at GRU, shared that there used to be a variety of rebate programs offered by GRU, including one for air conditioning units. <sup>18</sup> These programs were phased out over the years as the majority of appliances were switched to energy efficient ones. In order to ensure any new rebate program would be effective, it is recommended that there is an analysis conducted on previous rates of participation in rebate programs, in addition to an analysis on the need for new rebate programs. <sup>19</sup>

In regards to lightbulb exchanges, Gainesville residents can currently drop off compact fluorescent lights (CFLs) at the Alachua County Household Hazardous Waste Collection Center or the Alachua County Rural Collection Centers, of which there are five locations. Holiday lights with incandescent and LED lights with wires and attached bulbs can be dropped off at the previously mentioned locations year-round, or at the Gainesville Public Works Facility between December and January. Otherwise, there has not been a dedicated CFL to LED lightbulb exchange in Gainesville.

On March 11, 2021, the City of Gainesville received \$32 million in funds from the American Rescue Plan. <sup>22</sup> As of June 30, 2021, there were five proposals dedicated to utilizing some of those funds to improve energy efficiency and increase weatherization in the community. <sup>23</sup>

## PRELIMINARY RESEARCH AND FINDINGS

This portion of the report will be divided into *LED Lightbulb Exchanges*, *Rebate Programs* and *Air Conditioner Exchanges* to highlight municipalities that have implemented these different types of programming.

#### **LED Lightbulb Exchanges**

## **Montgomery County, Maryland**

Montgomery Energy Connection provides services sponsored by the Montgomery County Department of Environmental Protection. In October of 2021, the initiative set up "Lemonade" Stands at community centers, recreation centers, senior centers, libraries and farmer's markets.<sup>24</sup>

<sup>&</sup>lt;sup>16</sup> https://www.gru.com/MyHome/LowerMyBill/SaveEnergy/Low-incomeEnergyEfficiencyProgramPlus.aspx

<sup>17</sup> https://www.gru.com/MyHome/LowerMyBill/SaveEnergy/Low-incomeEnergyEfficiencyProgramPlus.aspx

Personal conversation with Kinnzon Hutchinson, Interim Chief Customer Officer, GRU

<sup>&</sup>lt;sup>19</sup> Personal conversation with Kinnzon Hutchinson, Interim Chief Customer Officer, GRU

<sup>&</sup>lt;sup>20</sup> https://www.zerowastegnv.com/recycle/

<sup>&</sup>lt;sup>21</sup> <u>https://www.wuft.org/news/2021/12/08/gainesville-residents-can-recycle-holiday-lights-at-designated-dropoffs/</u>

https://www.wuft.org/news/2021/06/30/gainesvilles-32-million-in-cares-act-funding-the-proposals-explained/

explained/
23 https://www.wuft.org/news/2021/06/30/gainesvilles-32-million-in-cares-act-funding-the-proposals-explained/

https://mygreenmontgomery.org/2021/lighten-up/

These stands distributed lemon treats and LED lightbulbs. Residents could visit these stands and trade in their old CFL bulbs for up to 3 free LED bulbs. LED lightbulbs are usually donated by the Potomac Electric Power Company (PEPCO) or purchased with funding. Additionally, events were held at 19 County libraries throughout the month of October. There were LED exchanges established as recently as February 2022. Lightbulb exchanges were held at 11 events throughout the month of February. Between July and October of 2021, 5,130 lightbulbs were exchanged in total with up to 3 lightbulbs exchanged per resident, and on average about 30 people show up to each lightbulb exchange event. These events were advertised to the community through various community calendars, newsletters, blog posts, social media outlets and some press releases. Between July and December, there were 618,193 impressions and 3,462 clicks for lightbulb exchange content. Areas in need were identified using a heat map of prior donation sites and targeted areas that did not receive these donations prior. Additionally, the county prefers to focus on areas that already receive high traffic such as libraries, senior centers and grocery stores. There are 1.1 million residents in Montgomery County.

Montgomery County also has two other programs dedicated to energy efficiency for residents. One is the Quick Home Energy Checkup (QHEC) where a contractor provides advice and energy/water saving measures for the resident's home in particular that can equal \$100 in savings. During the QHEC, residents may receive LED light bulbs, smart power strips, a faucet aerator, wraps for water heater/pipes and water saving showerheads. Eligible residents are those who pay their own utility bill and have not had a QHEC before. The second program is the Home Energy Audit which is completed after the QHEC. During this \$100 audit, the auditor will check the safety of appliances and look for air leaks and moisture problems. They will produce a written report of the recommendations at the end for homeowners to focus on improving. Eligible residents are single-family homes and townhomes. This program is similar to the Low-Income Energy Efficiency Program offered by GRU in Gainesville. They both offer energy improvement recommendations, but the program offered by GRU implements the recommendations given. Additionally, GRU's program requires residents are below a certain income threshold.

#### **New Haven, Connecticut**

In an initiative titled the Great Light Bulb Exchange, New Haven residents were encouraged to bring two incandescent bulbs in exchange for two LED bulbs. Residents were also given energy efficiency information and energy-saving programs offered by United Illuminating Company, which partnered with Energize Connecticut. About 150 households attended the event, resulting in a distribution of more than 300 LED bulbs; with savings of \$230 for each LED, this would equate to \$87,000 in savings for the participants. Energize Connecticut sponsored this program which provides Connecticut

<sup>&</sup>lt;sup>25</sup> https://mygreenmontgomery.org/2022/febrewary-2022-time-to-kick-gas/

<sup>&</sup>lt;sup>26</sup> Personal conversation with Larissa Johnson, Residential Energy Program Manager, Montgomery County

<sup>&</sup>lt;sup>27</sup> https://mygreenmontgomery.org/2018/lighten-your-load/

https://www.census.gov/quickfacts/montgomerycountymaryland

<sup>&</sup>lt;sup>29</sup> https://mygreenmontgomery.org/project/schedule-a-quick-home-energy-checkup/

https://mygreenmontgomery.org/2015/weatherize-your-home/

https://patch.com/connecticut/newhaven/great-light-bulb-exchange-brightens-new-haven-0

https://patch.com/connecticut/newhaven/great-light-bulb-exchange-brightens-new-haven-0

https://patch.com/connecticut/newhaven/great-light-bulb-exchange-brightens-new-haven-0

consumers, businesses and communities with information regarding energy efficiency.<sup>34</sup> It is an initiative of the Connecticut Energy Efficiency Fund, the Connecticut Green Bank, and the state and local utilities.<sup>35</sup> The Fund is administered by United Illuminating amongst other investor-owned utility companies in Connecticut.<sup>36</sup>

## Salt Lake City, Utah

A pilot study conducted in the west side of Salt Lake City resulted in the exchange of 1,432 lightbulbs with 181 participating households.<sup>37</sup> Energy cost savings for the families are estimated to be about \$18,219 a year.<sup>38</sup> According the pilot study report, the researchers focused on LED lighting because it "provides more certainty that participants will install the LEDs immediately in place of inefficient bulbs that they exchanged."<sup>39</sup> Rocky Mountain Power helped in donating the LED bulbs used in the 23 community events held over two ZIP codes in the west side of the city.<sup>40</sup> The researchers noted that the state Weatherization Assistance Programs (WAPs) largely consist of lighting, insulation and air sealing upgrades, but do not address electrical and thermostat upgrades.<sup>41</sup>

## **Rebate Programs**

This portion will focus on residential rebate programs, although some cities may offer slightly different commercial rebate programs as well.

## Ocala, Florida

The City of Ocala provides utilities through the Ocala Electric Utility (OEU).<sup>42</sup> Residential incentive programs include washing machines, dishwashers, refrigerators/freezers, heat pumps/air conditioners, programmable thermostats, building insulation, solar water heat and water heaters. OEU also offers a dedicated solar water heat program, but this section will focus on the incentives to improve current utilities rather than the installation of solar. The incentives are as follows:<sup>43</sup>

Washing Machines	\$100 per unit
Dishwashers	\$75 per unit
Refrigerators/Freezers	\$75 per unit
Heat Pumps and A/C	\$250 per unit
Thermostats	\$25 per unit
Insulation	\$0.10 per square foot, maximum \$1000
Solar Water Heat	\$450
Water Heaters	\$350 per unit

<sup>34</sup> https://betterbuildingssolutioncenter.energy.gov/partners/energize-connecticut

<sup>35</sup> https://betterbuildingssolutioncenter.energy.gov/partners/energize-connecticut

<sup>&</sup>lt;sup>36</sup> https://betterbuildingssolutioncenter.energy.gov/partners/energize-connecticut

<sup>37</sup> https://unews.utah.edu/led-bulb-exchange/

<sup>38</sup> https://unews.utah.edu/led-bulb-exchange/

<sup>39</sup> https://www.mdpi.com/2071-1050/11/14/3965

<sup>40</sup> https://unews.utah.edu/led-bulb-exchange/

<sup>41</sup> https://www.mdpi.com/2071-1050/11/14/3965

<sup>42</sup> https://www.ocalafl.org/government/electric-utility/about-us

<sup>43</sup> https://programs.dsireusa.org/system/program/detail/4237/ocala-utility-services-energy-efficiency-rebate-program

There is also a lighting and LED lighting incentive program, but it is only available for commercial use; the incentive is \$100 per kilowatt with a maximum of \$5000.<sup>44</sup>

There are requirements that must be met in order to receive the rebate. For example, the qualifications to receive an air conditioner rebate are:<sup>45</sup>

- Unit must be Energy Star qualified with a SEER 15 or more and heat pumps must have an HSPF 8.2 or greater
- Model number must be on the Energy Star website as a certified HVAC unit.
- Must be installed by the State of Florida Certified Heating, Air Conditioning, Refrigeration and Ventilation (HARV) or mechanical contractor
- Copy of "Certificate of Air Conditioning, Heating, and Refrigeration Institute (AHRI) Certified Performance" must be provided by the contractor

The rebate is limited to two per customer, and the rebate is received as a credit on the utility bill.

## Tampa, Florida

Utilities are distributed via the Tampa Electric Company (TECO). 46 Residential incentive programs include windows, air conditioners and HVAC. The incentives are as follows:<sup>47</sup>

Windows	\$2.20 per square foot
Air Conditioners	\$135
HVAC	\$115

Additionally, TECO offers a Ductwork Rebate Program that allows customers to receive a professional appraisal on their duct system for repair needs, sealing leaks and minimizing future leaks for \$80.48 TECO also offers a free energy efficiency audit and remote thermostat/appliance upgrade.49

The qualifications to receive an air conditioner rebate are:50

- A minimum SEER of 15
- Paid receipt/invoice
- AHRI reference sheet

This is a one-time payment for the replacement of an inefficient unit with an efficient one.

<sup>44</sup> https://programs.dsireusa.org/system/program/detail/4237/ocala-utility-services-energy-efficiency-rebateprogram
45 https://www.ocalafl.org/government/electric-utility/rebates

<sup>46</sup> https://programs.dsireusa.org/system/program/detail/1356/tampa-electric-residential-energy-efficiencyrebate-program

https://programs.dsireusa.org/system/program/detail/1356/tampa-electric-residential-energy-efficiency-

https://programs.dsireusa.org/system/program/detail/1356/tampa-electric-residential-energy-efficiencyrebate-program

https://programs.dsireusa.org/system/program/detail/1356/tampa-electric-residential-energy-efficiencyrebate-program
50 L.

https://www.tampaelectric.com/residential/saveenergy/heatingcooling/

#### Tallahassee, Florida

The City of Tallahassee provides utilities through the City of Tallahassee Utilities (CTU). 51 Residential incentive programs include washing machines, furnaces, air conditioners, heat pumps, dishwashers, pool pumps, lighting, solar water heat and programmable thermostats.<sup>52</sup> The incentives are as follows:<sup>53</sup>

Washing Machines	\$100 per unit
Furnaces	\$700 per unit
Air Conditioners	Minimum \$100, maximum \$350
Heat Pumps	Minimum \$100, maximum \$750
Dishwashers	\$40
Pool Pumps	\$200
Lighting	\$450
Solar Water Heat	\$450
Thermostats	\$100

These rebates are offered for customers with ENERGY STAR appliances which are deemed energy efficient.54

The qualifications to receive an air conditioner rebate are:55

- Split systems SEER 15, EER 12.5 (Package units SEER 15, EER 12) for the \$100 rebate
- Split systems SEER 17, EER 13 (Package units SEER 16, EER 12) for \$350 rebate
- Completed rebate form for new homes or existing homes depending on resident
- Installing contractor's paid receipt
- AHRI Certificate or number
- Passed final inspection

The rebates appear as a credit on the utility bill for existing homes.

## **Air Conditioner Exchange**

Another alternative to rebate programs is hosting an air conditioner exchange program to encourage residents to switch to a more efficient air conditioner.

#### **Toronto, Canada**

Beginning in December of 2019, the Toronto Community Housing Corporation (TCHC), a corporation owned and operated by the City of Toronto, removed 7,000 window air conditioners from buildings its buildings. In February 2020, TCHC began the process of exchanging the units for portable, floor

<sup>51</sup> https://www.talgov.com/you/you-products-home-index.aspx

https://programs.dsireusa.org/system/program/detail/3029/city-of-tallahassee-utilities-residential-energyefficiency-rebate-program

<sup>&</sup>lt;sup>53</sup> https://programs.dsireusa.org/system/program/detail/3029/city-of-tallahassee-utilities-residential-energyefficiency-rebate-program

<sup>&</sup>lt;sup>54</sup> https://programs.dsireusa.org/system/program/detail/3029/city-of-tallahassee-utilities-residential-energyefficiency-rebate-program

55 http=///

https://www.talgov.com/you/you-products-home-hvac-rebates.aspx

mounted models.<sup>56</sup> The City corporation owns and manages approximately 60,000 rental housing units across Toronto, and banned the installation of window air conditioning systems in their housing following the death of a toddler in late 2019.<sup>5758</sup>The TCHC exchanged these units at no cost to tenants. Tenants who agreed to an exchange were given a voucher as confirmation, which they could exchange for a floor unit in time for the 2020 cooling season. TCHC has a client care center program in place, where tenants could call to sign up for the exchange, and TCHC began delivery of the new models in March of 2020.<sup>59</sup>

#### Columbia, Missouri

The Voluntary Action Center (VAC), a group which helps to provide resources for low-income families in Boone County<sup>60</sup>, works with the Columbia Water and Light Department as well as Boone Electric Cooperative to assist in the exchange of older, less efficient or broken window A/C units for energy efficient ones.<sup>61</sup> The program helps participants stay cooler and save money on utility bills, and is directed at low-income customers from May 4<sup>th</sup> to September 23<sup>rd</sup>. Customers need to contact the VAC office to determine eligibility.<sup>62</sup>

## PRELIMINARY ADVANTAGES/DISADVANTAGES ANALYSIS

#### Costs

- Sourcing the LED lightbulbs.
- Possible difficulties in program participation and identifying which communities could benefit most from this programming.
- Rebate programming still requires customers to pay up front as the discount is only given after customers purchase a more efficient unit.
- Exchange programs would likely be more costly than a rebate program due to the resources required.

## **Benefits**

• Potential significant energy savings for residents who make the switch from CFL/incandescent to LED lighting or who switch to a more efficient air conditioning unit.

- Exchange programs could also help increase knowledge on grant programs available to residents.
- Programs could help by furthering energy conscientiousness in the community by improving general energy education.

## PRELIMINARY AND ILLUSTRATIVE LIST OF POTENTIAL STAKEHOLDERS

61 https://www.vacmo.org/programs/air-conditioner-exchange/

<sup>&</sup>lt;sup>56</sup> https://www.torontohousing.ca/news/whatsnew/Pages/airconditionerplanphasetwo.aspx

https://www.thestar.com/news/gta/2019/12/02/toronto-community-housing-bans-window-air-conditioners-following-toddlers-death.html

https://www.toronto.ca/city-government/accountability-operations-customer-service/city-administration/city-managers-office/agencies-corporations/corporations/toronto-community-housing/

<sup>&</sup>lt;sup>59</sup> https://www.torontohousing.ca/news/whatsnew/Pages/airconditionerplanphasetwo.aspx

<sup>60</sup> https://www.vacmo.org/

<sup>62</sup> https://www.vacmo.org/programs/air-conditioner-exchange/

- Gainesville Regional Utilities
- Zero Waste Subcommittee
- Environmental Justice Subcommittee
- Alachua County Board of Commissioners
- Alachua County Public Libraries
- Alachua County School Board
- Local non-profits

## RECOMMENDED POINTS FOR FURTHER RESEARCH/DISCUSSION

- What is the most effective way to encourage energy efficiency improvements among neighbors?
- Where would the LED lightbulb exchanges take place in Gainesville?
- Where will the LED lightbulbs be sourced from?
- Who could the city partner with to increase participation in exchange programs?
- How can rebate programs be further promoted or improved for GRU users?
- What will the monetary incentivization be for these programs?
- How has privatized company LED initiatives affected CFL/incandescent consumption?
- How was participation in former GRU rebate programs? Will this affect any future rebate program offers?

## ADDITIONAL RESOURCES

Air Conditioner Exchange—Voluntary Action Center. (n.d.). Retrieved February 28, 2022, from

https://www.vacmo.org/programs/air-conditioner-exchange/

Biden Administration Moves to Ensure Light Bulbs Don't Waste Energy. (2021, August 10).

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Energize Connecticut | Better Buildings Initiative. (n.d.). Better Buildings U.S. Department of

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- How to Apply for Weatherization Assistance. (n.d.). Energy.Gov. Retrieved February 19, 2022, from <a href="https://www.energy.gov/eere/wap/how-apply-weatherization-assistance">https://www.energy.gov/eere/wap/how-apply-weatherization-assistance</a>
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