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Control Number - 57236

Item Number - 2

Public Utility Commission of Texas

Memorandum

TO: Interested Persons

FROM: Texas Energy Fund Administrator

DATE: October 31, 2024

RE: Control No. 57236 – November 13, 2024 Texas Backup Power Package Program Virtual Workshop Agenda

The Public Utility Commission of Texas (PUCT) will host a virtual workshop via Zoom on **November 13th at 1:30 p.m. CST** to solicit input on the Texas Backup Power Package Program.

Owners of critical facilities, energy services providers and vendors, industry experts, and community members are invited to attend. Interested stakeholders are invited to provide live public comment, limited to three minutes per person, for each topic area. Written comments can be filed to the PUCT Interchange using Control Number 57236 prior to and following the workshop. Comments provided during the workshop and submitted on the PUCT Interchange may inform rulemaking for the Texas Backup Power Package (TBPP) Program.

Registration for this Zoom meeting is required. Please register by copying and pasting the following URL into your web browser:

https://deloitte.zoom.us/webinar/register/WN_x2n9qN2fRMa2pNj8eAvoww#/registration

Agenda

- Welcome & Workshop Overview
- Instructions for Providing Public Comment
- Public Comment by Topic Area (see below)
- Closing

Topic Areas for Public Comment

Staff presents these agenda topics for comment at the workshop:

1. **Critical Facility Operator Input**
    - What are the key challenges you face in maintaining and operating backup power systems, and how can the TBPP program better address those challenges?
2. **Technology Components and Specifications**
    - What are the feasibility considerations for the specifications of the range of technologies supported by the program?

- What specific challenges or considerations should we keep in mind when finalizing the specifications for the backup power technologies (e.g., traditional generators, solar + storage, electric school buses)?
- Are there any technical specifications or interconnection standards that need to be addressed to ensure that the prescribed technologies are effective for different types of critical facilities?
- What is the volume of units of the various size ranges, and can the supply chain support it?

3. **Ownership Models and Financing**
   - What are the considerations for alternate or flexible ownership models?
   - What would you take into consideration when structuring a lease-to-own or resilience-as-a-service model? If you focus on the ability of the critical facility to implement or adopt that alternate ownership model, would that change the way you consider structuring the model?
   - Do you anticipate costs exceeding the $500/kW cap for grants? If so, what strategies might keep costs below the cap on grants while still ensuring quality and reliability?
   - What factors should be considered to support long-term maintenance and operational readiness for backup power systems?

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NATHAN JOHNSON
State Senator • District 16

15 March 2024

Ms. Tracie Tolle
Project Manager, Texas Energy Fund
Public Utility Commission of Texas

The Commission will soon issue a request for proposal for a research entity to conduct a survey of facilities that may qualify for funding under the *Texas Power Promise* of Chapter 34 of the Texas Utilities Code, to inform the design process of the Backup Power Packages under that chapter. At the Commission's request, the Texas Backup Power Package Advisory Committee provides the following guidance regarding the types of facilities that may qualify under the program.

Eligibility, generally. Financial grants and loans under the Texas Backup Power Package program (TBPP) should, by statute, be awarded to "facilities on which communities rely for health, safety and well-being." Texas Utility Code § 34.0202. The program is fundamentally aimed at providing backup power for *critical* community services where otherwise it would be financially unfeasible to do so (whether due to insufficient tax base, commercial viability, or other factors).

Facilities not eligible. Also by statute, electrical loads of greater than 2.5MW are not eligible; nor are commercial energy systems (or their supporting infrastructure), private schools, or for-profit entities that do not directly serve public safety and human health.

Eligibility determination. Eligible facilities will include the types identified and listed in the Texas Administrative Code [16 TAC §25.52] as "loads for which electric service is considered crucial for the protection or maintenance of public safety":

- hospitals, police stations, fire stations, critical water and wastewater facilities, and medical facilities.

The TBPP project, however, contemplates a larger set of facilities upon which communities may rely for critical services in the event of a local or widespread sustained grid outage. These may include the following, for example, provided that they supply *critical* community services:

- facilities providing hospice, nursing, assisted living facilities, end stage renal disease and dialysis;
- community heating or cooling centers and homeless shelters;
- evacuation route fuel stations;
- gas stations and grocery stores in areas (urban and rural) that have highly limited access to essential supplies;
- communications facilities that serve 911 call centers and radio/television emergency alert systems.

In addition to these categories, TBPP eligibility may, upon consideration of relevant factors, extend to certain facilities that local officials identify as critical – *if* those facilities are designated

to and in fact do provide critical services to their communities at large. Depending on the critical needs of the community, these many include food banks and gathering places like public schools, libraries, or houses of worship if they in fact provide critical community services. (The Committee does not expect or intend that an initial assessment of the scale and scope of eligible facilities will include every school, etc., in the state.)

Again, these recommendations pertain to the survey to be performed by the research entity. The Committee will make separate and further recommendations in a report at a later date, and otherwise in response to requests from the Commission, which may include recommendations on the award of grants and loans.

Nathan Johnson
State Senator, District 16

TEXAS BACKUP POWER PACKAGES

INITIAL REPORT

Project Number 22483.005

Prepared for

Public Utility Commission of Texas

September 9, 2024

Submitted by:

Patrick Engineering Inc.

RINA

Our experience. **Your growth.**

September 9, 2024

TEXAS BACKUP POWER PACKAGES
for
CRITICAL FACILITIES

Our supporting research is organized as follows:

EXECUTIVE SUMMARY

The Public Utility Commission of Texas (PUCT or Commission) contracted with our firm, Patrick Engineering Inc., a RINA Company (Patrick) to (i) conduct research, analyze data, and prepare reports and recommendations to evaluate critical facility characteristics and requirements in this state for the Texas Backup Power Packages (BPPs), as described in Public Utility Regulatory Act (PURA) Chapter 34, Subchapter B; and (ii) provide recommended detailed designs and specifications for the Texas BPPs. This Initial Report provides data related to the quantification and characterization of Critical Facilities (CFs) and a recommendation of the corresponding sizes of Texas BPPs which could be developed to meet the needs of those CFs. Patrick will submit its final report to the Commission no later than December 2, 2024.

In accordance with the Texas Backup Power Package Advisory Committee's letter of March 15, 2024 (See Exhibit B), a "Critical Facility" for purposes of Texas BPPs is outlined as follows:

- "Critical Facility" under PURA §34.0202 is a facility "on which communities rely for health, safety, and well-being."
- Eligible facilities will include the types identified and listed in 16 Texas Administrative Code §25.52 as "[l]oads for which electric service is considered crucial for the protection or maintenance of public safety, including but not limited to hospitals, police stations, fire stations, critical water and wastewater facilities, and customers with special in-house life-sustaining equipment."
- A "Critical Facility" does ***not*** include those entities that are disallowed under PURA §34.0205(e)(1): "a commercial energy system, a private school, or a for profit entity that does not directly serve public safety and health."

Through our research, we determined that there are 16 specific CF types, grouped into six broad categories. We estimate that there are almost 31,000 total CFs within the State of Texas. The approximate quantity in each of the six broad categories is provided in the following chart. (See Sections 1-3 for further details, including the 16 specific CF types and energy consumption.)

CF Broad Category	CF Description	Approximate Quantity in Texas
1	Hospitals, nursing homes, and medical facilities	**5,985**
2	First responder facilities (e.g., police and fire stations)	**8,922**
3	Water/wastewater/sewage treatment plants	**2,842**
4	Storm and homeless shelters	**1,901**
5	Public schools and municipal buildings (that provide critical services)	**7,957**
6	Grocery stores and Evacuation route fuel stations	**3,155**
TOTAL CFs		**30,762**

Table 1 – Quantities of CFs by Broad Category

In addition to determining the approximate quantity of CFs throughout the state, we estimated the annual electric consumption of each facility type using the Energy Star Portfolio manager (See Sections 1, 2, and Exhibit A.) Using this information, we found that five (5) different BPP sizes would best serve the electrical needs of the CFs during an energy emergency: 10kW, 25kW, 75kW, 300kW and 2500kW. These capacities can be formed either directly as individual BPPs or by connecting smaller BPPs into one package to accomplish the necessary kW output. Details on those packages can be found in Section 3. It should be noted that the BPP sizes listed above may change in size or number, as the research required during the design process will determine the final number and sizes of BPPs that will be included in the final report.

We used the Energy Star Portfolio Manager[10] to obtain annual average energy usage for each CF in Btu/SqFt. This data references the Energy Information Administration (EIA) Commercial Buildings Energy Consumption Survey (EIA CBECS) reports. From this, the electrical usage in kW and kWh for each building type was calculated allowing the determination of basic BPP sizes in output kW. Based on the number of facilities at or below a given kW requirement, the number of BPP units of a given size that would meet this load was determined. These sizes are listed in Section 3 of this report.

This report also identifies facilities statewide that currently exist and can be considered CFs. The exclusion of any CF that does not meet the exact definition as stated above but could be viewed as meeting the needs of the health, safety and welfare of the surrounding community, is unintentional. That final determination is beyond the scope of this report.

Please note that any number in superscript corresponds to the same number in the reference table in Section 4.

SECTION 1 - METHODOLOGY

The methodology for providing the necessary data to ultimately determine the quantity of BPPs statewide and their sizes, in terms of electrical power kW output, will be on a macro basis. The BPPs will be for general deployment and are not site specific. This methodology will follow the below guidelines:

A. Define/Identify Critical Facility
    1. Develop database of facilities
    2. Develop list of essential services
B. Data Gathering
    1. Determine average size of each defined CF using available EIA data[9]
        i. For example, if the average clinic size is 10,000 SqFt the average energy consumption can be calculated and a BPP size can be determined for that CF.
    2. Determine average energy consumption of each defined CF in common energy units such as British Thermal Units per Square Foot (Btu/SqFt) (See Exhibit A – Energy Star Portfolio Manager – Technical Reference – U.S. Energy Use Intensity [EUI] by Property Type)
    3. Determine average number of each defined CF to be found in a community on a population basis where applicable (i.e.: nursing homes per 1000 people; police per 1000 people, etc.)
        i. Extrapolate number of each CF likely to be found in a community
        ii. For example:
            1. Determine number of police departments in the state
            2. Determine number of fire departments in the state
            3. Determine number of Cities, Towns and Villages in the state (See Texas Demographics by CUBIT)[16]
                a. Generally speaking, each population center will have a water system, sewer system, police department with one or more police stations, fire department with one or more fire stations, gas stations, and so on.
                b. Each of these systems and services would benefit from at least one BPP each.
C. We can get energy use in annual Btu/SqFt. We can then extrapolate to -Btu/SqFt/Hr- and then convert to kWh/h (or theoretically kW, which is demand). However, kWh used in an hour is not actually peak demand, but only an average over time. Typical utility kW demand is based on a fifteen-minute average peak. A CF using 1000 kWh over an hour may have demanded 2000kW for fifteen minutes, consuming only 500kWh (2000/4), and then demanded only 166.7kW for the next three fifteen-minute periods for an additional consumption of 500kWh. This equates to a total hourly consumption of 1000kWh. In this example, sizing a BPP for 1000kW would not meet the actual peak demand of 2000kW

and the BPP might fail in overload. An unacceptable scenario for CF in an emergency situation.

D. If we consider load factor (LF) in the discussion, we can get closer. LF is the ratio of (actual usage kWhr)/ (max possible usage kWh). In the example above, actual usage is 1000 kWh while max usage would be 2000 kWh (2000kW for one hour) giving a LF = 1000/2000 = .5 (or 50%). Therefore, taking the expected LF for a particular building type, police stations, for instance, we can take the kWh/h figure, divide by the LF and come up with an estimated kW demand figure.
E. For the purpose of sizing BPPs we will take the annual energy use per SqFt extrapolated to kWh/hr divided by a load factor. See **Table 2** below for typical load factors[6].
F. Specific CFs that may be co-located with other CFs have not yet been defined and are not part of the scope of this report. Facility BPPs have not been designed to know if there are co-located CFs that one BPP may fulfill a kW need at that specific site.

Load factors will vary by business. Below are average load factors by type of business:

Industry Type	Average Load Factor	Electrical Load Factor Category	Electricity Demand Category
Education	75-80%	High	Low
Grocery	75-80%	High	Low
Health Care	55-65%	Medium	Medium - Low
Retail Store	50-60%	Medium	Medium
Hotel/Motel	45-60%	Low	High
Restaurant	50-55%	Low	High
Office	45-55%	Low	High
Manufacturing	35-50%	Low	High
House of Worship	25-35%	Low	High

Table 2 - Electrical Load Factor by Usage

DEMOGRAPHICS

An understanding of the Texas demographics related to community size is essential in determining the quantities of BPPs by kW size. Tabulated below are the basic numbers of population centers broken down by range[16] (i.e.: populations greater than 50 but less than or equal to 1000, etc.) according to population census data from 2022 and 2023. The location of these population centers within the State was not considered relevant, as the findings of this report are only for quantification and characterization of the CFs. The communities counted do include those designated as CDP (Census Designated Places) as they include populated areas that are unincorporated but might benefit from a BPP to maintain CFs considered as providing essential services for that community group. (See definition below Figure 1 for CDP.)

Number of Communities by Size	Population Greater than	Population Up to
800	50	1000
566	1000	5000
162	5000	10000
196	10000	50000
32	50000	100000
37	100000	500000
3	500000	1000000
3	1000000	3000000
1799	Total Communities of 50 or more	
636	CDP	
1163	Incorporated Places	

Figure 1 - Demographics by Community Population

CDP Census Designated Places:
Examples of incorporated places include cities, towns, villages, etc. CDPs are statistical equivalents of incorporated places and represent unincorporated communities that do not have a legally defined boundary or an active, functioning governmental structure.

SECTION 2 - CRITICAL FACILITY

Disaster events that can disrupt the operation of the electric grid can include earthquakes, tornados, hurricanes, fires, flash floods, inland windstorms and severe rain and thunderstorms, winter storms, and heat waves. These events may occur individually, in any location and in any combination. For this report, Critical Facilities are considered to be existing physical resources under the definition from PURA and are in the CF count shown in Table 3 below. Table 3 is a detailed breakdown of the broad categories identified in Table 1. It lists those facilities by definition that have been determined to be CFs. This table provides the average annual energy usage in Btu/SqFt of each type of CF. This data was then used to calculate the kW and kWh of the various CFs.

Critical Facilities		
ID	**Type**	**Annual Energy Use per Sq Ft (Ave) - kBtu/SF EUI per Energy Star Portfolio Manager[10]**
1	Hospitals	426.9
2	Nursing Homes	213.2
3	Water Treatment Plants	5.9 (energy use in gal/day)
4	Potable Water pumping stations	Unknown
5	Waste Water Treatment plants	7.51 (energy use in gal/day)
6	Sewerage lift/pumping stations	Unknown
7	Storm Shelters/Buildings	89.3
8	Public Schools	104.4
9	Town Halls and Municipal Buildings	109.6
10	First Responder facilities	124.9
a	Fire Stations	124.9
b	Police Stations	124.9
c	Ambulance dispatch facilities	89.3
d	Emergency call centers such as 911	89.3
e	Radio/television emergency alert systems	90
11	Health care treatment facilities where procedures may be in progress such as dental offices, remote site hospital clinics	145.8
12	Hospice, assisted living	213.2
13	End stage renal disease and dialysis centers	232.8
14	Heating and cooling centers	109.6
15	Homeless shelters	143.6
16	Grocery Stores and Evacuation route fuel stations	120

Table 3 - Critical Facilities

SECTION 3 - QUANTIFICATION OF POWER PACKAGE SUPPLY

It was considered for the CF count that at least one CF for small communities (under 1000 population) could be designated as a disaster shelter that could be furnished with a BPP in order to provide shelter for those that need it. These small communities may also include a convenience store that has stocked food, water and workable gasoline pumps. This would be roughly 800 communities of population between 50 and 1000. This could be upwards of 1600 or more BPPs just for the smaller communities.

For the larger communities:
As indicated in Section 1 - Methodology, this study will quantify BPP units and their sizes based on average values of existing CF in terms of average numbers in the community, energy consumption on a Btu/SqFt basis for that usage (then calculated to kW), and the size of a typical CF in SqFt[5]. For example:

- **Houston** has 26 police stations with contact phone numbers. Population[16] is 2,300,000 or roughly 88,500 people served/station coverage. BPPs that may be designated for this essential service could be upwards of 26.
- **Houston** has 105 fire stations or 1 for every 22,000 people served. This essential service could benefit from upwards of 105 BPPs.
- There are over 2,700 **law enforcement agencies in Texas**. One agency per 11,000 population. This could be serviced by up to 2,700 BPPs statewide.
- There are 53 fire stations in **Austin**, population 974,447[16] or 1 for every 18,400 people served. This might result in the application of 53 BPPs.
- **San Antonio** has a population of 1,473,000[16] with 54 fire stations or 1 for every 27,277 people served. This essential service might benefit from upwards of 54 BPPs.
- For police and fire stations noted above the quantity of BPPs may not necessarily be on a one-to-one ratio (one BPP per fire station or one BPP per police station). The quantities of BPPs for these facilities in this report is based on the number of departments of each type within the State.

In **Table 4** below, the CFs are listed along with their average quantities statewide, their average size in square feet per individual facility and energy consumption in Btu/SqFt, kWh and kW.

Critical Facility Type (See Section 4 for References)	Quantity of Bldgs in Texas	Average Floor Space, SqFt*	EUI kbtu/SqFt*	Energy ** Usage 1 hr Cont. kWh	Load *** Factor (LF)	Demand Based on LF, kW
Hospitals (10)(15)(16)	357	100000	426.9	1427.86	0.65	2196.71
Nursing Homes (10)(16)	1195	18000	213.2	128.36	0.65	197.47
Water Treatment Plants * (8)(9)(10)	329	1000000	5.9	72028.52	0.50	144.06
Potable Water pumping stations						0.00
WasteWater Treatment plants *(7)(9)(10)	2513	1000000	7.51	91683.76	0.50	183.37
Sewerage lift/pumping stations						0.00
Storm Shelters/Buildings (9)(10)(16)	1799	2000	89.3	5.97	0.60	9.96
Public Schools (4)(10)(16)	6158	50000	104.4	174.59	0.80	218.24
Town Halls and Municipal Buildings(9)(10)(16)	1799	7500	109.6	27.49	0.55	49.99
First Responder facilities (5)(10)(14)(16)				0.00	0.55	0.00
Fire Stations	2332	4500	124.9	18.80	0.55	34.18
Police Stations	2800	3500	124.9	14.62	0.55	26.58
Ambulance dispatch facilities (3)(10)(15)(16)	2332	2500	89.3	7.47	0.55	13.58
Emergency call centers such as 911 (1)(10)(16)	206	5000	89.3	14.93	0.80	18.67
Radio/television emergency alert systems (2)(10)(16)	1252	1500	90	4.52	0.50	9.03
Health care treatment facilities where procedures may be in progress such as dental offices, remote site hospital clinics (3)((9)(10)(16)	634	7500	145.8	36.57	0.65	56.27
Hospice, assisted living (3)(10)(16)	1000	15000	213.2	106.96	0.65	164.56
End stage renal disease and dialysis centers (3)(10)(16)	1000	15000	232.8	116.80	0.65	179.69
Heating and cooling centers (3)((9)(10)(15)(16)	1799	3000	109.6	11.00	0.60	18.33
Homeless shelters (10)(14)(15)(16)	102	3000	143.6	14.41	0.60	24.02
Grocery stores and Evacuation route fuel stations (10)(14)(16)	3155	2000	120	8.03	0.80	10.03

Table 4 - Energy Consumption

Table 4 Notes:

*Water and Wastewater values are in gals/day and not kbtu/Sq/Ft.

**These numbers represent demand (kW capacity) as a peak value during a 60-minute period. It is possible that the actual demand could be higher when viewed over a 15-minute period and then extrapolated over an hour. In this case the demand value represents kWh as opposed to kW. For example, a demand schedule every 15 minutes may look like 1500, 2000, 500, 1200. The max demand would be 2000 during this particular one-hour period but the kWh consumed would only be 1300 (i.e. the facility is using 1500kW for ¼ hour and 2000kW for ¼ hour and 500kW for ¼ hour and 1500kW for ¼ hour; then the kWh consumption would be 1500/4 + 2000/4 + 500/4 + 1200/4 = 1300kWh). BPP sizing would then have to be based on the 2000kW demand requirement and not the 1300kWh consumption.

***Load factor (LF) represents the (actual usage)/ (max possible usage). In the above example the max usage would be 2000kWh (2000kW continuous demand for one hour) and the actual usage is perhaps only 1300kWh. This would make the LF be 1300/2000 = .65 (65%). If, however, the actual usage was only 1000kWh then the LF would be 1000/2000 or .5 (50%). In other words, the available capacity needs to be 2000kW (to meet the 15 minute demand) while the energy consumed was only 1300kWh. Actual load that may be incurred during disaster recovery is indeterminate making it necessary to use those EUI data that are available for normal use of the CF.

1. For Storm Shelters/Buildings, Town Halls and Municipal buildings, and Heating and Cooling Centers, no direct data was found. The quantity values assumed here reflect one BPP per community for each such critical facility.
2. Wastewater Treatment plant quantities shown in Table 3 are for plants that treat one million gallons per day (MGD) or less. This accounts for roughly 76%[7] of the facilities statewide. The following cities treat more than that:
    a. Houston - 39 treatment plants with total flow of 250 MGD (ave MGD/plant = 6.4 MGD) https://www.houstontx.gov/cip/22cipadopt/e_wastewater.pdf
    b. Austin – 2 major treatment plants with total flow of about 100 MGD. https://communityimpact.com/austin/south-central-austin/government/2024/05/30/more-than-1b-approved-for-generational-austin-wastewater-treatment-plant-upgrades/
    c. San Antonio – 5 treatment plants with total flow of over 200 MGD https://www.waterandwastewater.com/dos-rios-water-recycling-center/ https://www.sariverauthority.org/services/utilities/wastewater-treatment-plants/
    d. Dallas – 2 treatment plants with total flow of 260 MGD (ave MGD/plant = 130 MGD) https://dallascityhall.com/departments/waterutilities/Pages/water_intersting_facts.aspx

    From a Statewide perspective these four cities would add 48 BPP to the 2500 kW count for wastewater treatment alone.

Critical Facility Type (See Section 4 for References)	Quantity of Bldgs in Texas	Unit Size, kW					
		10	25	75	150	300	2500
		Unit Quantity					
Hospitals (10)(15)(16)	357						357
Nursing Homes (10)(16)	1195					1195	
Water Treatment Plants * (8)(9)(10)	329				329		
Potable Water pumping stations		0					
WasteWater Treatment plants *(7)(9)(10)	2513					2513	
Sewerage lift/pumping stations		0					
Storm Shelters/Buildings (9)(10)(16)	1799	1799					
Public Schools (4)(10)(16)	6158					6158	
Town Halls and Municipal Buildings(9)(10)(16)	1799			1799			
First Responder facilities (5)(10)(14)(16)		0					
Fire Stations	2332			2332			
Police Stations	2800			2800			
Ambulance dispatch facilities (3)(10)(15)(16)	2332		2332				
Emergency call centers such as 911 (1)(10)(16)	206		206				
Radio/television emergency alert systems (2)(10)(16)	1252	1252					
Health care treatment facilities where procedures may be in progress such as dental offices, remote site hospital clinics (3)((9)(10)(16)	634			634			
Hospice, assisted living (3)(10)(16)	1000					1000	
End stage renal disease and dialysis centers (3)(10)(16)	1000					1000	
Heating and cooling centers (3)((9)(10)(15)(16)	1799		1799				
Homeless shelters (10)(14)(15)(16)	102		102				
Grocery stores and Evacuation route fuel stations (10)(14)(16)	3155		3155				
Quantity	30762	3051	7594	7565	329	11866	357
Unit Size, kW		10	25	75	150	300	2500

Table 5 - BPP Size, kW and Quantity Statewide

As can be seen in **Table 5** above, five primary sizes of BPP are evident at 10kW, 25kW, 75 kW, 300 kW and 2500kW due to their large quantities. The 150kW range can be formed by deploying two 75kW to handle that group. Other capacities can be formed by combining smaller BPPs' capacities to accomplish the desired kW output. Final sizes of BPPs to meet actual kW needs will be determined during the design of the BPPs in the upcoming phase of the project. It may be more feasible from a cost, delivery, and installation standpoint to develop a 1250 kW group to bridge the BPP size gap in Table 5, and to meet the 2500 kW output group by aggregating two 1250 kW BPPs together.

Table 5 Notes:

1. Fire Stations were considered to have an average of two engine bays each when determining floor space and energy use.[5]
2. Police stations assume one station per department. There are 2800 law enforcement departments in Texas.[5]
3. The quantity of heating/cooling centers in the State of Texas was assumed at one per community although no actual data is available.
4. Ambulance dispatch centers were assumed to equal the quantity of fire stations and to be independent facilities. No actual data could be found.
5. Radio/TV alert systems are considered to be part of the broadcast station's public service offerings and was quantified as each licensed broadcast station.[2]

Number of communities	Gas stations/community	Total TBPPs	Community population
1528	1	1528	50-10000
196	2	392	10001-50000
69	5	345	50001-500000
3	10	30	500001-1000000
3	20	60	1000000-3000000
1799		2355	
		800	Grocery stores
		3155	Totals

Table 6 – Evacuation Route Filling Stations and Rural Grocery Stores

Table 6 Notes:

1. Evacuation route fuel stations breakdown is shown in **Table 6** above. In the smaller rural communities, it was determined that there would be one major route out of town. For the largest 6 communities, multiple interstate, US, and Texas highway routes pose possible

evacuation routes. In these larger 6 communities, gas station counts were estimated. See Figure 1 on page 8 of this report for population groups.

2. Grocery stores were considered as CF in smaller and rural communities and are part of the total CF count shown in Table 6.

SECTION 4 – RESOURCES

The following links are to the pages where the count and energy use data was secured. If the link does not work directly, copy and paste it into the address bar at the top of your browser page.

Ref. No.	Ref. Title	Hyperlink
1	For 911 Call Centers	https://capitol.texas.gov/tlodocs/85R/handouts/C4202017022808001/187f7790-83d8-4e1b-9732-bd53d8b78687.PDF
2	Radio Stations	https://gov.texas.gov/Apps/Music/Directory/radio-station/all/p5
	TV Stations	https://www.stationindex.com/tv/by-state/TX#google_vignette
3	For Essential Services	https://www.ncsl.org/labor-and-employment/covid-19-essential-workers-in-the-states
		(see the Read More under the second paragraph)
4	For Public Schools	https://authority.org/k12/states/texas/elementary-schools
		(Shows school quantities by type – elementary, middle, high)
5	For Police Stations	https://texapedia.info/criminal-justice/law-enforcement/
	For Fire Stations	https://apps.usfa.fema.gov/registry/summary#d
		(Copy and paste link into browser)
6	For Electrical Load Factor	https://electricityplans.com/load-factor-commercial-demand-charges/
7	For Wastewater Treatment Plants	https://www.researchgate.net/figure/Municipal-wastewater-treatment-plants-in-Texas-are-concentrated-in-urban-and-suburban_fig1_43336462
		https://www.legis.state.tx.us/tlodocs/86R/handouts/C3902020080100001/7c1bd09b-b0e1-41a5-81bb-91abe613351d.PDF
	Houston	https://www.houstontx.gov/cip/22cipadopt/e_wastewater.pdf
	Austin	https://communityimpact.com/austin/south-central-austin/government/2024/05/30/more-than-1b-approved-for-generational-austin-wastewater-treatment-plant-upgrades/
	San Antonio	https://www.waterandwastewater.com/dos-rios-water-recycling-center/ https://www.sariverauthority.org/services/utilities/wastewater-treatment-plants/
	Dallas	https://dallascityhall.com/departments/waterutilities/Pages/water_intersting_facts.aspx
8	For Water Treatment Plants	https://www.legis.state.tx.us/tlodocs/86R/handouts/C3902020080100001/b9bca724-9d09-4d9a-b62e-1231e973e00f.PDF
9	EIA	https://www.eia.gov/
10	Energy Star	https://portfoliomanager.energystar.gov/pdf/reference/US%20National%20Median%20Table.pdf
11	NREL	https://www.nrel.gov/

12	FEMA	https://cmilms.fema.gov/is_0350/groups/70.html
13	CISA	Cybersecurity and Infrastructure Security Agency
		https://www.cisa.gov/about/regions/region-6
		(For background on Cybersecurity infrastructure)
14	FEMA	Homeland Security - Federal Emergency Management Agency – https://apps.usfa.fema.gov/registry/summary https://www.fema.gov/glossary/critical-facility
15	HHSC	Health and Human Services Commission (of Texas)
		https://www.hhs.texas.gov/sites/default/files/documents/sb-1519-ltc-facilities-council-report-jan-2023.pdf
		(Refer to pages 8 & 9 for rough facility counts)
16	TEXAS	Texas Demographics by CUBIT (Data as of June 20, 2024 – download (.xlsx)
		https://www.texas-demographics.com/cities_by_population

The listing of codes below governing energy use and backup power requirements and installation cover various building types. These were referred to for background information.

Code No.	Code Description
NFPA 1	Fire Code
NFPA 30	Flammable and Combustible Liquids Code
NFPA 37	Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines
NFPA 54	National Fuel Gas Code
NFPA 58	Liquefied Petroleum Gas Code
NFPA 70	National Electrical Code
NFPA 72	National Fire Alarm and Signaling Code
NFPA 99	Health Care Facilities Code
NFPA 101	Life Safety Code
NFPA 110	Standard for Emergency and Standby Power Systems
NFPA 780	Standard for the Installation of Lighting Protection Systems
ASCE/SEI 7	Minimum Design Loads for Buildings and Other Structures

Exhibit A – Energy Star Portfolio Manager

(Reprinted from the Energy Star Website[10])

OVERVIEW

This reference table is designed to help you to compare your property's energy use to the national median (or mid-point) energy use of similar properties.

Benchmarking your Property

When benchmarking in Portfolio Manager, we recommend that you focus on the primary function (or, main activity) in your building(s). Begin by selecting your primary function from the table below and then enter as few additional use types as possible. Benchmarking your building using a single use type will most closely approximate how your building would have been recorded in the reference data survey, and therefore yield the most accurate comparisons to median performance. In some cases, buildings may have multiple distinctly different uses. For example, an office and a hotel that share a common building. In these mixed-use settings, it is appropriate to enter multiple use types. Definitions of all property types are available at: www.energystar.gov/PMGlossary.

Using Median Site and Source Energy Use Intensity (EUI)

The *national median source EUI* is a recommended benchmark metric for all buildings. The median value is the middle of the national population – half of buildings use more energy, half use less. The median works better than the mean (arithmetic average) for comparing relative energy performance, because it more accurately reflects the mid-point of energy use for most property types.

The table below presents the median in both *site EUI* and *source EUI*. Site EUI is what you may be familiar with from your utility bills. Site EUI contains a mixture of what is called primary energy (i.e., a raw fuel like natural gas) and secondary energy (i.e., a converted product like electricity or district steam). Source energy provides the most equitable way to combine primary and secondary energy types into a single common unit, ensuring that no building receives either a credit or a penalty based on its energy source or utility. You can learn more about source energy and the way it is computed at www.energystar.gov/SourceEnergy. We strongly encourage you to use source EUI.

While almost all commercial building types have a national Median Source EUI, some (*presented in cyan*) will also have a 1-100 ENERGY STAR Score. The score evaluates a building relative to its peers, similar to the median energy use values, and also adjusts for climate and business activity. You can learn more about the score at: http://www.energystar.gov/ENERGYSTARScore

Understanding Reference Data

The right-most column in the table indicates the reference data source we use to determine the median performance of buildings in your peer group. To compute the national median, we always rely on nationally representative data.

For the majority of property types, the reference data is from the Commercial Building Energy Consumption Survey (CBECS). This is a national survey conducted by the U.S. Department of Energy's Energy Information Administration (for more information visit: http://www.eia.gov/consumption/commercial/). Three additional surveys are referenced for data centers, wastewater treatment plants, and multifamily housing. Additional information on these surveys can be found in the technical reference document for each property type.

U.S. National Median Reference Values for All Portfolio Manager Property Types

Broad Category	Primary Function	Further Breakdown (where needed)	Source EUI (kBtu/ft²)	Site EUI (kBtu/ft²)	Reference Data Source - Peer Group Comparison
Banking/Financial Services	Bank Branch *		209.9	88.3	CBECS - Bank/Financial
	Financial Office*		116.4	52.9	CBECS - Office & Bank/Financial
Education	Adult Education		110.4	52.4	CBECS - Education
	College/University		180.6	84.3	CBECS - College/University
	K-12 School*		104.4	48.5	CBECS - Elementary/Middle & High School
	Pre-school/Daycare		131.5	64.8	CBECS - Preschool
	Vocational School		110.4	52.4	CBECS - Education
	Other - Education				
Entertainment/Public Assembly	Convention Center		109.6	56.1	CBECS - Social/Meeting
	Movie Theater		112.0	56.2	CBECS - Public Assembly
	Museum				
	Performing Arts				
	Recreation	Bowling Alley	112.0	50.8	CBECS - Recreation
		Fitness Center/Health Club/Gym			
		Ice/Curling Rink			
		Roller Rink			
		Swimming Pool			
		Other - Recreation			
	Social/Meeting Hall		109.6	56.1	CBECS - Social/Meeting

Broad Category	Primary Function	Further Breakdown (where needed)	Source EUI (kBtu/ft²)	Site EUI (kBtu/ft²)	Reference Data Source - Peer Group Comparison
Entertainment/Public Assembly	Stadium	Indoor Arena	112.0	56.2	CBECS - Public Assembly
		Race Track			
		Stadium (Closed)			
		Stadium (Open)			
		Other - Stadium			
	Other	Aquarium			
		Casino			
		Zoo			
		Other - Entertainment/Public Assembly			
		Bar/Nightclub	297.0	130.7	CBECS - Bar/Pub/Lounge
Food Sales & Service	Convenience Store*	Convenience Store with Gas Station	883.5	350.9	Industry Survey
		Convenience Store without Gas Station			
	Restaurant/Bar	Bar/Nightclub	297.0	130.7	CBECS - Bar/Pub/Lounge
		Fast Food Restaurant	886.4	402.7	CBECS - Fast Food
		Restaurant	573.7	325.6	CBECS - Restaurant/Cafeteria
		Other - Restaurant/Bar			
	Supermarket/Grocery Store*		444.0	196.0	CBECS - Grocery Store/Food Market
	Wholesale Club/Supercenter*		120.0	51.4	CBECS - Retail Store
	Other	Food Sales	592.6	231.4	CBECS - Food Sales
		Food Service	527.7	270.3	CBECS - Food Service

Broad Category	Primary Function	Further Breakdown (where needed)	Source EUI (kBtu/ft²)	Site EUI (kBtu/ft²)	Reference Data Source - Peer Group Comparison
Healthcare	Ambulatory Surgical Center		138.3	62.0	CBECS - Outpatient Healthcare
	Hospital	Hospital (General Medical & Surgical)*	426.9	234.3	Industry Survey
		Other/Specialty Hospital	433.9	206.7	CBECS - Inpatient Healthcare
	Medical Office*		232.8	97.8	Industry Survey
	Outpatient Rehabilitation/Physical Therapy		138.3	62.0	CBECS - Outpatient Healthcare
	Residential Care Facility		213.2	99.0	Industry Survey
	Senior Living Community*		213.2	99.0	Industry Survey
	Urgent Care/Clinic/Other Outpatient		145.8	64.5	CBECS - Clinic/Outpatient
Lodging/Residential	Barracks*		107.5	57.9	CBECS - Dormitory
	Hotel*		146.7	63.0	CBECS - Hotel & Motel/Inn
	Multifamily Housing*		118.1	59.6	Fannie Mae Industry Survey
	Prison/Incarceration		156.4	69.9	CBECS - Public Order and Safety
	Residence Hall/Dormitory*		107.5	57.9	CBECS - Dormitory
	Residential Care Facility		213.2	99.0	Industry Survey
	Senior Living Community*		213.2	99.0	Industry Survey
	Single Family Home		N/A	N/A	None Available
	Other - Lodging/Residential		143.6	63.6	CBECS - Lodging
Manufacturing/Industrial	Manufacturing/Industrial Plant		N/A	N/A	None Available
Mixed Use	Mixed Use Property		89.3	40.1	CBECS - Other
Office	Medical Office*		121.7	51.2	CBECS - Medical Office
	Office*		116.4	52.9	CBECS - Office & Bank/Financial
	Veterinary Office		145.8	64.5	CBECS - Clinic/Outpatient
Parking	Parking		N/A	N/A	None Available

Broad Category	Primary Function	Further Breakdown (where needed)	Source EUI (kBtu/ft²)	Site EUI (kBtu/ft²)	Reference Data Source - Peer Group Comparison
Public Services	Courthouse*		211.4	101.2	CBECS - Courthouse
	Drinking Water Treatment & Distribution *(Average EUI presented in Energy per Flow in gallons per day)*		5.90	2.27	AWWA - Water Treatment Plant
	Fire Station		124.9	63.5	CBECS - Fire Station/Police Station
	Library		143.6	71.6	CBECS - Library
	Mailing Center/Post Office		96.9	47.9	CBECS - Service
	Police Station		124.9	63.5	CBECS - Fire Station/Police Station
	Prison/Incarceration		156.4	69.9	CBECS - Public Order and Safety
	Social/Meeting Hall		109.6	56.1	CBECS - Social/Meeting
	Transportation Terminal/Station		112.0	56.2	CBECS - Public Assembly
	Wastewater Treatment Plant* *(Average EUI presented in Energy per Flow in gallons per day)*		7.51	2.89	AWWA - Wastewater Plant
	Other - Public Services		89.3	40.1	CBECS - Other
Religious Worship	Worship Facility*		58.4	30.5	CBECS - Religious Worship
Retail	Convenience Store*	Convenience Store with Gas Station	883.5	350.9	Industry Survey
		Convenience Store without Gas Station			
	Mall	Enclosed Mall	170.7	65.7	CBECS - Enclosed Mall
		Lifestyle Center	228.8	103.5	CBECS - Strip Shopping Mall
		Strip Mall			
		Other - Mall	225.3	101.6	CBECS - Enclosed Mall and Strip Shopping Mall
	Retail Store*		120.0	51.4	CBECS - Retail Store
	Supermarket/Grocery Store*		444.0	196.0	CBECS - Grocery Store/Food Market
	Vehicle Dealership*		138.2	71.9	Industry Survey
	Wholesale Club/Supercenter*		120.0	51.4	CBECS - Retail Store

Broad Category	Primary Function	Further Breakdown (where needed)	Source EUI (kBtu/ft²)	Site EUI (kBtu/ft²)	Reference Data Source - Peer Group Comparison
Technology/Science	**Data Center*** *(Average PUE presented in place of EUI: PUE = Total Energy / IT Energy)*		1.82	1.82	EPA - Data Center
	Laboratory		318.2	115.3	CBECS - Laboratory
	Other – Technology/Science		89.3	40.1	CBECS - Other
Services	**Data Center*** *(Average PUE presented in place of EUI: PUE = Total Energy / IT Energy)*		1.82	1.82	EPA - Data Center
	Personal Services (Health/Beauty, Dry Cleaning, etc.)		96.9	47.9	CBECS - Service
	Repair Services (Vehicle, Shoe, Locksmith, etc.)				
	Other - Services				
Utility	Drinking Water Treatment & Distribution *(Average EUI presented in Energy per Flow in gallons per day)*		5.90	2.27	AWWA - Water Treatment Plant
	Energy/Power Station		89.3	40.1	CBECS - Other
	Wastewater Treatment Plant* *(Average EUI presented in Energy per Flow in gallons per day)*		7.51	2.89	AWWA - Wastewater Plant
	Other - Utility		89.3	40.1	CBECS - Other
Warehouse/Storage	Self-Storage Facility		47.8	20.2	CBECS – Non-refrigerated Warehouse
	Warehouse/Distribution Center	**Distribution Center***	52.9	22.7	CBECS – Non-refrigerated Warehouse & Distribution Center
		Non-Refrigerated Warehouse*			
		Refrigerated Warehouse*	235.6	84.1	CBECS – Refrigerated Warehouses
Other	Other		89.3	40.1	CBECS - Other

Exhibit B – Texas Backup Power Package

Advisory Committee Letter

15 March 2024

Ms. Tracie Tolle
Project Manager, Texas Energy Fund
Public Utility Commission of Texas

The Commission will soon issue a request for proposal for a research entity to conduct a survey of facilities that may qualify for funding under the *Texas Power Promise* of Chapter 34 of the Texas Utilities Code, to inform the design process of the Backup Power Packages under that chapter. At the Commission's request, the Texas Backup Power Package Advisory Committee provides the following guidance regarding the types of facilities that may qualify under the program.

Eligibility, generally. Financial grants and loans under the Texas Backup Power Package program (TBPP) should, by statute, be awarded to "facilities on which communities rely for health, safety and well-being." Texas Utility Code § 34.0202. The program is fundamentally aimed at providing backup power for *critical* community services where otherwise it would be financially unfeasible to do so (whether due to insufficient tax base, commercial viability, or other factors).

Facilities not eligible. Also by statute, electrical loads of greater than 2.5MW are not eligible; nor are commercial energy systems (or their supporting infrastructure), private schools, or for-profit entities that do not directly serve public safety and human health.

Eligibility determination. Eligible facilities will include the types identified and listed in the Texas Administrative Code [16 TAC §25.52] as "loads for which electric service is considered crucial for the protection or maintenance of public safety":

- hospitals, police stations, fire stations, critical water and wastewater facilities, and medical facilities.

The TBPP project, however, contemplates a larger set of facilities upon which communities may rely for critical services in the event of a local or widespread sustained grid outage. These may include the following, for example, provided that they supply *critical* community services:

- facilities providing hospice, nursing, assisted living facilities, end stage renal disease and dialysis;
- community heating or cooling centers and homeless shelters;
- evacuation route fuel stations;
- gas stations and grocery stores in areas (urban and rural) that have highly limited access to essential supplies;
- communications facilities that serve 911 call centers and radio/television emergency alert systems.

In addition to these categories, TBPP eligibility may, upon consideration of relevant factors, extend to certain facilities that local officials identify as critical – *if* those facilities are designated to and in fact do provide critical services to their communities at large. Depending on the critical needs of the community, these many include food banks and gathering places like public schools, libraries, or houses of worship if they in fact provide critical community services. (The Committee does not expect or intend that an initial assessment of the scale and scope of eligible facilities will include every school, etc., in the state.)

Again, these recommendations pertain to the survey to be performed by the research entity. The Committee will make separate and further recommendations in a report at a later date, and otherwise in response to requests from the Commission, which may include recommendations on the award of grants and loans.

Nathan Johnson
State Senator, District 16