Atlantic City Microgrid Feasibility Study

Prepared for the New Jersey Board of Public Utilities

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Executive Summary

Historically, Atlantic City's ability to continue to provide critical healthcare services, public shelter, police and fire services during superstorms (Superstorm Sandy in particular) has been severely challenged. Since Superstorm Sandy, the City has continued to review the concept of developing energy resilient infrastructure that could stand alone in the face of extended utility grid outages and continue to provide vital services during weather emergencies.

The perfect energy resilient infrastructure option that should be considered in Atlantic City, is the development of a microgrid. A microgrid is a local electric network containing backup power sources allowing it to operate in island mode during power outages. ACM Energy Partners, LLC ("ACM") (i.e. The Midtown Thermal Control Center) ("MTCC") currently provides heating, cooling and emergency power to casinos and other facilities in Atlantic City. This feasibility study will evaluate the retrofitting of the MTCC and the aggregation of its customers electric and thermal loads to establish a platform for the implementation of a microgrid. The report details the technical, economic, and public policy issues associated with bringing this project to fruition, creating a new energy efficiency opportunity, generating environmental and economic savings, and establishing an energy resilient infrastructure that will support vital life-saving structures for Atlantic City during city emergencies (e.g. weather emergencies).

Beyond providing the sound technical and economic basis proving the feasibility of this project, this report also examines two public policy options that need to be carefully considered: (1) a retail "bypass" option that would create a private wire network in Atlantic City requiring legislative changes to existing New Jersey statutes and subsequent supportive enabling regulation and, (2) a far more preferable model creating a partnership with Atlantic City Electric ("ACE") relying upon their distribution network modified to create "islanding" during weather and other emergency circumstances.

The proposed Atlantic City Microgrid delivers comprehensive societal benefits associated with energy efficiency gains, reduced environmental impacts as well as establishing the provision of resilient emergency medical and public shelter facilities. The study readily identifies that if there is the political will for all parties to work toward finding creative ways in seeing this project come to fruition, there is no better circumstance that presents the close geographic nexus of medical and public sheltering facilities, available generation assets, and customers excited about a microgrid initiative, anywhere else in the state of New Jersey.

Microgrid Technology and Necessary & Sufficient Components for Implementation

A Microgrid is an integrated energy system, intelligently managing interconnected loads and distributed energy resources, that are capable of operating in parallel with, or independently of, the existing utility grid. There are several societal benefits that stem from the implementation of a Microgrid including: enhanced efficiency, resiliency, security, savings, and sustainability. Overall, Microgrids are efficient social investments, in the sense that all impacted by them, benefit from them.

In order to implement a Microgrid a number of necessary and sufficient requirements must be achieved. All of which require certain parties to be involved to help push the process along. These requirements include: sufficient and available loads, scalable technology, utility collaboration, and governmental support. We will elaborate upon each of these below.

- ***Sufficient and Available Loads.*** In order to attain greater economies of scale, the load profile supported by the Microgrid must be of a certain magnitude. The greater the load, the greater the cost benefit to implementing a Microgrid. Microgrids also require an economically efficient use of a co/tri-generation source, meaning, utilizing production technologies that produce all utility services to customers, isolating them from all grid requirements to supply their thermal and electrical needs. Lastly, loads must be available. Potential customers need to be willing to join a Microgrid initiative and be the pioneers of today. Utilizing existing customers that are satisfied with their historical services and have great relationships with their current service providers, simplifies this process.
- ***Scalable Technology.*** Simple stated, appropriate generation technologies must be available and cost efficient to utilize for the Microgrid system. These two requirements govern all regarding technology and place no restriction on the integration of other generation sources. In time if other sources of technology become more cost effective and make the Microgrid more efficient than they should be integrated into the system. To be scalable, the technology utilized needs to be able to serve a growing customer base, and to evolve to do so in the most efficient means possible.
- ***Utility Collaboration.*** Both Electric and Natural gas Utility participation is required to support the implementation of a microgrid. Electric utilities supporting the utilization of their current distribution infrastructure and developing specialized electric distribution tariffs, will be essential in guiding the execution phase of implementing a Microgrid. Natural gas utilities will also need to provide assistance with distribution tariff negotiation in order to make it cost effective to operate a Microgrid system. Without the cooperation of local utilities, implementing a Microgrid cannot be achieved.
- ***Governmental/Regulatory/Legal Support.*** There are many ways in which it becomes crucial for governmental organizations to become involved with the development of a Microgrid. Historically, governmental investments in new energy applications are what enables opportunities to come to fruition. Aid provided through incentives related to taxes (SUT, Property, etc.), grants, or credit support, become extremely important to new applications such as these. Microgrid implementation also requires the assistance of regulatory agencies to help guide the collaboration between utilities and the Microgrid developers and expedite the permitting process.

The successful implementation of a Microgrid comes down to general economic theory. For any project to come to fruition, there must be active stakeholders contributing to the cause. And, in order for those stakeholders to seek involvement, there must always be a benefit derived from their contributions. The key players in the development of a Microgrid, as previously discussed, are potential customers, utilities, and governmental organizations. Below we will discuss the contributions required by each of these stakeholders, and their benefits derived.

- ***Potential Customers.*** To turn a Microgrid concept into reality, there must be a sizable group of customers willing to be pioneers of this groundbreaking initiative. If they join, their benefits are immense. The cost savings alone should drive a potential customer to want to join a Microgrid. Additional benefits (which may not hold monetary value but are benefits nonetheless) include the fact that they are pioneers of a cutting-edge initiative, and the positive social impact they have on their community.
- ***Utility Contributions.*** As we have previously discussed, utilities will have to be willing to permit the use of their in-place infrastructure and allow for creative tariff provisions. Their benefits include continued cost recovery and use of their sunk distribution investment, long term customer retention, increased resiliency and stress on an aging distribution system and social benefits produced through the creation/support of a Microgrid.
- ***Government.*** Support and leadership from governmental agencies and regulatory bodies will essentially drive the development of a Microgrid. When local government can bring together all constituents and decide to back a Microgrid initiative, they are promoting positive social impact, sustainable emergency and sheltering services, future economic development, retaining and expanding their current tax base.

Atlantic City Microgrid - The Perfect Candidate

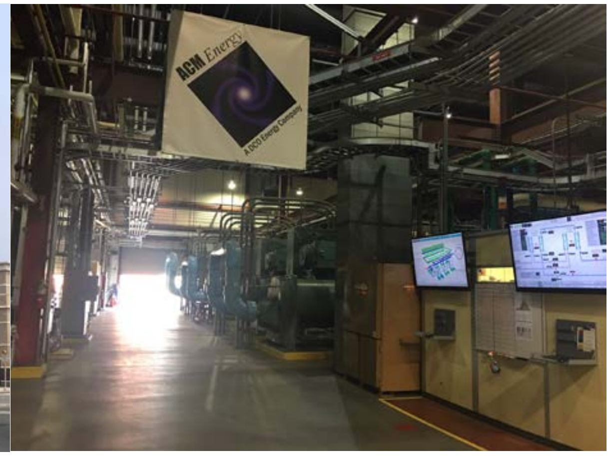
Thus far, we have discussed what Microgrid's are, how they benefit society, and the requirements necessary to implement them. Due to the extensive requirements, it is often difficult to find an application that fits all of these criteria in a cost-effective way. However, after thorough analysis, we are certain that ACM Energy Partners, LLC (i.e. The Midtown Thermal Control Center) ("MTCC"), is the perfect platform for the implementation of a Microgrid in Atlantic City, NJ.

MTCC possesses and established customer base with:

- Sufficient aggregate electric and thermal load size,
- Efficient multi-energy production technology,
- Customers that are engaged and excited about a Microgrid initiative, and
- Existing physical utility connections for natural gas and electricity.

The alignment of these characteristics does not exist anywhere else in the state of NJ, making this the perfect opportunity for implementation. However, in order to successfully move forward and act on this opportunity, MTCC will need additional generation capacity installed to compete the Microgrid. MTCC will also require the assistance of the local electric (ACE) and natural gas (South Jersey Gas, "SJG") utilities, as well as support from governmental and regulatory bodies. With the collaborative support from these parties, we are confident we can implement a successful application of a Microgrid through MTCC.

Midtown Thermal Control Center



The MTCC was originally developed under the banner of Atlantic Thermal Systems ("ATS"). DCO Energy, LLC ("DCO Energy") personnel, then employees of ATS, originated the concept and fully developed and operated the System until the end of 2000. In 2016, ACM, acquired the plant from PEPCO. This energy project emphasized the developer's long-term vision of a city-wide district steam and chilled water system, built in multiple phases. The system also utilizes production capabilities in two of the customer's locations perfecting the integration of distributed equipment into the system.

Existing MTCC Generation Technology:
The MTCC facility on Atlantic Avenue in Atlantic City has the capability of producing 6 megawatts of electricity from the Solar Taurus 60 Turbine; 66,000 lbs/hr of heat recovery from the Rentech Waste Heat Recovery unit; 18,000 tons of chilled water with fourteen centrifugal chillers; and 210,000 lbs/hr of boiler capacity-steam to provide thermal energy to its thermal customers through a network of piping over three miles in length. The facility also contains a 1-megawatt Emergency Generator. The current customers of these services include: Caesars Atlantic City Hotel & Casino, Bally's Atlantic City Hotel & Casino, Bally's Wild Wild West Casino, The Claridge, Boardwalk Hall, and The Pier Shops. Below are the current customer peak demands.

Location	Electric (MWs)	Chilled Water (Tons)	Steam (MMBTU/hr.)
Caesars	5.2	3,700	50.0
Bally's	7.9	5,200	45.0
AtlantiCare	3.2	1,200	13.0
Boardwalk Hall	2.1	640	21.0
Claridge	2.0	730	18.0
Pier Shops	--	700	--
MTCC	10.5	--	--
Total Load	**30.9**	**12,170**	**147.0**

Currently, MTCC possesses all of the generation equipment necessary to serve thermal energy to all of the above customers. However, in order to serve all of the available aggregation of loads (inclusive of steam, chilled water, and electricity), additional generation equipment will need to be added to the facility.

Incremental Technology Required to Complete the Atlantic City Microgrid:
To complete the Atlantic City Microgrid, as identified under Option #2 and Option #3 within this study, an expansion of the current MTCC facility is required incorporating the following major equipment:

- Solar Taurus 70 Turbine-Generator (previously removed the Revel CHP Facility) accompanied by;
- 2 Thermax Absorption Chillers (displacing electricity otherwise consumed by electric chillers and lowering the economic heat rate for economic dispatch purposes)
- 2-2.6 megawatt Jenbacher natural gas reciprocating engines accompanied by;
- 2 Direct Fired Chillers producing a total of 1,182 tons of chilled water through waste heat recovery

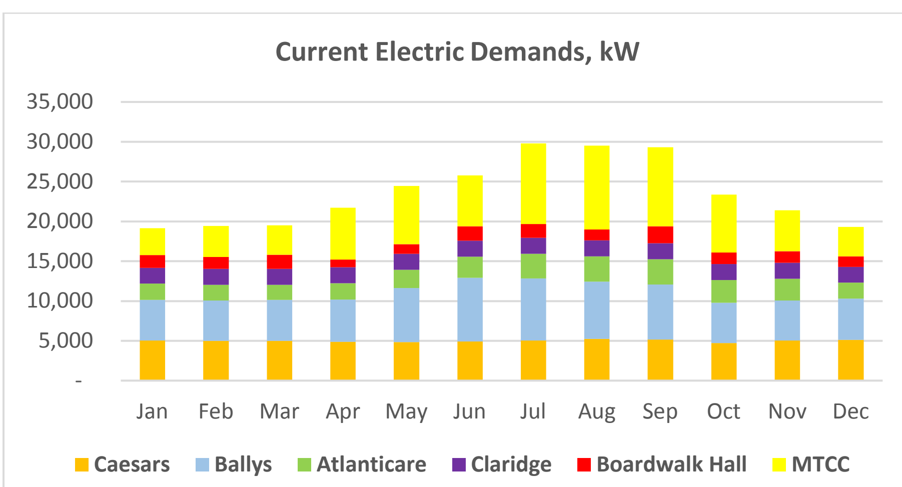
These assets, combined with the existing MTCC infrastructure already in place, will form the basis of a combined heat and power facility of approximately 14 megawatts, and will add an additional 2,030 tons of chilled water from heat recovery, to the system. To increase the capacity of the microgrid further, and improve the efficiency of the system, the plan would also require the installation of 2-2.6 megawatt Jenbacher natural gas reciprocating engines, accompanied by 2 Direct Fired Chillers producing a total of 1,182 tons of chilled water through waste heat recovery. This would result in a total microgrid electric capacity of approximately 19.3 megawatts. Ultimately, through reconfiguration, the total chilled water production from heat recovery absorption and electric driven chillers would amount to approximately 21,212 tons.

Advanced state of the art combined heat and power equipment will provide industry leading high efficiency thermal energy production, centralized coordination and dispatch of both electric and thermal recovery equipment.

Below is the geographical scope of this microgrid solution, identifying the existing customers the thermal distribution system and proposed electric generation will serve.

Atlantic City Microgrid - Proposed Electric Customer Base

As discussed, MTCC currently has the necessary equipment and infrastructure in place to serve all of its customers thermal energy, therefore, the focus of this study and the dialogue going forward, will pertain to our proposed new electric customer base. Supplying these customers electrical energy will complete the Atlantic City Microgrid system. It will also require ongoing collaboration between the parties discussed above, to turn this concept into a reality. Boardwalk Hall, the Claridge Hotel and the combined resort and casino properties of Caesars and Bally's form the basis of the electric microgrid, along with the new inclusion of AtlantiCare Regional Medical Center. For the purposes of this study, MTCC is also categorized as a customer to the system as it will be utilizing electrical energy for its internal needs. The buildup of the proposed electric customers current peak demands is summarized in the chart below. The chart is followed by further details regarding each of these customers.



Proposed Electric Customer Base

This section will take a closer look at each Atlantic City Microgrid customer in terms of size, energy use/cost and applicability as a "critical facility". The following entities are customers of the Atlantic City Microgrid:

- Caesars Atlantic City Hotel and Casino
- Bally's Hotel and Casino
- AtlantiCare (Atlantic City Regional Medical Center)
- Boardwalk Hall
- The Claridge Hotel
- Midtown Thermal Control Center

Each proposed customer has a sizable energy requirement and footprint within Atlantic City which provides for the opportunity to capture economies of scale and deliver an economically superior Microgrid solution. Additionally, all customers of the Atlantic City Microgrid can be considered "critical facilities" in some capacity that can be utilized during a weather or humanitarian emergency for shelter and emergency services. Below is an outline identifying each critical facility and FEMA classification if applicable.

Critical Facilities and FEMA classifications of Atlantic City Microgrid Customers:

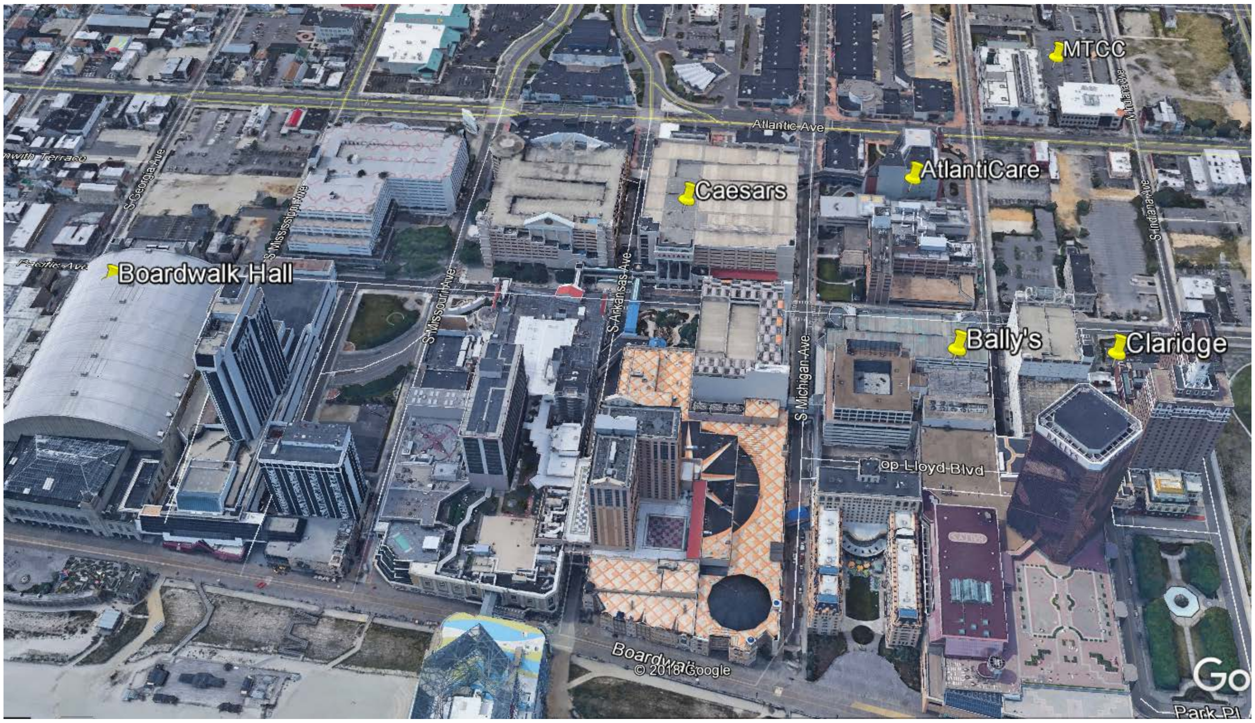
- **AtlantiCare Regional Medical Center** is a FEMA category IV inpatient health facility a 276-bed teaching hospital, as well as the region's only Level II Trauma Center.
  Category IV buildings and structures include hospitals, police stations, fire stations, emergency communication centers, and similar emergency facilities, as well as ancillary structures required for the operation of these facilities during an emergency.

- **Boardwalk Hall** is classified as a special District government building used for public assembly and as such it is a FEMA category III public shelter facility. Boardwalk Hall is a multi-purpose facility located on the iconic Atlantic City Boardwalk and includes the 141,000-square-foot main arena with a capacity of 14,770 seats, as well as the 23,100-square-foot Adrian Phillips Ballroom with a capacity of 3,200.

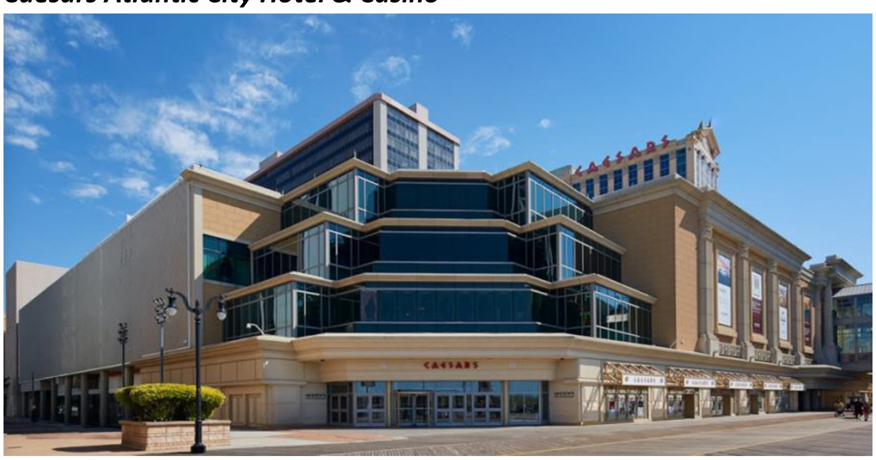
  Category III includes such structures as theaters, lecture halls, and elementary schools, prisons, and small healthcare facilities.

- **Caesar's Resort and Casino, Bally's Resort and Casino** and **the Claridge Hotel** are not classified in FEMA's category structure. These facilities, however, would be available to assist AtlantiCare regional Hospital in the housing of hospital personnel, doctors, nurses, and other emergency support staff. These facilities may also be available for ambulatory patient housing as may be needed as well as food preparation services for those housed in other shelters.

Atlantic City Microgrid Customer Descriptions and Map



Caesars Atlantic City Hotel & Casino

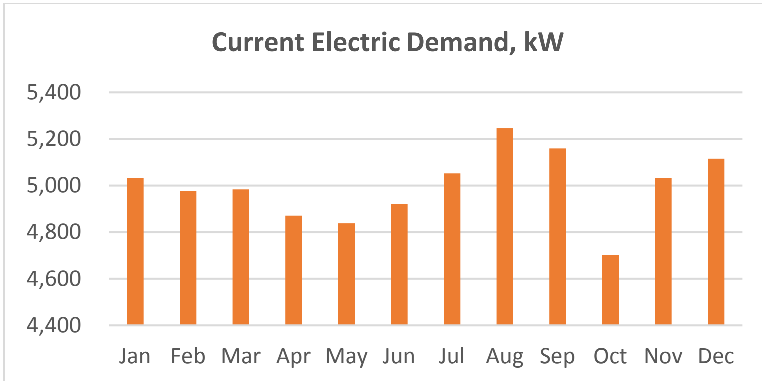


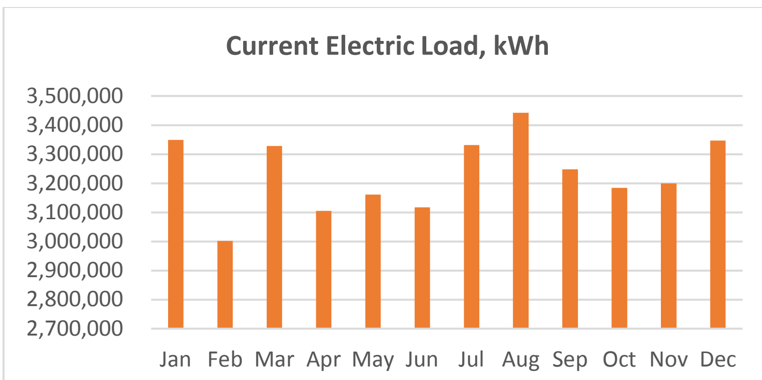
Caesars Atlantic City Hotel & Casino is located on Pacific Avenue. The facility has a peak electric load of approximately 5 MW, and peak thermal loads of 3,700 tons and 50 MMBTU/hr of steam. The facility currently purchases chilled water and steam from MTCC, and electric from ACE.

The square footage of gaming portion of the facility is approximately 115,000 square feet. The resort has 1,141 guest rooms and suites, gourmet and casual restaurants, retail stores, a Spa, and a state-of-the-art fitness center.

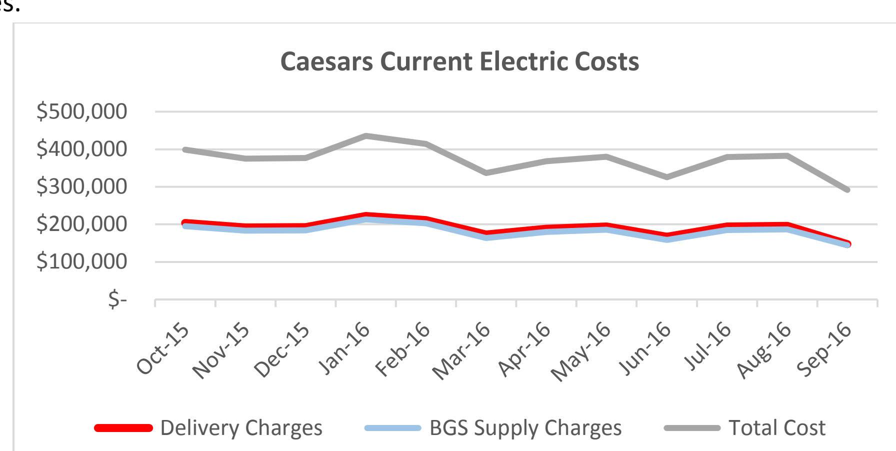
The proposed project is approximately .4 miles from MTCC. The facilities are connected by a private right of way that currently connects them thermally.

The electric load analysis is based upon Caesar's normalized annual usage data, as well as billing data compiled from October 2015 through September 2016. Overall, the average monthly kilowatt hour consumption is approximately 3,234,634 kWh with a peak demand of about 5.2 MW.





ACE delivery charges are around $190,228 per month and their electric supply charges are around $181,808 per month, on average. Caesar's Resort spends approximately $4.486 million on electricity per year, of which, about $2.282 million is paid for delivery charges and the remaining $2.181 million for supply charges.



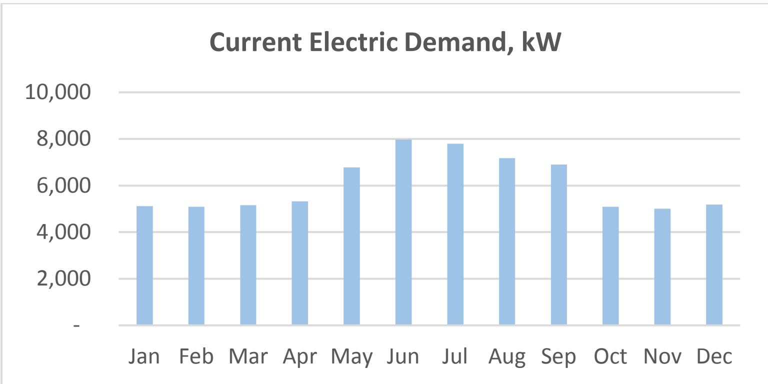
Currently, ACE meters the Caesar's resort load at four locations within the complex. The major accounts are split between the Coliseum Garage for lighting and elevator services (demand of approximately 381 kW), and the other two resort casino accounts make up the remaining 4,731 kW of electric service demand.

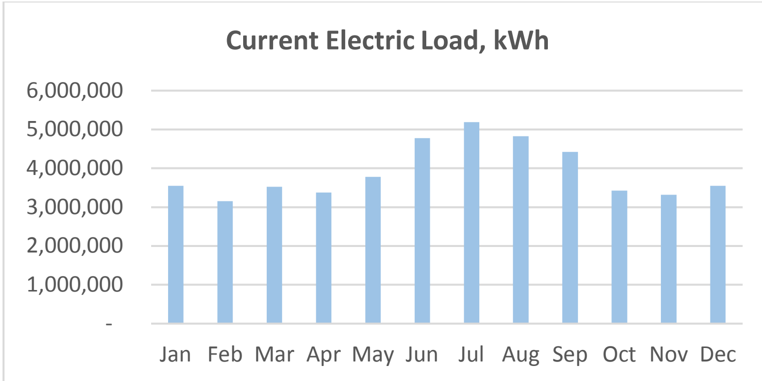
Bally's Hotel and Casino

Bally's Atlantic City Hotel & Casino includes the Wild West Casino Hotel located on Pacific Avenue. The facilities have a peak electric load of approximately 7.9 MW, and peak thermal loads of 5,200 tons and 45 MMBTU/hr of steam. The facility currently purchases chilled water and steam from MTCC and electric from ACE. The facilities are connected by a private right of way that currently connects them thermally.

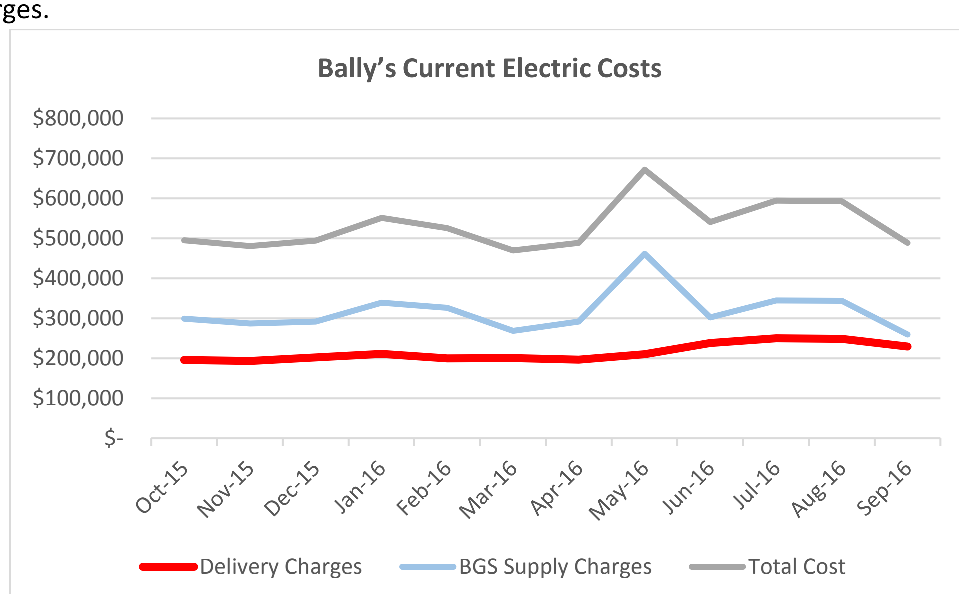
The square footage of the gaming portion of the facility is approximately 121,000 square feet, and the resort has 1,251 guest rooms and suites, a theater, an in-season beach bar, a 40,000-square foot spa, a state-of- the art fitness center, sport courts and an indoor swimming pool. The proposed project is approximately 0.2 miles from MTCC.

The electric load analysis is based upon Bally's normalized annual usage data, as well as billing data compiled from October 2015 through September 2016. Overall, the average monthly kilowatt hour consumption is approximately 3,908,069 kWh with a peak demand of about 7.9 MW.





ACE delivery charges are around $158,860 per month and their electric supply charges are around $249,741 per month, on average. Caesar's Resort spends approximately $4.903 million on electricity per year, of which, about $1.906 million is paid for delivery charges and the remaining $2.997 million for supply charges.



AtlantiCare (Atlantic City Regional Medical Center)

AtlantiCare Regional Medical Center, located on Pacific Avenue, is a 276-bed teaching hospital, as well as the region's only Level II Trauma Center. It was also Atlantic City's first hospital, founded in 1898. For more than a century, the hospital has remained a regional leader in acute care services.

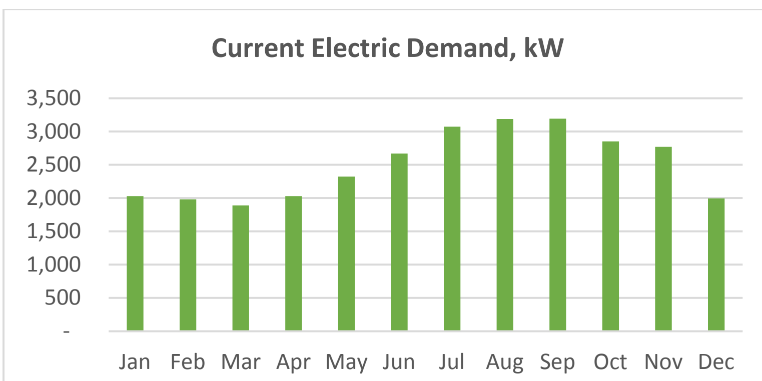
The AtlantiCare facility has a central boiler and chiller plant to provide its heating and cooling needs and purchases its electric from ACE. The hospital has a peak electric load of approximately 3 MW, and peak thermal loads of 1,200 tons and 13 MMBTU/hour of steam.

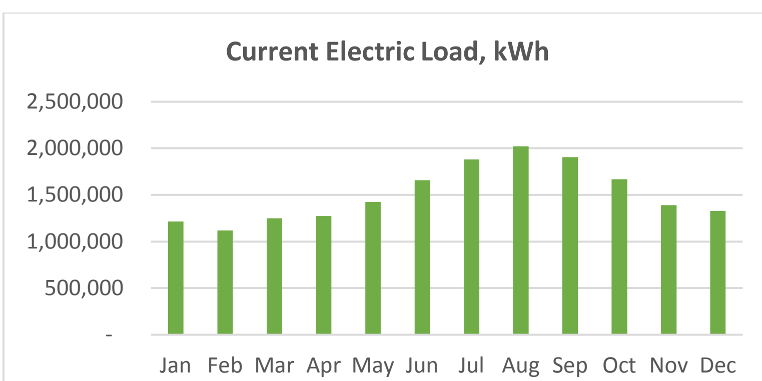
The total square footage of the medical center campus in Atlantic City has not been fully determined, however, in 2007, AtlantiCare Regional Medical Center completed construction on the George F. Lynn Harmony Pavilion, noted as a $98 million, 198,000 square foot addition to the Atlantic City campus.

The proposed project is separated from MTCC by a diagonal crossing of Atlantic Avenue at South Ohio Street, a distance measuring a total of 145 feet door to door.

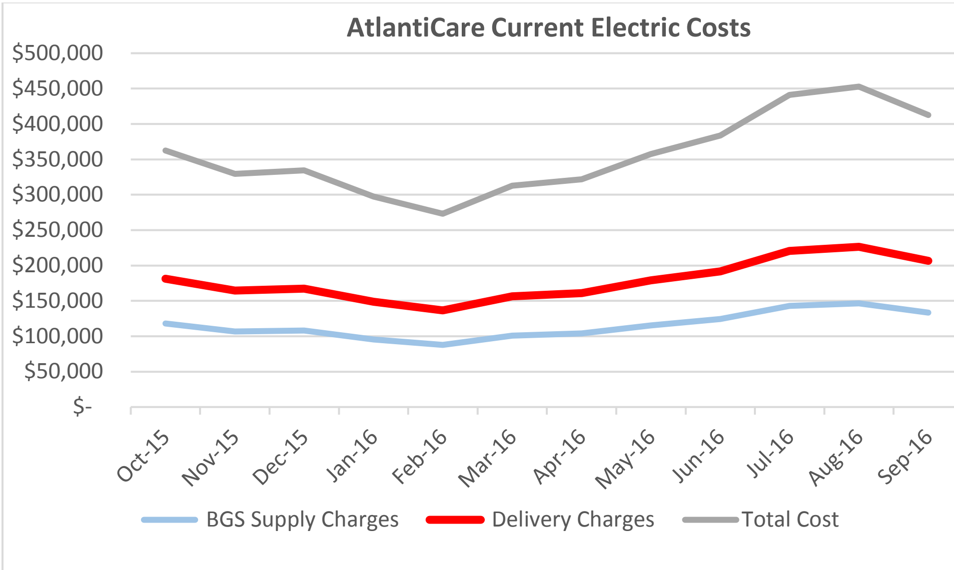
AtlantiCare Regional Medical Center is currently not receiving thermal energy from the Midtown Thermal Facility, however, the thermal piping infrastructure required to include AtlantiCare's entire facility into the thermal network is relatively minor due to the location's proximity to existing rights of way, and the crossing of a single public right of way as is permitted under the Board of Public Utility regulations governing contiguous property guidelines.

The electric load analysis has been based upon AtlantiCare's normalized annual usage data, as well as the hospital billing data compiled from October 2015 through September 2016. Overall, the average monthly kilowatt hour consumption is approximately 1,511,406 kWh with a peak demand of about 3.2 MW.





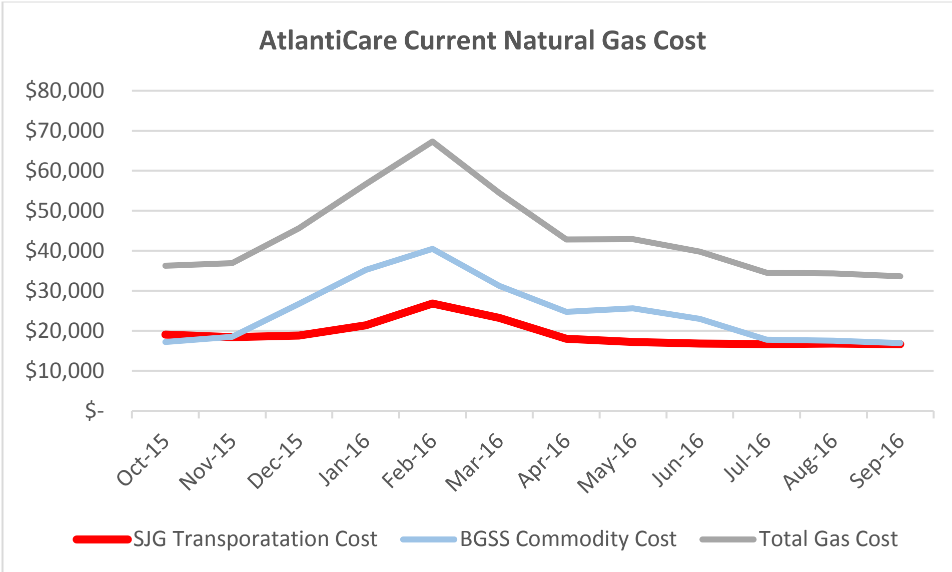
Monthly ACE delivery charges are approximately $63,076 per month and their electric supply is furnished by Noble Americas Energy Solutions at a rate that has not been shared. It is expected, however, that these charges are likely in the range of $115,273 when calculated at the ACE BGS rate for Energy Year 2017. AtlantiCare spends approximately $2.14 million on electricity per year, of which, about $757,000 is paid to ACE for delivery charges and the remaining $1.38 million to Noble Americas Energy Solutions for third party supply charges.



The AtlantiCare facility is the only prospective microgrid customer that does not currently receive thermal energy from MTCC. It is anticipated that the inclusion of AtlantiCare into the microgrid will encompass the provision of thermal services as well as electricity.

The facility's central boiler and chiller plant that is currently providing its heating and cooling needs has peak thermal loads of 1,700 tons and 25,000 lbs./hour of steam. The natural gas required to produce this thermal requirement is approximately 62,423 therms per month. Overall, the natural gas demands peak in the winter (January through March), but remain relatively constant, in the range of 50,000 to 60,000 therms per month, during the remainder of the year.

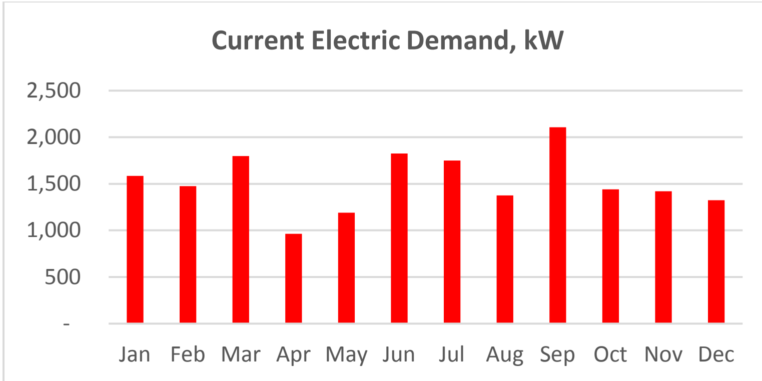
Natural gas transportation is supplied by South Jersey Gas at an average monthly cost of approximately $19,176. The Commodity cost based upon South Jersey Gas monthly BGSS tariff costs are $24,590 per month, on average.

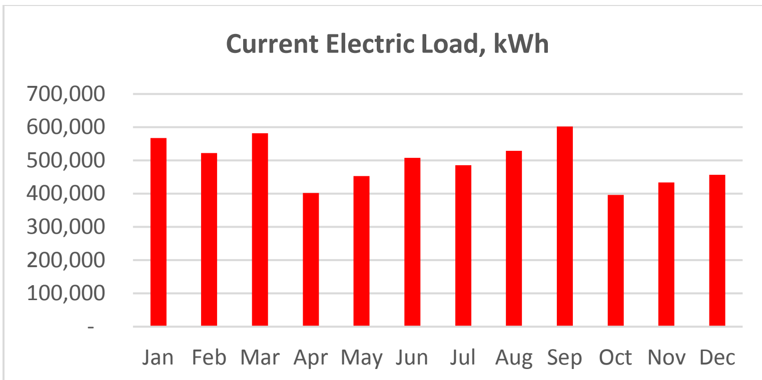


Boardwalk Hall

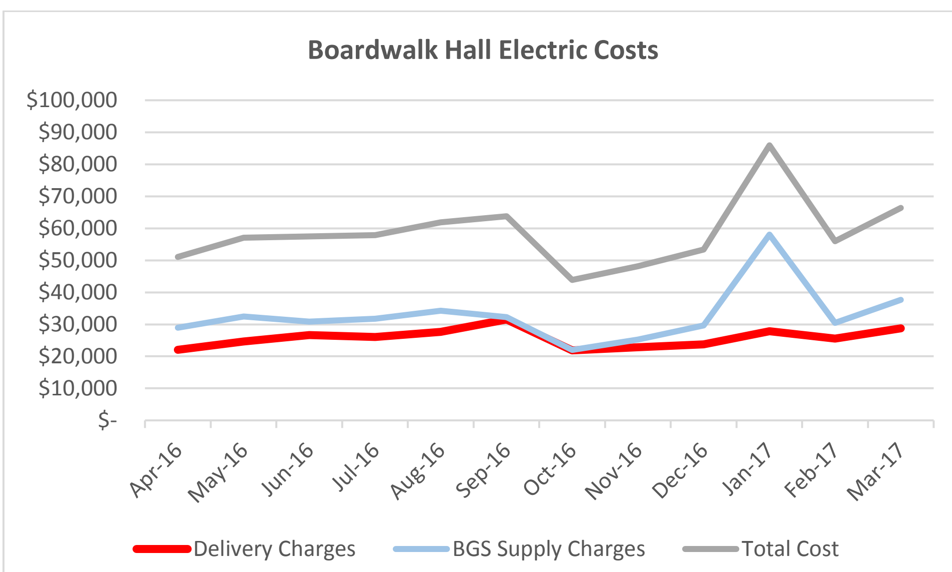
Boardwalk Hall, formally known as the Historic Atlantic City Convention Hall, is located off Pacific Avenue. Boardwalk Hall is a multi-purpose event facility located on the iconic Atlantic City Boardwalk and includes 141,000-square-foot main arena with 14,770 seats, and a 23,100-square-foot ballroom with a 3,200-person capacity. The facility purchases its electric from ACE and purchases chilled water and steam from MTCC. Boardwalk Hall's peak electric load is 2.1 MW, and its thermal peaks are 640 tons of chilled water and 21 MMBTU/hr of steam. The proposed project is approximately .6 miles from MTCC. The facilities are connected by a private right of way which currently connects them thermally.

The electric load analysis is based on Boardwalk Hall's normalized annual usage data, as well as billing data compiled from April of 2016 through March of 2017. Overall, the average monthly kilowatt hour consumption is approximately 494,900 kWh with a peak demand of about 2.1 MW.





ACE delivery charges are around $27,328 per month and their electric supply charges are around $34,063 per month, on average. Boardwalk Hall spends approximately $736,691 on electricity per year, of which, about $327,930 is paid for delivery charges and the remaining $408,761 for supply charges.



Currently, ACE meters the Boardwalk Hall load at two locations within the complex. The major accounts are split between the Convention Center "West" facility and the Convention Center "Finance", which accounts largely for lighting and elevator services. The load impacts of the annual Miss America Contest (in September of each year) increase demand to approximately 2,106 kW.

The sporadic event schedule at Boardwalk Hall creates relatively low capacity factors, far below the other three microgrid load centers which have more stable loads and relatively flat demands.

The Claridge Hotel

The Claridge Hotel is located at Park Place and the Boardwalk. Originally opening in 1930, the Claridge Hotel is 1,156,000 sqft, 24 story, 400 room hotel which is owned by Radisson Hotels since 2016. The facility has a peak electric load of approximately 2 MW, and peak thermal loads of 730 tons and 18 MMBTU/hr of steam. The facility currently purchases chilled water and steam from MTCC, and electric from ACE.

Microgrid Potential

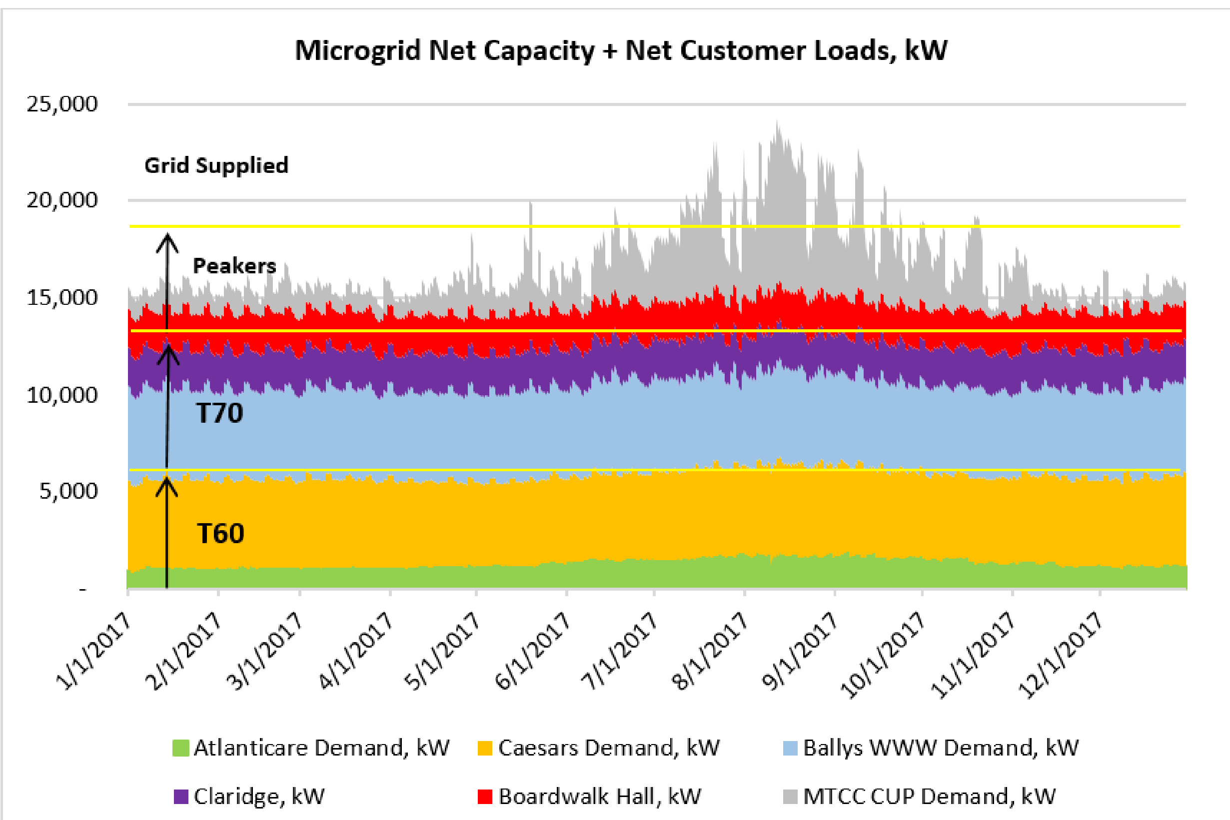
After extensive analysis breaking down the customer load data and generation potential on an hourly basis, we were able to forecast how the microgrid system will operate to meet the required revised customer loads for electric and thermal energy. Below is a revised summary of customer peak demands, along with the microgrid electric and thermal capacity build up. The most significant adjustments made to current figures is to the Bally's and AtlantiCare peak electric demands, which has decreased by ~2 MW by stripping out the electric required to produce chilled water via their onsite electric chillers. This chilled water load will be supplied through the microgrid thermal system, and their less efficient onsite equipment will no longer need to be utilized. It is important to note during an emergency situation, the MTCC facility will be able to support the full load of all customers identified within the Atlantic City Microgrid.

Peak Demand Summary:

Location	Electric (MWs)	Chilled Water (Tons)	Steam (MMBTU/hr.)
Caesars	5.2	3,700	50.0
Bally's	5.5	5,200	45.0
AtlantiCare	2.0	1,200	13.0
Boardwalk Hall	2.1	640	21.0

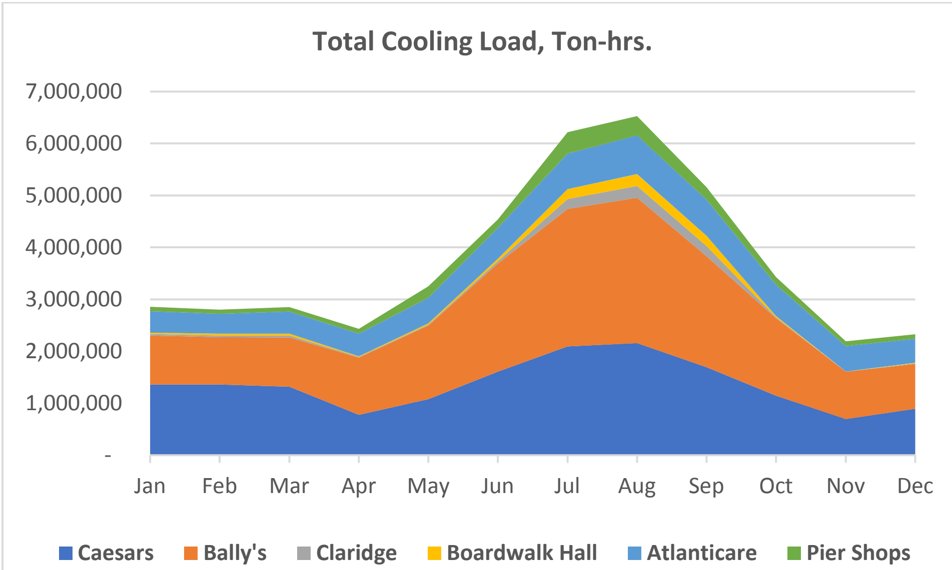
Claridge	2.0	730	18.0
Pier Shops	--	700	--
MTCC	9.3	--	--
Total Microgrid Revised Load	**26.1**	**12,170**	**147.0**
MTCC Microgrid Capacity	**6.0 – Solar T60** **8.0 – Solar T70** **<u>5.3 – 2x J616</u>** **Total 19.3**	**2,030 – Absorption.** **1,182 – Direct Fired** **<u>18,000 – Electric</u>** **Total 21,212**	**66.0 – HRSG** **<u>210.6 – Auxiliary</u>** **Total 276.6**

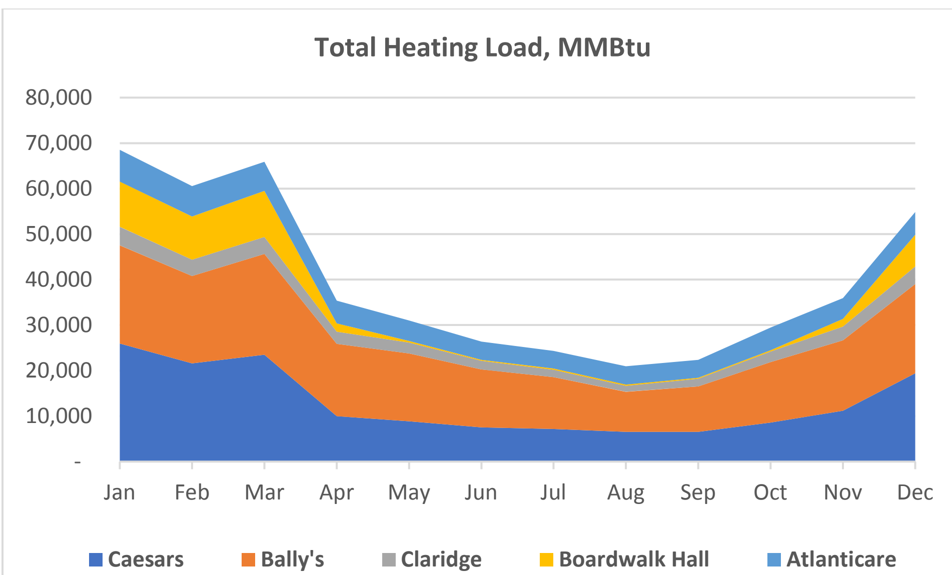
On an hourly basis the Atlantic City Microgrid solution provides the best possible fit for the most efficient production of electric and thermal energy. The below graph shows the stacked hourly customer electric loads in a normalized year, with each piece of the MTCC generation equipment stacked to meet those required loads. The T60 and T70 will be base loaded, running whenever they are available, and the peakers will load follow, running only when demand exceeds the combined T60 + T70 production. Peaker dispatching capabilities are countless as we will be able to run one or both engines, at part or full load, at any given point in time. These units also only take approximately 15 minutes to ramp up, allowing operations to turn the engines up and down on demand. The additional electrical requirements, above the peak capacity of all 3 generation sources, will be supplied by ACE. The Atlantic City Microgrid design drastically limits the amount of energy ACE would be required to supply.



Therefore, the appropriately sized generation equipment is selected complete the microgrid by producing enough electricity, throughout the majority of the year, to serve the aggregate customer electric loads.

The following stacked thermal loads will also be fully served by the combination of the identified thermal generation equipment at MTCC.





Based on our analysis thus far, implementing and utilizing the generation equipment discussed to serve the customers we have identified, will enable us to successfully create the microgrid system. The next phase of implementation, which will require creative collaboration with the local utilities (ACE and South Jersey Gas) and local governmental organizations (BPU, City, etc.), will determine the realistic applicability of this microgrid concept.

Executing the Microgrid: Potential Paths Forward

After careful consideration of the available customer base, geographic location and existing utility infrastructure, we see three distinct implementation options available going forward:

(Option #1) - Current Business Practice,
(Option #2) - A Private Microgrid, or
(Option #3) - A Long-term Utility Hybrid Tariff Model.

The resulting study made it clear that Option #3 represents the best microgrid solution creating the largest positive social benefit and economic value for all participating stakeholders. Options #1 and #2, while attainable, fall short in optimizing the established economies of scale and infrastructure which this potential microgrid opportunity presents.

Each alternative is also examined in terms of their compliance with existing legislative and regulatory requirements under Title 48 of the New Jersey statutes, as well as potential policy alterations that might be required in either the current New Jersey statutes or administrative codes as promulgated by the Board of Public Utilities under their regulatory authority.

Below is a description of each available option. For the purposes of this study we will focus primarily on Option #2 and #3 which represent the available microgrid solutions for Atlantic City.

Option #1 Current Business Practice:

Executing this option would simply mean that MTCC would abandon the microgrid approach in its entirety and focus on expanding their current customer base by adding AtlantiCare Regional Medical Center and develop a new cogeneration facility on either Caesars or Bally's property to serve both customers electrical energy, in addition to the thermal energy they already receive. This option would result in the following:

- Building thermal connection to AtlantiCare to supply chilled water requirements, process steam, and heating from MTCC.
- Cross Atlantic Ave/South Ohio Ave diagonally and sell electricity to AtlantiCare as "on-site" generation.
- Build new CHP facility on lands owned by Caesar's feeding Bally's property as a contiguous "on-site" load.
- Boardwalk Hall would continue to receive thermal "only" energy from MTCC.

This option would generate substantial savings to all customers involved. However, this is clearly not a microgrid concept, and therefore, the social and economic benefits of a microgrid will not be attained. Additionally, ACE will lose delivery revenues from the customers that will receive electrical energy from MTCC under this option. These lost revenues will ultimately be absorbed by New Jersey ratepayers. The state would also lose all contributions to SBC, RGGI, and other societal costs through this approach's implementation. This option provides the least amount of social benefit to all stakeholders as the existing economies of scale and infrastructure are underutilized and the benefits of a microgrid are abandoned.

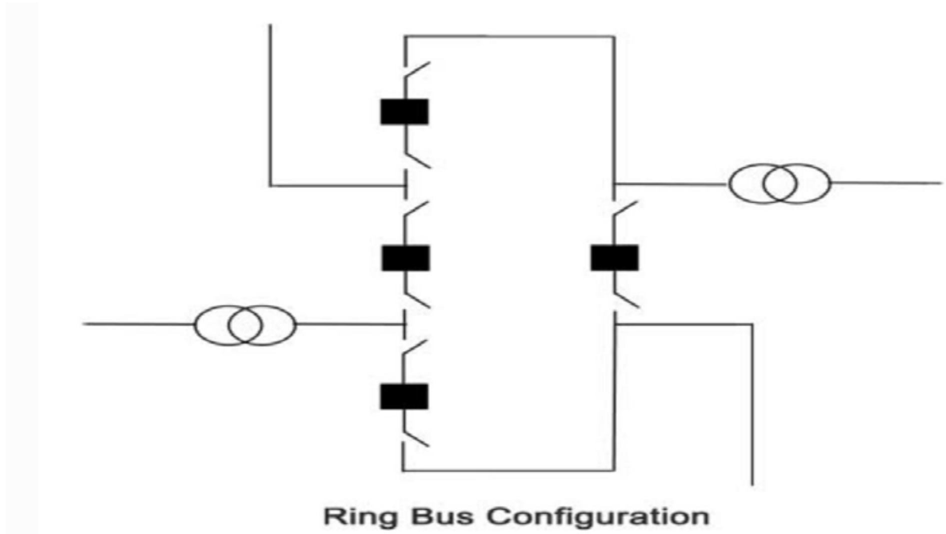
Option #2 Private Microgrid:

As can be seen in the attached annotated photograph below, MTCC already has a network of rights of way that currently create the longitudinal pathway to each of its existing thermal customers. With a change in law and some nominal alteration to include the AtlantiCare facility, these same rights of way and existing vaults could be adapted to include the conduit and manhole system required to serve these customers directly under a long-term power purchase agreement between ACM Energy Partners, LLC and each microgrid customer. Therefore, under this option ACE would no longer service the customers of the microgrid except for the provision of standby services. This model would require the construction of a private wire network that would parallel the existing thermal route right of way in the public thoroughfares of Atlantic City. It is envisioned that these in street conduits would be encased in concrete to avoid any confusion with existing utility infrastructure and all required manholes would be locked. The cabling would be installed in close proximity to the existing thermal system, extending from the central facility to each of the proposed microgrid customers.

All electric use would be metered for billing purposes by MTCC with associated check and demand metering installed by ACE as may be required for the provision of their standby services support.

The business model under this option would require a statutory change to permit the construction of a private wire network narrowly drawn to circumstances where such construction would be permitted to enhance public safety during weather and other emergency circumstances providing resilient energy services for both hospitals and public shelters on a continuing basis.

Under this scenario, the microgrid customers would be served from their own substations in a ring bus configuration as shown below with all breakers in a normally closed position.



Ring Bus Configuration

This option would generate the most savings for the microgrid customers as they would be avoiding the full retail cost of ACE service, adjusted only by distribution standby costs. Clearly, with both the existing sales tax incentive for remote connection to the combined heat and power facility and the level of charges currently imposed by ACE for electrical distribution services, these customers could be offered an attractive long-term alternative to their current utility charges.

While this option would require ACE to provide standby service at current tariff rates, the “add back” costs associated with the provision of that tariff also creates the opportunity to having all other customers make a financial contribution to receiving the values associated with the resilient microgrid. To that end we would seek Board determination of the inclusion of a straight discount to the current standby charge. This discount could be based upon the creation of a new “pilot microgrid resiliency” standby tariff that would recognize standby costs on an outage deterministic or probabilistic basis rather than the current peak outage provisions. In addition, that only one of the two circuits currently feeding the customers would be needed in the calculation of cost for the standby service.

The same negative impacts exist here as with Option #1, in addition to the fact that this option creates unnecessary duplication of distribution assets. While this option would create the microgrid resiliency, public shelter and life sustaining values sought, and create significant and sustainable cost savings for all of its participants:

- There is no societal benefit or purpose in creating a duplicative private wire network. ACE is best positioned to operate and maintain the distribution network required for a microgrid solution.
- ACE ratepayers would ultimately be required to “make-up” for the lost revenues in the next base rate case.
    - Legislated “decoupling” is on the horizon.
- ACE’s shareholders would lose earnings on the lost throughput revenues and the rate base earnings that would otherwise flow from the distribution investments required.

We therefore view Option #2 as a second resort to working together with ACE to find creative solutions in successfully implementing a microgrid, through Option #3.

Option #3 Long-Term Utility Microgrid Tariff Contract:

Option #3 expands the current MTCC facility with the generation equipment previously mentioned and utilizes the current utility infrastructure providing economic benefit to all stakeholders. This is the least expensive option for all stakeholders, including ACE customers, and provides the greatest social benefit and efficient use of existing resources. The model concept revolves around the implementation of two primary components:

- **Component 1** - ACE Microgrid Tariff: Develop a partnership between ACE, microgrid customers and MTCC by entering into a "Microgrid Tariff" under terms that would not expose ACE, its customers or ratepayers to undue financial risk. The resulting tariff would deliver an economic model that would be far more favorable to all stakeholders than the alternative private wire network option discussed under Option #2.
- **Component 2** - (SJG Microgrid Tariff): Develop a partnership between South Jersey Gas and MTCC entering into a "Microgrid Tariff".

Component 1 – ACE Microgrid Tariff:

The proposed Microgrid Tariff would be applicable for a period of 25 years and would enable ACE to receive all power generated from MTCC and then deliver this power via their existing distribution assets to all identified Microgrid Tariff customers. The mechanics of the Microgrid Tariff structure would be as outlined:

1) MTCC would deliver to ACE on a monthly basis its net kWh output from all generation sources.
2) All microgrid customers would continue to be retail customers of ACE, and ACE will continue to serve all microgrid customers full load at existing tariffed rates less New Jersey Sales and Use Tax (NJ SUT) as is provided under current law. (Chapter 240 Laws of 2010)
3) ACE would continue to collect monthly electric revenues from all microgrid customers for electric distribution and supply as they do today. (The current microgrid customer avoided $/kWh cost is roughly .09/kWh which does not include NJ SUT)
4) On a monthly basis, ACE would retain between $.005 and $.015/kWh as per the new Microgrid Tariff for allowing ACM the use of their existing distribution system and their delivery of power to microgrid customers.
5) On a monthly basis, ACE would then provide a credit to ACM for delivered energy into ACE's distribution system for the differential of the microgrid customers avoided $/kWh cost (roughly $.09/kWh) less the $.005 to $.015/kWh charge for use of the ACE distribution system.

The proposed structure is the most efficient use of utility distribution assets and requires minimal manipulation from a billing perspective. Under this option all microgrid customers would continue to be retail customers of ACE, and ACE will continue to serve all the customers, but according to a new "Microgrid Tariff" rate schedule. This new tariff will be based on a Cost of Service study we hope to execute in the near future, determining Atlantic City Electric's true cost to serve the microgrid customers. Considering the fact that there are no transmission assets associated with the provision of this power to the microgrid customers, these charges should rightly be deleted from Atlantic City Electric's electric supply costs in its current tariff. The distribution costs associated with the cost of electric delivery charges to these microgrid customers should also be more fairly calculated on an actual cost to serve basis due to the proximity of these customers to the load serving entity, and the limited distribution assets required to serve these customers. A cost of service study considering this close proximity would bear out these reduced costs. ACE is now in for a base rate case and we could set up a new "microgrid" tariff specifically to support this option.

Moreover, in order to create an economic incentive for the microgrid customers, we propose that the customers remain eligible for the 6.625% sale and use tax discount since Atlantic City Electric will be purchasing the microgrid energy from ACM and passing it through to the eligible thermal customers of the combined heat and power facility. This may require a technical amendment to the current statute to permit EDC "resale" of electric energy sourced from a CHP and ultimately delivered to a thermal customer of the microgrid. Under this option ACE will also need to install isolation breakers to permit microgrid "island mode" as required by weather circumstances.

Component 2 - SJG Microgrid Tariff:
This same opportunity also exists for creating a natural gas tariff model similar in structure to recent negotiated EGS-LV agreements that would provide for additional savings over current tariff structures for natural gas costs. The term of the agreement between SJG and ACM Energy Partners, LLC would be coterminous with the 25-year ACE tariff. Under a negotiated EGS-LV tariff, we will need to explore opportunities to commensurately reduce the Societal Benefits Charges or other tariff costs by complying with the standard terms and conditions of section 11.2 of the tariff. ACM proposes a negotiated D-1 Demand Charge of $2.50/MMBtu and a reduction of SBC and EET $/MMBtu charges to 12% of the EGS-LV published tariff rates as of 8/20/18. These negotiated, and subsequently approved gas tariff discounts would help support the operating expenses and financing of the AC Microgrid.

Option #3 would generate the revenue stream required under a 25-year contract to both finance the project at the lowest possible cost, and to operate and maintain the project over its depreciable life. This option importantly leaves the existing utility distribution infrastructure in service, as rate base rate of return infrastructure operated and maintained by the franchise utility. The base objective of this option is to mitigate any base cost shifting from the project to ACE's customer base in future base rate proceedings, as well as protect ACE and SJG's current delivery revenues.

Under this scenario the economic benefits that would flow to the microgrid customers would be the 6.625% reduction in sales and use tax that each of these participants would be eligible to receive under the current statutory provisions, that remote thermal customers thermally connected to a combined heat and power facility can take advantage of this SUT discount for all electric services. Billing will be simplistic in nature with all current billing services for thermal and electrical energy remaining intact for all microgrid customers. Only the addition of a simple monthly invoice from ACE to MTCC will be generated that identifies the monthly charges/credits for delivered MTCC power to ACE consisting of:

- ACE's $.005 to $.015/kWh microgrid tariff fee for each MTCC kWh delivered into ACE's distribution system and

- A revenue credit provided to MTCC for each MTCC kWh delivered into ACE's distribution system.

The proposed utility connections under this arrangement would be arranged as follows:

- ACE – The current MTCC utility interconnect would become more robust in enabling the requested incremental microgrid generation to be connected in parallel to the existing local ACE distribution network. An ACE agreement between ACM Energy Partners, LLC will enable up to 19MW of power to be delivered into ACE's distribution system. Additionally, isolation breakers would be installed to permit microgrid "island mode" as required by weather circumstances. With the implementation of the Microgrid Tariff we do not believe there are any PJM or FERC related issues to address. (Please view the Appendix for one-line diagrams and general arrangements of the proposed microgrid solution).
- SJG – The current MTCC utility interconnect with SJG would be utilized and expanded to include the appropriate metering stations for each new source of generation. All critical facilities of the microgrid will continue to receive service as the do today directly from SJG.
- Thermal Interconnections – Thermal interconnections for both chilled water and steam are existing for four of the five proposed customers. MTCC would develop and construct the contiguous thermal interconnection with AtlantiCare Regional Medical Center as part of this initiative.

A detailed description of black start and operation and over what time period in island mode and in sync with the distribution system.

Currently the Midtown Thermal Control Center has 1MW of diesel generation that can be employed to bring the turbines online to full power first then powering up the JGS 616 engines as necessary to support required electric loads. It is envisioned that this time that the customer breakers would be opened and sequentially closed in order to bring all services back online in a staged protocol. Inasmuch as the microgrid would be running in island mode should there be an outage, the disconnects to Atlantic City Electric would already be open at each of the customer substation facilities.

At this time, the expense of installing energy monitoring equipment that would provide for the automatic recovery of each facility is not justified inasmuch as these facilities will be manned and manual restoration procedures can be employed with minimal increases to outage periods.

In summary, the societal benefits associated with energy efficiency gains, reduced environmental impacts as well as establishing the provision of resilient emergency medical and public shelter facilities should weigh heavily into the cost/benefit analysis determining the execution of this microgrid. If there is the political will for all parties to work toward finding creative ways to seeing this project come to fruition, we doubt there is a better circumstance that presents the close geographic nexus of medical and public sheltering facilities, available generation assets, and customers excited about a microgrid initiative, anywhere else in the state of New Jersey.

Regulatory Framework/Impacts & Statutory Considerations

Option #1 - Current Business Practice - NA

Option #2 - Private Microgrid:

Chapter 240 Laws of 2010 section 4 states:

> *C.48:3-77.1 Utilization of locally franchised public utility electric distribution infrastructure.*
>
> > *4. In order to avoid duplication of existing public utility electric distribution infrastructure, and to maximize economic efficiency and electrical safety, delivery of electric power from an on-site generation facility to an off-site end-use thermal energy services customer as defined in section 3 of P.L.1999, c.23 (C.48:3-51), shall utilize the existing locally franchised public utility electric distribution infrastructure. The New Jersey electric public utility having franchise rights to provide electric delivery services within the municipality shall provide electric delivery services at the standard prevailing tariff rate that is normally applicable to the individual off-site end-use thermal energy services customer.*

With respect to the issue raised involving electrical safety it is difficult to envision a field circumstance where utility workers could confuse utility infrastructure with high voltage electrical cables installed in the microgrid. First, the microgrid electrical cables would be installed in to the high-pressure steam and chilled water distribution system vaults for their entire run from the Midtown facility to the end use customers. The duct banks installed would be encased in concrete in public right of ways and any manholes or points of access to these facilities would be locked. Interconnection points with the utility distribution grid would be through breakers and switches in a ring bus arrangement per industry standard. Today, there are thousands of renewable energy interconnections with the utility grid, and operating protocols have been sufficient in eliminating any potential hazards due to confusion. In addition, field safety protocols for required underground mark outs have been successful, and cables are traditionally "speared" prior to being cut completely, eliminating any possibility of personnel cutting into live cables. While utility interconnections with renewable generation and other third-party generation resources were less common when this law was signed eight years ago, today it is a commonplace part of utility operations. Electrical interconnection safety is not an issue that is relevant within the context of operating today's utility infrastructure.

The "economic efficiency" raised in the law, however, is an important issue to utility economics for both shareholders and ratepayers. Stranding utility investment in distribution infrastructure is not a desirable outcome, however, in the absence of successfully working with the utility through the economics of a potential solution (such as option #1), we think that the legislature would place public safety before utility economic interests.

We are of the opinion, therefore, that a narrowly crafted amendment to the language referenced above would place the public safety priorities of the community in proper perspective with other economic concerns.

C.48:3-77.1 Utilization of locally franchised public utility electric distribution infrastructure.
4. In order to avoid duplication of existing public utility electric distribution infrastructure, and to maximize economic efficiency and electrical safety, delivery of electric power from an on-site generation facility to an off-site end-use thermal energy services customer as defined in section 3 of P.L.1999, c.23 (C.48:3-51), shall utilize the existing locally franchised public utility electric distribution infrastructure. The New Jersey electric public utility having franchise rights to provide electric delivery services within the municipality shall provide electric delivery services at the standard prevailing tariff rate that is normally applicable to the individual off-site end-use thermal energy services customer. However, in specific cases where hospitals, emergency healthcare facilities, public and private shelters can be served by private wire networks installed in or on public rights of way to provide resiliency electricity services independent of the utility grid, the Board may approve on a case by case basis applications made for exemption from this requirement in order to promote public safety.

Option #3 - Long-term Utility Hybrid Tariff Model:
Since ACE and SJG would be entering into a long-term microgrid tariff agreements with ACM Energy Partners, LLC, the only authority required would involve the review and subsequent approval by the Board of Public Utilities of the proposed ACE Microgrid and SJG Microgrid tariffs.

The ACE Microgrid "alternative distribution tariff" would require the creation of a Microgrid Resiliency Alternative Distribution Tariff filing that would then delineate the process for creating an alternative cost model used to establish the revenue credit ACE would receive on a kWhr generated basis and the otherwise applicable ACE tariff rate less NJ SUT microgrid customers would receive from ACE.

The new thermal connection to the AtlantiCare facility would require no action other than local City approval for a road opening of Atlantic Avenue at South Ohio Street. This option would require no modification to existing state regulation or statute.

ACE would continue to own and operate all electric distribution facilities on and in public rights of way.

The economic and financial data presented in the next section of this analysis shows the advantages of working cooperatively with Atlantic City Electric in the further development of this microgrid project.

Additional Legislative and Regulatory Considerations:
The AtlantiCare facility is located diagonally across the intersection of Atlantic Avenue and South Ohio Street. While the Board has issued a declaratory ruling on April 17, 2017 (below), it may be appropriate to use this opportunity to amend the law appropriately to end this continuing debate. By amending the "on-site generation facility" definition to include the very narrow exception of diagonally crossing the intersection of two public thoroughfares, we would clear any potential confusion regarding the application of this definition to Atlantic City's AtlantiCare emergency facility.

April 17, 2017 BPU Declaratory Ruling:

> *After reviewing the record in the light of N.J.S.A. 48:3-51, the Board FINDS that the end use properties are contiguous to the proposed Cooper CHP project for purposes of its electric and thermal output. For purposes of thermal output, the property containing the CHP and the property to which the thermal output is delivered may be separated by "more than one easement, public thoroughfare, or transportation or utility-owned right-of-way..." N.J.S.A. 48:3-51. For purposes of electric output, a property is "contiguous" if it is located "geographically next to" the property containing the CHP, except that it "may be otherwise separated by an, easement, public thoroughfare, transportation, or utility-owned right of way..." Ibid.*

Narrowly drawn exemptions such as those referenced above have the potential to create additional economic value that can be applied to the project economics.

Permits, permit issuing agencies, and estimates of timeframe for issuance:

- The Title V air permit represents the most significant permit application needed prior to project development. Typically, combined heat and power projects are given priority status by the New Jersey Department of Environmental Protection. We expect the modeling, analysis, and approval process will take approximately 12 months from the initiation of the application process with the DEP.

- The street opening permits, construction permits, demolition permits, and other permitting requirements all fall upon the city of Atlantic City for approval. We do not expect there to be any delays associated with receiving these permits.

Project Economics

The all-in capital costs associated with the creation of this microgrid include the installation of all necessary equipment, EPC services, soft costs, interest during construction, and estimated financing expenses. These expenses total to approximately $45MM. This $45MM value assumes a general cost component in the total amount of $2MM to support the interconnection cost requirements of each local utility. This estimate is based on discussions with EDC and GDC utility representatives. In order for the economics of this project to make sense, ACM Energy Partners, LLC will need to successfully convince the current customer base to join the microgrid (continue to receive service from ACM), successfully contract the potential new customers discussed (receive thermal energy from ACM), and develop Option 3 above – negotiating a hybrid tariff with ACE for the receipt, delivery and sale of electrical energy produced from the microgrid. We are confident enough to assume the first two conditions will be met, and ACM will continue to generate thermal energy savings for its current and future customer base. The key to financeable project economics then becomes the successful development of a hybrid tariff between ACM and the local EDC and GDC. Upon final confirmation of capital, fuel, financing and load estimates an amount between $.005 to $.015/kWh can be verified as the amount payable to ACE under the proposed microgrid tariff.

Keeping in mind the interests of both parties we developed the following deal points under the hybrid tariff contract option – these are the basic economic principles that enable this option to succeed:

- ACE continues to serve microgrid customers electrical energy at tariff rates less sales tax of 6.625%
    - All-in $/kWh charge for these customers less the NJ SUT is estimated to be about $0.09/kWh
- MTCC microgrid all-in cost to produce electricity and maintain cost structure is roughly $0.07/kWh
- ACE retains the spread of $0.005 to $.015/kWh, which would preserve roughly 35% to 50% of the current charges for all non-commodity distribution services
- SJG EGS-LV Microgrid Tariff consisting of a $2.50 D-1 Charge and in-kind proportional reduction to SBC charges.

In summary, based on our analysis we have concluded that the economics of the current circumstance (option 1) could result in retail displacement that will create significant costs to ratepayers through the replacement of lost revenues. Additionally, this same economic framework exists for the creation of a private wire network (options 2) subject to the support of the New Jersey legislature narrowly creating resilient alternatives for: public shelter, emergency medical services, and support for populated urban centers. The hybrid contract, however, promotes minimum capital and operating expenses, leaves Atlantic City Electric with the responsibilities they are best equipped to continue to handle, and does so preserving as much utility revenue as possible to minimize the cost to Atlantic City Electric's ratepayers. South Jersey Gas will deliver more volume of natural gas to MTTC while continuing to serve microgrid customers their basic natural gas requirements as they do today.

Cash Flow Evaluation

Option #2 and Option #3 create an incremental project to an existing functional combined heat and power facility. The incremental cash flow supporting this microgrid effort is simply the revenue retained by MTCC for the delivery of electric generation on a per kWh basis into ACE's distribution system. Incremental year 1 revenues under Option #3 for this delivered power are anticipated to be the following:

- ACE Revenue – Microgrid Tariff Delivery Fee: $1.7 million. (112,900,000 kWh x $.015/kWh)
- MTCC Revenue – Delivered Energy to ACE (Total ACE revenue recovery of approximately $.09/kWh less $.015/kWh Microgrid Delivery Fee): $8.4 million (112,900,000 kWh x $.07/kWh)

Description of the Potential Financing

For this incremental project under Option #2 and Option #3, the securitization of the electric revenue stream over a defined long-term agreement will be critical in achieving a successful financing. Contingent upon the approval of the suggested EDC and GDC Microgrid Tariffs over a duration of 25 years, ACM is confident that a financing can occur yielding debt rates which are indicative of the current market for power projects of this nature with an estimated term APR of roughly 6% to 8%. Options which will be explored/utilized when selected to move forward as potential financing conduits include:

- Traditional commercial bank loan
- OEM Manufacturer Financing

- NJ EDA Revenue Bond Financing

ACM's typical capital structure for this type of financial transaction would contemplate a 20-30% equity contribution with the remaining amount supported by debt.

The proposed project is consistent with the use of the Societal Benefit Charge as set forth in N.J.S.A. 48:3-60(a)(3)).

Section 12 (3) of the subject Chapter 23 Laws of 1999 makes clear that: "the Board shall make these determinations taking into consideration existing market barriers and environmental benefits, with the objective of transforming markets, capturing lost opportunities, making energy services more affordable for low income customers and eliminating subsidies for programs that can be delivered in the marketplace without electric public utility and gas public utility customer funding;"

The proposed MTCC Microgrid project clearly meets these standards of determination by:
• Creating reduced environmental impacts resulting from the energy efficiency gains associated with heat recovery for useful thermal energy purposes on the combined heat and power delivery process.
• Providing resilient energy services for emergency healthcare and public shelter facilities serving a low and moderate-income community.
• Deferring and potentially eliminating capital expenses to locally reinforce the incumbent public utility's distribution system over the long run.

P.L. 1999 Chapter 23 Section 12 (3):
The costs of demand side management programs that were approved by the board pursuant to its demand side management regulations prior to April 30, 1997. For the purpose of establishing initial unbundled rates pursuant to section 4 of this act, the societal benefits charge shall be set to recover the same level of demand side management program costs as is being collected in the bundled rates of the electric public utility on the effective date of this act. Within four months of the effective date of this act, and every four years thereafter, the board shall initiate a proceeding and cause to be undertaken a comprehensive resource analysis of energy programs, and within eight months of initiating such proceeding and after notice, provision of the opportunity for public comment, and public hearing, the board, in consultation with the Department of Environmental Protection, shall determine the appropriate level of funding for energy efficiency and Class I renewable energy programs that provide environmental benefits above and beyond those provided by standard offer or similar programs in effect as of the effective date of this act; provided that the funding for such programs be no less than 50% of the total Statewide amount being collected in public electric and gas utility rates for demand side management programs on the effective date of this act for an initial period of four years from the issuance of the first comprehensive resource analysis following the effective date of this act, and provided that 25% of this amount shall be used to provide funding for Class I renewable energy projects in the State. In each of the following fifth through eighth years, the Statewide funding for such programs shall be no less than 50 percent of the total Statewide amount being collected in public electric and gas utility rates for demand side management programs on the effective date of this act, except that as additional funds are made available as a result of the expiration of past standard offer or similar commitments, the minimum amount of funding for such

programs shall increase by an additional amount equal to 50 percent of the additional funds made available, until the minimum amount of funding dedicated to such programs reaches $140,000,000 total. After the eighth year the board shall make a determination as to the appropriate level of funding for these programs. Such programs shall include a program to provide financial incentives for the installation of Class I renewable energy projects in the State, and the board, in consultation with the Department of Environmental Protection, shall determine the level and total amount of such incentives as well as the renewable technologies eligible for such incentives which shall include, at a minimum, photovoltaic, wind, and fuel cells. The board shall simultaneously determine, as a result of the comprehensive resource analysis, the programs to be funded by the societal benefits charge, the level of cost recovery and performance incentives for old and new programs and whether the recovery of demand side management programs' costs currently approved by the board may be reduced or extended over a longer period of time. The board shall make these determinations taking into consideration existing market barriers and environmental benefits, with the objective of transforming markets, capturing lost opportunities, making energy services more affordable for low income customers and eliminating subsidies for programs that can be delivered in the marketplace without electric public utility and gas public utility customer funding;

The Board, therefore, has the jurisdiction and authority upon making this finding to fund the project in accordance with P.L. 2011 c.216:

48:3-60.3 Credit against societal benefits charge permitted. 1. a. On and after January 1 next following the date of enactment of P.L.2011, c.216 (C.48:3-60.3), a commercial or industrial ratepayer shall be allowed a credit against the societal benefits charge imposed pursuant to section 12 of P.L.1999, c.23 (C.48:3-60), and collected as a non-by passable charge by the electric public utility or gas public utility, as appropriate, providing service to the commercial or industrial ratepayer. b. The amount of the credit authorized pursuant to subsection a. of this section shall be equal to one-half of that portion of the costs incurred by the commercial or industrial ratepayer during the preceding calendar year for the purchase and installation of products or services that are intended for energy efficiency purposes, that would be eligible for incentives under programs that the board shall have determined to fund by the societal benefits charge pursuant to paragraph (3) of subsection a. of section 12 of P.L.1999, c.23 (C.48:3-60). c. The amount of the credit to be allowed under this section in any calendar year against the societal benefits charge for each commercial or industrial ratepayer that is subject to such charge pursuant to section 12 of P.L.1999, c.23 (C.48:3-60) shall be determined by the board. d. The maximum amount of the credit to be applied under this section against the societal benefits charge imposed pursuant to section 12 of P.L.1999, c.23 (C.48:3-60) shall not exceed 100 percent of the commercial or industrial ratepayer's liability for such charge that would otherwise be due in each calendar year. 53

e. The amount of the credit against the societal benefits charge otherwise allowable under this section which cannot be applied for the calendar year due to the limitations of subsections b. and d. of this section may be carried over, if necessary, to a maximum of 10 calendar years immediately following the initial year in which the credit is first applied to a commercial or industrial ratepayer's liability for societal benefits charges. f. The electric public utility or gas public utility providing service to a commercial or industrial ratepayer shall disclose in a written notice to the commercial or industrial ratepayer, upon request from the commercial or industrial ratepayer, the amount of societal benefits charges collected by *the utility from the commercial or industrial ratepayer pursuant to section 12 of P.L.1999, c.23 (C.48:3-60) for each calendar year specified in the request from the commercial or industrial ratepayer. L.2011, c.216, s.1.*

Environmental Impacts:

As outlined earlier within this study the microgrid opportunity presents significant economies of scale which enables the proposed microgrid to significantly reduce environmental emissions and resources across a large scale. The proposed microgrid implementation utilizes state of the art combined heat and power technology. By generating the majority of power and thermal energy requirements onsite traditional grid transmission and distribution losses are avoided leading to significant environmental benefits. An estimate of the emissions reductions which may be attained by the collective microgrid solution is identified below.

Atlantic City Microgrid - Estimated Emissions Reduction					
Inputs:					
CHP Electric					
Microgrid Elec Capacity	19,300	kW	(1)		
CHP Elec Heat Rate	10,204	Btu/kWh hhv	(1)		
Availability Factor	95.0%	Annual	(1)		
CHP Energy Produced	160,615	MWh/yr	(2)		
Avoided Electricity (Net)	160,615	MWh/yr			
Loss Factor (PJM)	9.2%	Annual	(3)		
Avoided Grid Electricity (Gross)	175,391	MWh/yr			
CHP Thermal Steam					
CHP Thermal Energy (HRSG Only)	66.00	mmBtu/hr	(1)		
Avoided Boiler/Distribution Eff. Factor	0.75	Annual	(4)		
Avoided Thermal Energy	732,336	mmBtu/yr			
Duct Burner Boiler Fuel	227,114	mmBtu/yr			
CHP Thermal CW					
CHP Thermal Energy	3,182	Tons	(1)		
Avoided Chiller/Distribution Eff Factor	1.00	kW/ton			
Avoided Electricity (Net)	26,481	MWh/yr			
Loss Factor (PJM)	9.2%	Annual			
Avoided Grid Electricity (Gross)	28,917	MWh/yr			
CO2 Emissions Factors:					
	Avoided Emissions RFCE (lb/MWh) (5)	Avoided Emissions Boiler (lb/mmBtu) (6)	CHP Emissions (lb/MWh) (6)		
CO2	1,394	117	1,193.83		
Collective Atlantic City Microgrid - Emissions Reductions:					
	Avoided Emissions PJM (tons/yr)	Avoided Emissions Boiler (tons/yr)	CHP Emissions (tons/yr)	Emissions Reductions (+) (tons/yr)	Reduction (%)
CO2 ER	142,352	42,842	109,160	76,034	41%

Footnotes:
(1) Heat Balance
(2) Gross HR of Installed Microgrid Generation Capacity
(3) EPA CHP Calculator-T&D Losses Eastern Interconnect
(4) Consumption Study - MSU old satellite boilers and assumed distribution system losses
(5) USEPA eGRID2014 RFCE factor as of 1/2017.
(6) AP42, EPA CHP Calculator

In addition to emissions reduction, the microgrid's economies of scale and established centralized thermal distribution naturally creates a significant reduction to water usage and wastewater discharges. ACM estimates a 20% reduction in water consumption/wastewater related usage compared to that of thermal production at each customer location. It is also important to note that the current water/sewer system in place at ACM can handle the load required to support all microgrid customers.

The Atlantic City Microgrid solution under Option #3 provides the least possible impact to land use and incremental waste generation. The proposed microgrid utilizes the current footprint of the MTCC site to construct the majority of incremental generation and thermal equipment. The utilization of the ACE distribution system for electric and MTCC thermal distribution loop ensure outside of the MTCC footprint little to no land is disturbed and can be used for further development within Atlantic City.

Additional Areas Studied

A detailed description of the technology, business and operational protocol developed and/or utilized and the location within the micro-grid. This includes the following:

- A detailed description of the proposed connections (electric, gas and/or thermal) of the critical facilities and the DER technologies.

  See appendix prints #1, #2, #3, #7, #8, #9 and #10.

- A one-line diagram of the micro-grid and location of the electrical connections to the EDC's facilities/equipment.

  See appendix prints #5, and #6.

- A detailed description of the type of distribution system the interconnection into (radial or network) and the interconnection procedures and requirements.

  See appendix print #4

- A detailed description of black start and operation and over what time period in island mode and in sync with the distribution system.

  Currently the Midtown Thermal Control Center has a 1MW diesel engine that can be employed to bring the turbines online to full power. It is envisioned that this time that the customer breakers would be opened and sequentially closed in order to bring all services back online in a staged protocol. Inasmuch as the microgrid would be running in island mode should there be an outage, the disconnects to ACE would already be open at each of the customer substation facilities.

At this time, the expense of installing energy monitoring equipment that would provide for the automatic recovery of each facility is not justified inasmuch as these facilities will be manned and manual restoration procedures can be employed with minimal increases to outage periods.

- A detailed description of the NJBPU and EDC tariff requirements/issues including any smart grid or distribution automation upgrades proposed or under development by the EDC.

  Option #3:
  ACE would be required to make two filings: (1) The electricity sales would be governed under a contractual agreement with ACE based upon a tariff filing approved by the Board of Public Utilities. The commodity price for these transactions would mirror the prevailing price settled annually by the basic generation service fixed price auction. MTCC check metering would be installed in addition to ACE's currently installed electric metering.

  In addition, (2) the Board of public Utilities would also need to approve a "discount tariff" that would be set based upon the amortized difference between the "all-in" utility cost for the provision of transportation services as currently set for the participating customers and MTVCC's cost of constructing and maintaining a private wires network that would then supplant the need for firm utility services for these customers. This discount would then be paid on a monthly basis by ACE, however, as has been observed the ratepayer impact of paying this discount is less than the revenue that would be lost by retail displacement as described in option # 2.

  Option #2
  ACE Standby Tariff. MTCC would also be required to file with the New Jersey Board of Public Utilities to become a licensed third-party energy provider under this option.

A general description of the communication system between the micro-grid and the EDC's system. This should include a detailed description of distribution management systems and controls and all building controls:

- Communication system between the microgrid and ACE Control Grid Center would involve typical transfer trip remote operation as well as remote breaker operation to isolate the microgrid to and from island mode remotely at each customer substation.

The estimated timeframe for the completion of the construction and commencement of operations of the individual critical facilities and the overall project:

- Pre-engineering would commence in the second half of fiscal 2018. Application for the Title V Department of Environmental Protection permit would also commence in the second half of fiscal 2018.

- This would place the start of construction activities roughly in the area of June 2019 with an expected completion date of 12 months.

- Based upon these early estimates, the microgrid would be commercially available sometime in June 2020.

A description of the on-going work with the EDC and GDC:

- Our work with South Jersey Gas to provide the natural gas resources necessary to power the new turbine would commence during the pre-engineering process and continue on through the construction phase.

- Work with ACE, however, would continue as interconnection and construction of microgrid and utility infrastructure would continue up until commercial operation in mid 2020.

Electric Vehicle Charging Station Analysis:

This report requires an analysis of the potential for electric vehicle charging stations at each of the four sites that would be served by the microgrid, as well as a list of the possible incentives or grants that may be applied to offsetting the costs of these facilities.

Upon review of the sites and the respective geographical/space considerations only three of the potential sites would appear to have the space resources available to the successful deployment of these electric vehicle charging facilities: (1,2) the garage structures for both the Bally's Resort and Caesar's Resort complexes and (3) the dedicated third floor Caesar's parking deck skybridge to AtlantiCare's parking facilities as shown in the photographs below:

After reviewing the array of charging options available it appears apparent that a “level 2” charging station would be the most appropriate choice for these applications. While Commercial level 2 chargers are more expensive, especially those with networking capabilities allowing operators to

change pricing options, gather data and monitor or restrict usage, these chargers would best fit the proposed applications.

The only “upgrade to the level 2 commercial chargers involves “DCFC” Direct Current Fast Chargers, which pull roughly 50-150 kw and have the ability to charge an EV up to 80% capacity in under 30 minutes. These are the most expensive types of chargers since they have heavy duty cables and require more infrastructure. While a potential alternative, these stations are generally about $100,000 for the infrastructure, hardware, and installation per station and as most casino and hospital visitor stays would not require fast 30-minute charging times, it is recommended that a standard level 2 charger be specified for this application.

The Leviton evr-green 4000 level 2 public use charging station would clearly appear to represent a suitable choice:

evr-green® 4000
Level 2 Public Use Charging Stations
Featuring ChargePoint Network Services

Evr-Green® 4000 Level 2 Public Use Charging Stations provide corporations, municipalities and utilities industry leading EV charging solutions. Integrating design and functionality with superior reliability and durability, the Evr-Green charging stations are ideal for workplace, commercial, or outdoor public charging. They are available in bollard and wall mount configurations for easy installation anywhere.

For applications where available power may be limited, the innovative power sharing feature enables two charging ports to share a single circuit, allowing for sites with single port EV stations to upgrade to dual port stations without requiring additional electrical services. For new installations, these stations require half the electrical capacity and installation complexity of comparable dual port stations.

Models are available with two standard SAE J1772™ Level 2 charging ports, each supplying up to 7.2kW (208/240VAC @ 30A). The need for drivers to coil up the cord is eliminated with the self-retracting cord management system, ensuring that the cord is always off the ground when not in use.

chargepoint

Features and Benefits

ChargePoint Software Service Plans let you control access, set pricing, display advertising, monitor status, and generate usage reports while ChargePoint provides 24/7/365 call center support to drivers so you don't have to.

LCD Display Allows for Customizable Video

- Daylight readable, with auto brightness control
- 640X480 resolution active matrix
- Full motion 30fps video support
- Download up to 60 seconds of full-motion, full-color video to any arbitrary group of stations as often as you like[1]
- Brand your charging stations and communicate with drivers
- Multiple language support allows drivers to select English, French or Spanish

Energy Measurement and Management

- Real-time energy measurement
- 15 minute interval recording
- Time of day (TOD) pricing
- Load shed by % of running average or to fixed power output

Hassle-Free Cord Management

- Keep charging cords off the ground and out of drivers hands
- Ultra-reliable second-generation gravity operated mechanism

Power Sharing (patent pending)

- Share one 40A 208/240 circuit between two parking spaces
- Single vehicle charges at full 6.2/7.2kW (30A @208/240V) and two vehicles simultaneously charge at 3.3/3.8kW (16A@ 208/240V) each

Multi-format RFID Card Reader

- ISO 15693, ISO 14443 and NFC
- Accepts ChargePoint cards as well as Visa PayWave, MasterCard PayPass, American Express ExpressPay, and Discover Zip contactless credit cards

[1] Video service plan required

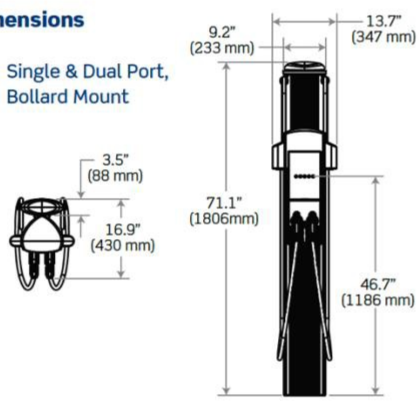
The 5.7" LCD display provides full motion charging instructions in a clear and simple format. It also allows station owners to deliver advertising messaging.

Driver interaction is supported in any weather by five rugged, back-lit buttons with audio feedback.

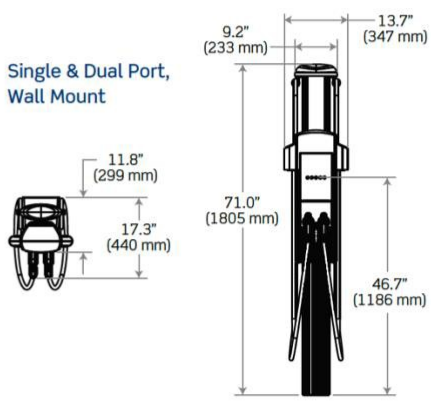
Listed by Underwriters Laboratories Inc. cULus LISTED

Dimensions

Single & Dual Port, Bollard Mount



Single & Dual Port, Wall Mount



Specifications

Electrical Input	Single Port	Dual Port
AC Power Input Rating – Standard	208/240VAC 60Hz single phase @ 30A	208/240VAC 60Hz single phase @ 30 x 2
AC Power Input Rating – Power Sharing	n/a	208/240 VAC 60Hz single phase @ 32A
Input Power Connections – Standard	One 40A branch circuit	Two independent 40A branch circuits
Input Power Connections – Power Sharing	n/a	One 40A branch circuit
Required Service Panel Breaker – Standard	40A dual pole (non-GFCI type)	40A dual pole (non-GFCI type) x 2
Required Service Panel Breaker – Power Sharing	n/a	40A dual pole (non-GFCI type)
Service Panel GFCI	Do not provide external GFCI as it may conflict with internal GFCI (CCID)	
Wiring – Standard	3-wire (L1, L2, Earth)	5-wire (L1, L1, L2, L2, Earth)
Wiring – Power Sharing	n/a	3-wire (L1, L2, Earth)
Station Power	8W typical (standby), 15W maximum (operation)	

Electrical Output		
AC - Standard	7.2kW (240VAC @ 30A)	7.2kW (240VAC @ 30A) x 2
AC - Power Sharing	n/a	7.2kW (240VAC @ 30A) x 1 OR 3.8kW (240VAC @ 16A) x 2

Functional Interfaces		
Connector(s) Type	SAE J1772™	SAE J1772™ x 2
Charging Cable Length	18' (5.5 meters)	18' (5.5 meters) x 2
Overhead Cable Management System	Yes	
LCD Display	5.7" full color, 640x480, 30fps full motion video, active matrix, UV protected	
Card Reader	ISO 15693, 14443, NFC	
Locking Holster	Yes	Yes x 2

Safety and Connectivity Features	
Ground Fault Detection	20mA CCID with auto retry
Open Safety Ground Detection	Continuously monitors presence of safety (green wire) ground connection
Plug-Out Detection	Power terminated per SAE J1772™ specifications
Power Measurement Accuracy	+/- 2% from 2% to full scale (32A)
Power Report/Store Interval	15 minute, aligned to hour
Local Area Network	2.4 GHz Wi-Fi (802.11 b/g/n)
Wide Area Network	3G GSM, 3G CDMA

Safety and Operational Ratings	
Enclosure Rating	Type 3R per UL 50E
Safety Compliance	UL listed for USA and cUL certified for Canada; complies with UL 2594, UL 2231-1, UL 2231-2, and NEC Article 625
Surge Protection	6kV @ 3000A. In geographic areas subject to frequent thunder storms, supplemental surge protection at the service panel is recommended.
EMC Compliance	FCC Part 15 Class A
Operating Temperature	-22°F to 122°F (-30°C to +50°C)
Operating Humidity	up to 85% @ +50°C (122°F) non-condensing
Non-Operating Humidity	up to 95% @ +50°C (122°F) non-condensing
Terminal Block Temperature Rating	221°F (105°C)
Maximum Charging Stations per 802.11 Radio Group	10. Each station must be located within 150 feet "line of sight" of a gateway station.

ChargePoint, Inc. reserves the right to alter product offerings and specifications at any time without notice, and is not responsible for typographical or graphical errors that may appear in this document.

We have also obtained a formal estimate for the installation of 2-stations, less permit, utility and site-specific modifications at $35,000 per location. Therefore, adding 4 stations at Bally's structured parking; 4 stations at Caesar's structured parking and 2 stations at the third floor dedicated AtlantiCare parking also within the Caesar's structured parking deck would cost approximately $175,000 plus the exempt items listed.

Available Incentives:
The Christie administration's "It Pays to Plug-in" program has exhausted the $725,000 allocated in June of 2016. These grants would have covered up to $5,000 per level 2 charging station.

The New Jersey legislature has introduced three pieces of legislation directing the Department of Environmental Protection and the Board of Public Utilities to develop programs and incentives to meet significant electric vehicle goals. These legislative efforts are yet to be heard in their respective houses to date.

The federal government had also offered a 30% tax credit against the cost of electric vehicle charging equipment. Stations installed before the end of 2016 qualified businesses to recoup up to $30,000 in charger and installation costs. Unfortunately, this program has also expired and not been renewed by the current administration in Washington.

The federal EVSE tax credit expired December 31, 2016.

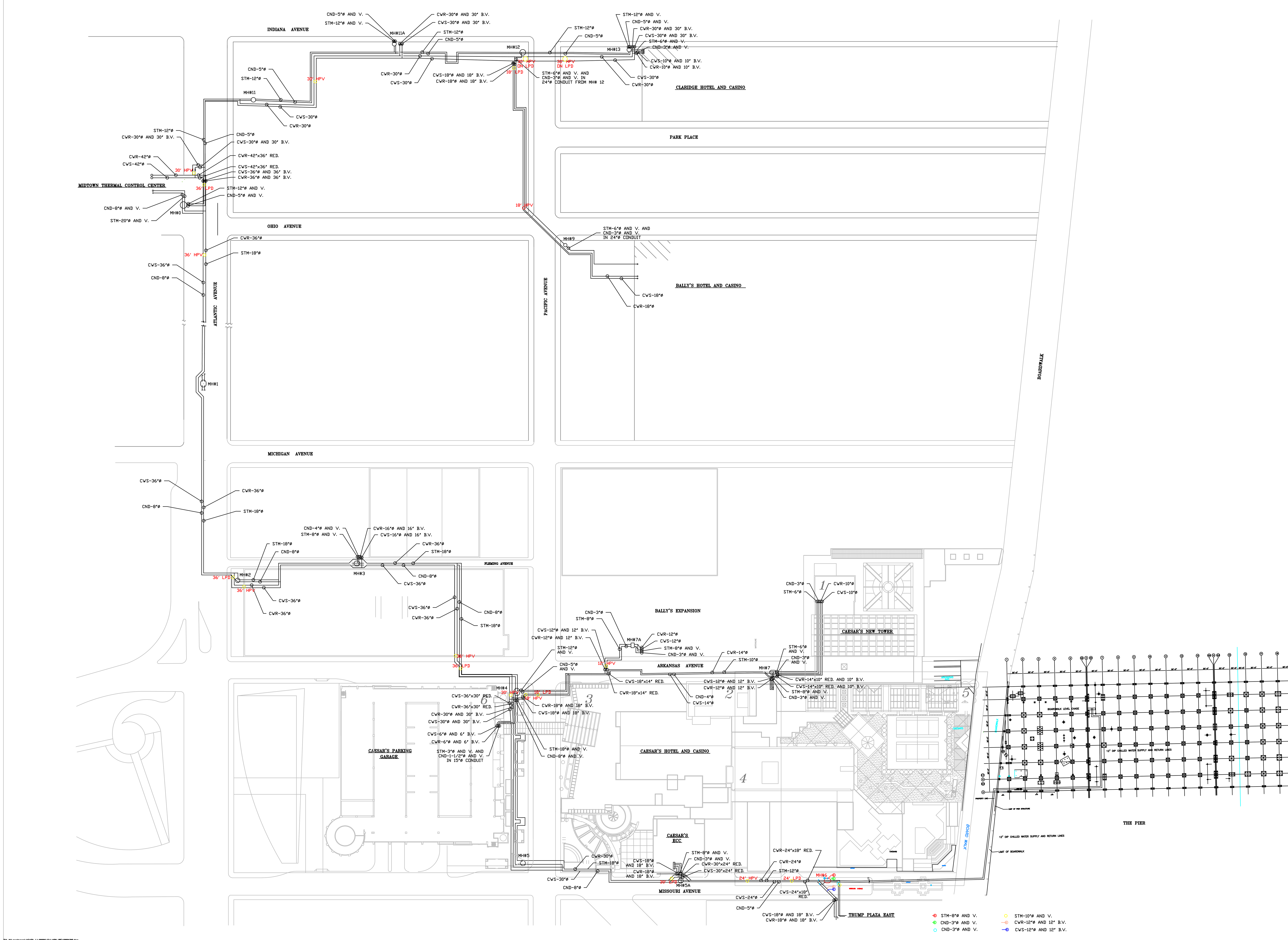
In summary, there are a number of state incentives that appear in the works at this time, however, at this time there are no standing state or federal programs available to financially encourage the installation of commercial electric vehicle charging stations

Appendix

1.) One-line diagram of thermal and electrical loop. 2.) Conceptual one-line diagram
3.) Loop site photo (Google)
4.) ACE Feeder Connection
5.) MTCC one-line drawing
6.) MTCC improvements single line diagram
7.) MTCC General Arrangement
8.) Midtown Thermal - Pipeline & Valve Schematic
9.) Customer Thermal Cooling Data
10.) Microgrid Electric Load Data
11.) RULESS Form-PRE
12.) RULESS Form-POST
13.) RULESS-PRE – Working.xlsm
14.) RULESS-POST – Working.xlsm

AC Microgrid Implementation Report: Alternative Models and Next Steps – 7/6/18 Presentation at MTCC

Attendees:	Company:
Frank DiCola	DCO Energy
Bill Wasnak	DCO Energy
Brandon Murdock	DCO Energy
Dionisio Roman III	DCO Energy
Kevin Brown	DCO Energy
Jon Wohl	DCO Energy
Fred DeSanti	MC^2 Public Affairs
Mike Hornsby	NJ BPU
Jim Rutala	Rutala Associates AC
Steve Clark	South Jersey Gas
Bob Wolcott	Atlantic City Electric
Amrita Acharya-Menon	Atlantic City Electric
Bob Alles	Atlantic City Electric
Charles Wimberg	Atlantic City Electric
Greg Brubaker	Atlantic City Electric
Susan Coan	Atlantic City Electric
Ken Mosca	Atlantic City Electric



General Notes

MIDTOWN THERMAL CONTROL CENTER, ATLANTIC CITY, NJ

DISTRICT HEATING AND COOLING LOOP DRAWING

PIPELINE AND VALVE SCHEMATICINCLUDING CHILLED WATER SUPPLY AND RETURN LINES TO THE PIER

NOTE:
1) The location of the take off point from main loop to the Pier (Near MH–6) is approximate.

2) locations of vents and drains are approximate.

No.	Revision/Issue	Date

Firm Name and Address

Pepco Energy Services
1825 Atlantic Avenue
Atlantic City, NJ 08401

Project Name and Address

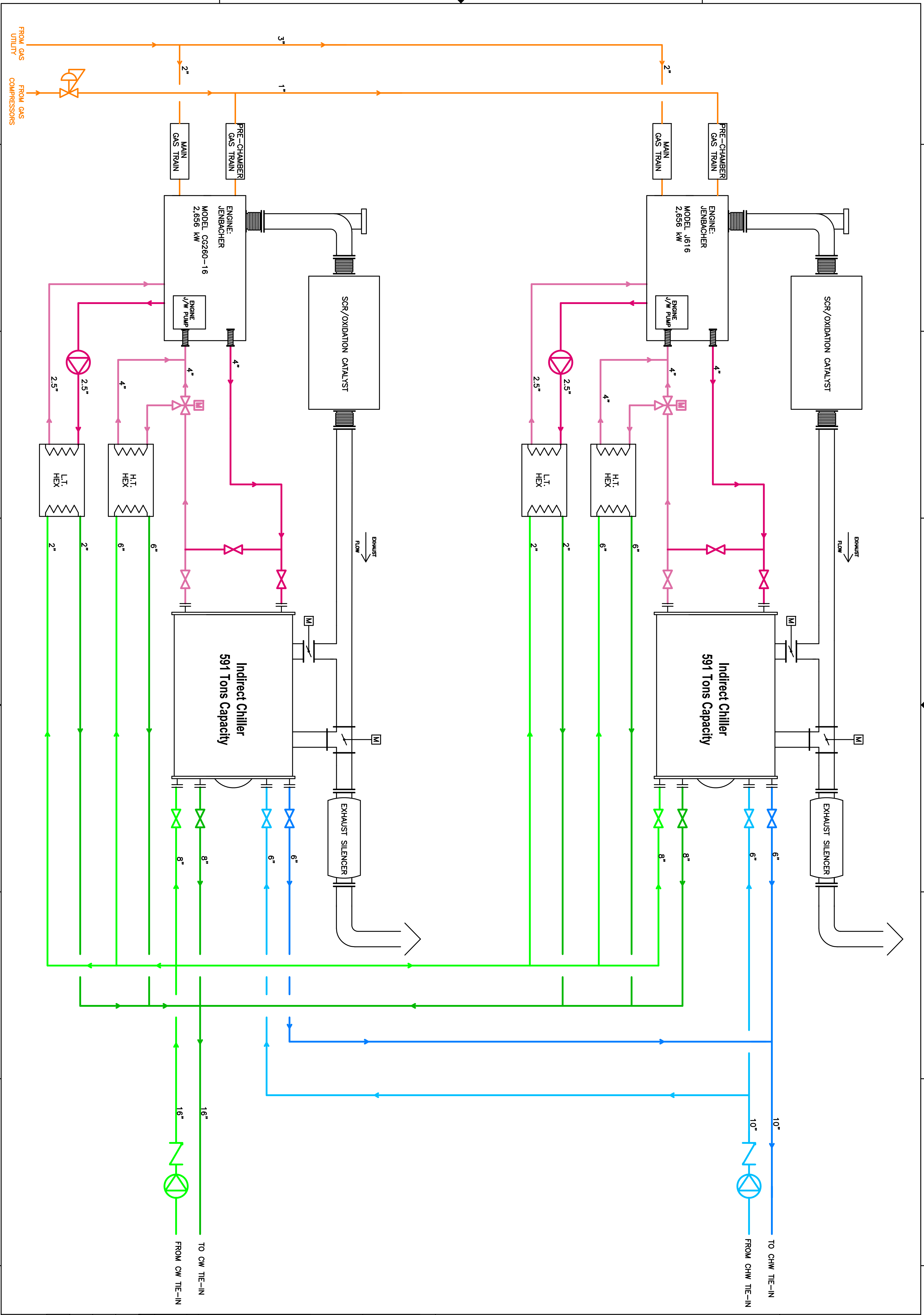
MIDTOWN THERMAL CONTROL CENTER UNDERGROUND DISTRIBUTION PIPING SYSTEM

ATLANTIC AVENUE, ATLANTIC CITY NEW JERSEY

Project: MTCC THERMAL LOOP
Sheet

Date: AUGUST 5, 2010

Scale: 1 " = 60' (SCALE INVALID AT THE PIER TAKE OFF POINT)

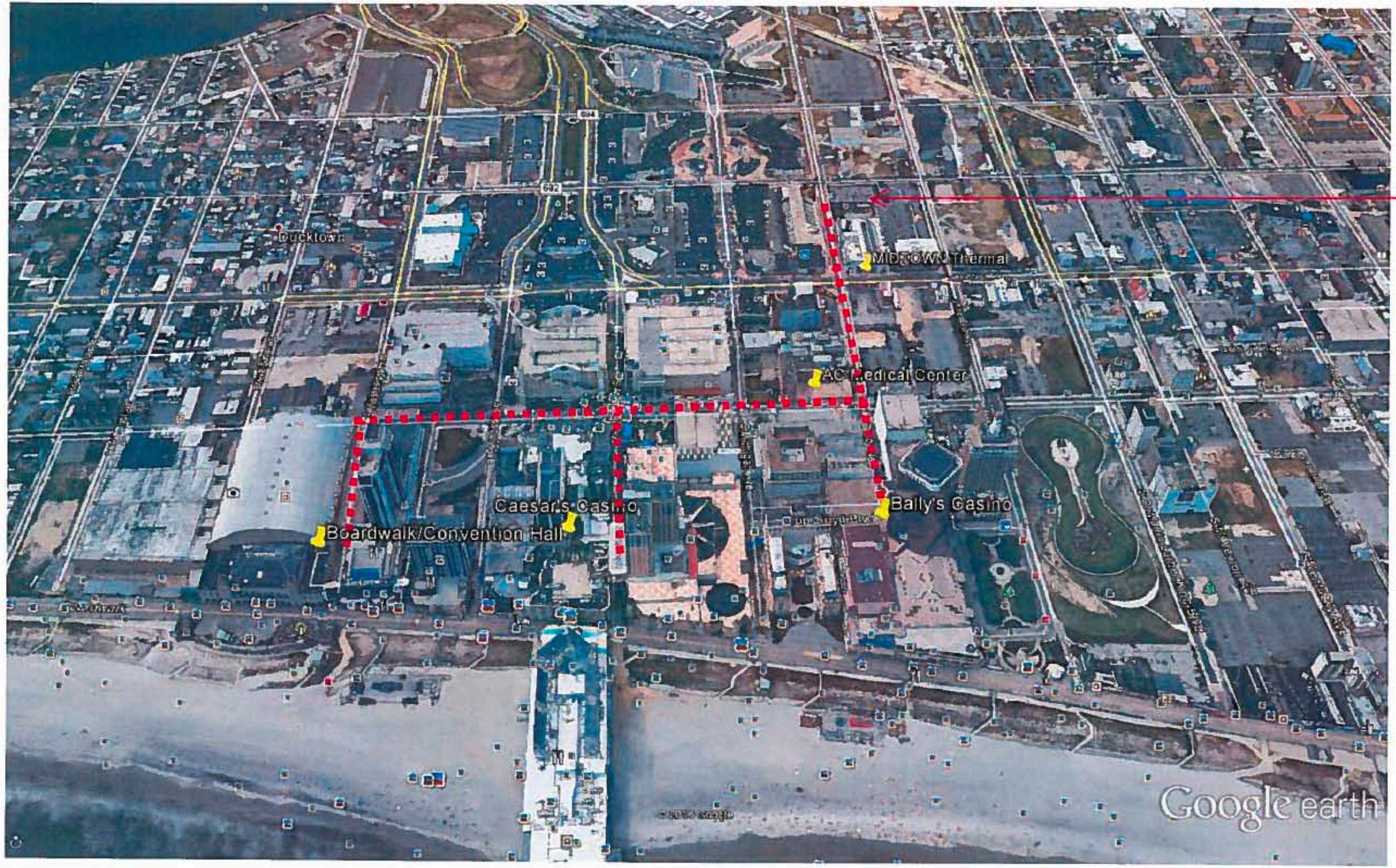


REV.	DATE	BY	DESCRIPTON
-	-	-	-

JOB NO.: XXXX
DRAWN: 11/8/2017
SCALE: NONE
DRAWING NO. PFD-1

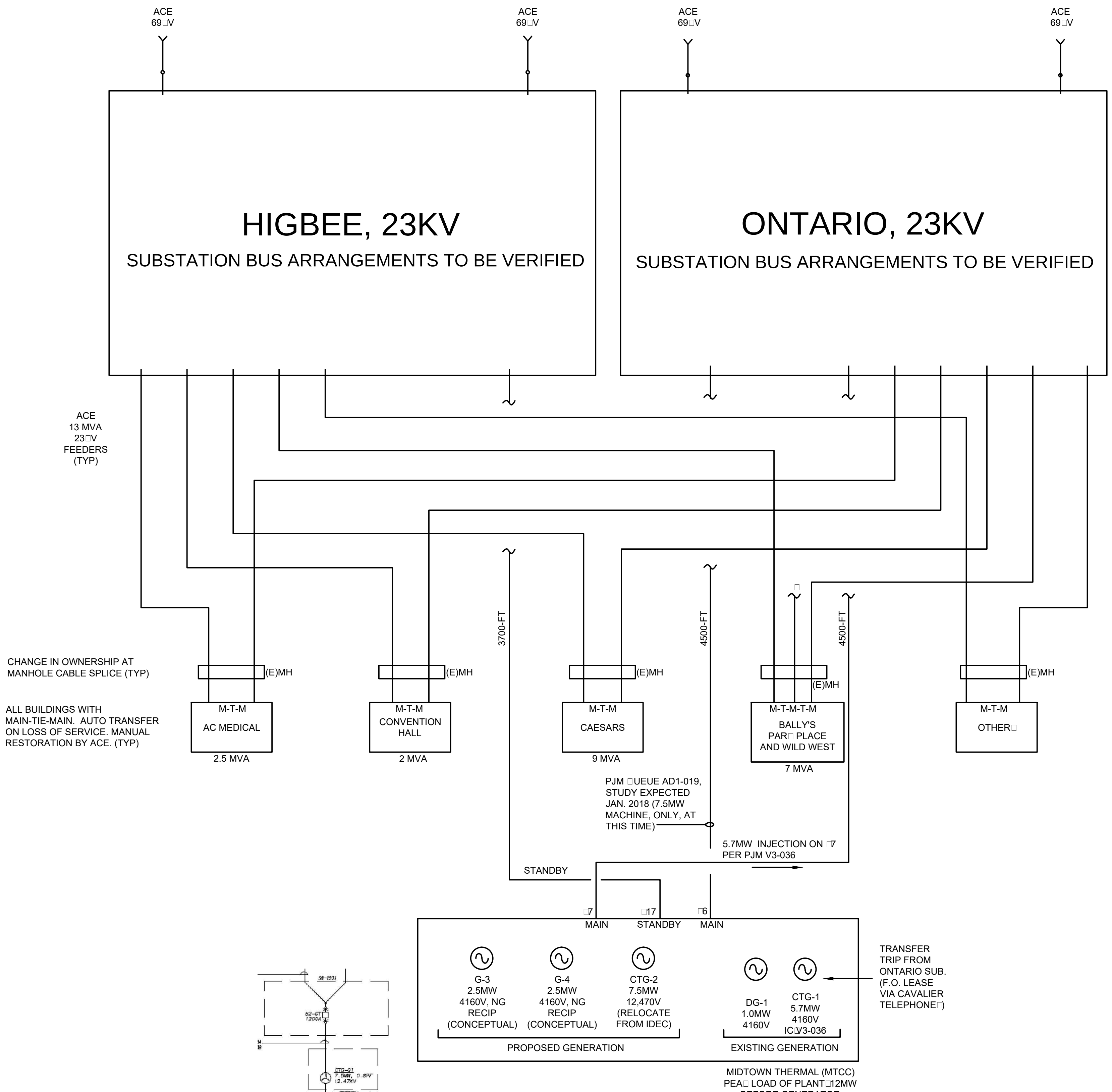
AC MICROGRID PROJECT
MIDTOWN ENGINE GENERATOR PLANT
PROCESS FLOW DIAGRAM

DCO Energy



Proposed Generation for AC Microgrid, Units 1 thru 4

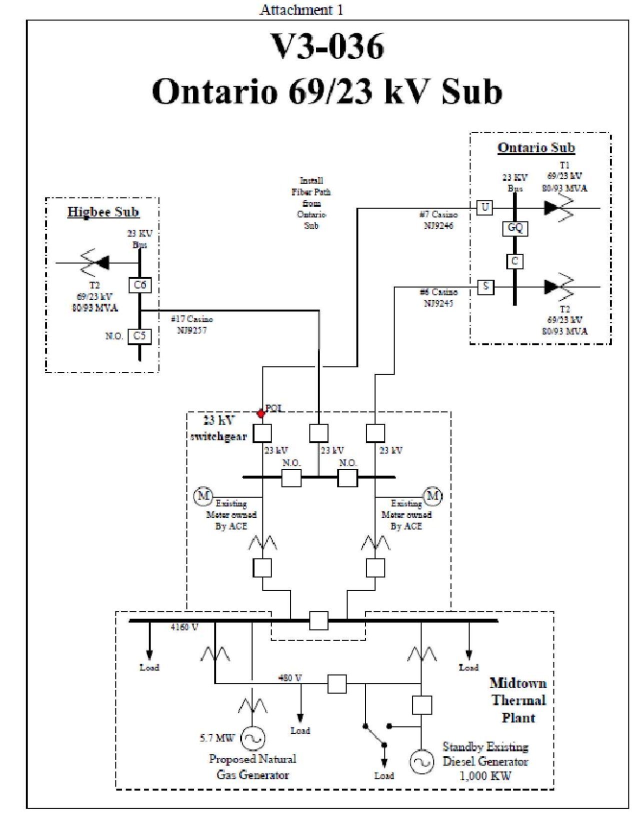
Ductbank for radial pathway with loop 23KV feeders (conceptual)



EXISTING - ONE-LINE DIAGRAM

23□V FEEDER CAPACITY (TYPICAL)□
13 MVA CONTINUOUS
21 MVA EMERGENCY UP TO 36-HRS

Attachment 1



PJMDOCS-#634013-v1
V3-036 Ontario 23kV

Project/Client

AC MICROGRID
CONCEPTUAL

mi·cro·grid
ˈmīkrōˌgrid/
noun
a small networ□ o□ electricity users with a local source o□ su□□ly that is usually attached to a centrali□ed national grid but is able to □unction inde□endently.

ISSUED FOR CONCEPT
DISCUSSIONS

Revision History

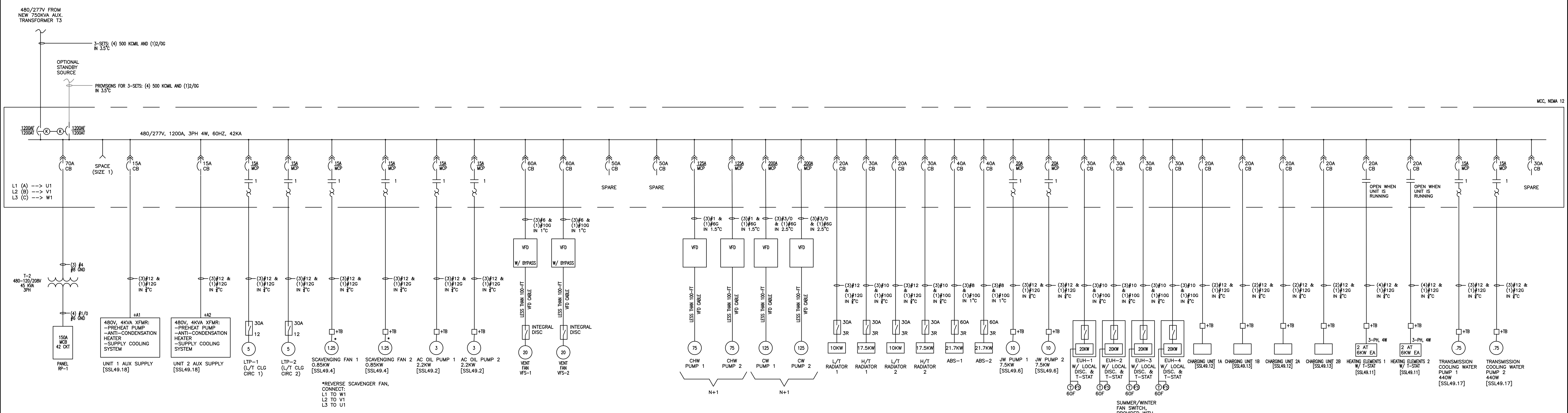
No.	Date	Description

Proj.#: AC MICRO	Drawn by: DS/□G
Scale: N/A	Check by: □G
Sheet: 1 o□1	App'd by:
Date: 8-9-17	Size: 24" x 36"

Drawing Title

ELECTRICAL
ONE-LINE DIAGRAM

Drawing Number	Rev
S□-1	A



Client

EPC

5429 Harding Highway
Bldg. 500
Mays Landing, NJ 08330

EPC Project No: 76414

EOR

Sustainable Engineering Services, LLC
5429 Harding Highway
Bldg. 500
Mays Landing, NJ 08330

Seal

I hearby certify that this document was prepared by me or under my direct supervision ant that I am a duly registered Professional Engineer under the laws of the State of New Jersey.

Signed:
Name: Joseph Ventre (NJ)
Date: License#: GE26367

Revision History

No.	Date	Description
A	10/24/17	FOR REVIEW
B	10/26/17	FOR REVIEW

Proj.#:	80500-443	Drawn by:	DS
Scale:	N/A	Check by:	G
Sheet:	1 of 1	Appv'd by:	G
Date:	10/24/17	Size:	24" x 36"

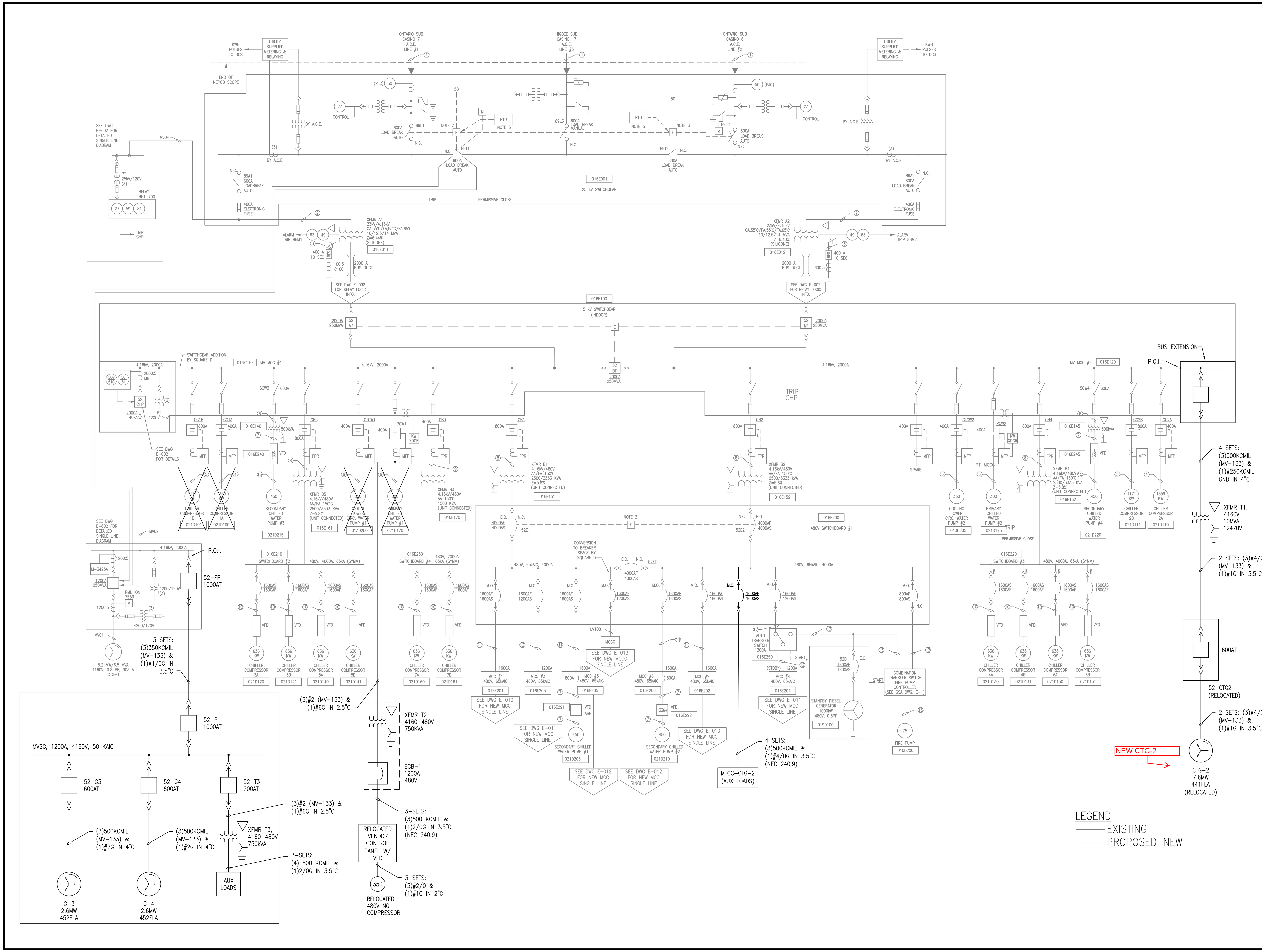
Project

AC MICROGRID
ATLANTIC CITY, NJ

Drawing Title

CONCEPTUAL MOTOR CONTROL CENTER

Drawing Number	Rev
E-003	B



Client

EPC

5429 Harding Highway
Bldg. 500
Mays Landing, NJ 08330

EPC Project No: 76414

EOR

SES
Sustainable Engineering Services, LLC
5429 Harding Highway
Bldg. 500
Mays Landing, NJ 08330

Seal

I hearby certify that this document was prepared by me or under my direct supervision ant that I am a duly registered Professional Engineer under the laws of the State of New Jersey.

Signed: ____________________

Name: Jose□h Ventre (NJ)

Date: __________ License#: GE26367

Revision History

No.	Date	Description
A	09/13/17	IN PROGRESS

Proj.#:	80500-443	Drawn by:	DS
Scale:	N/A	Check by:	□G
Sheet:	1 o□1	Appv'd by:	JV
Date:	09/13/17	Size:	24" x 36"

Project

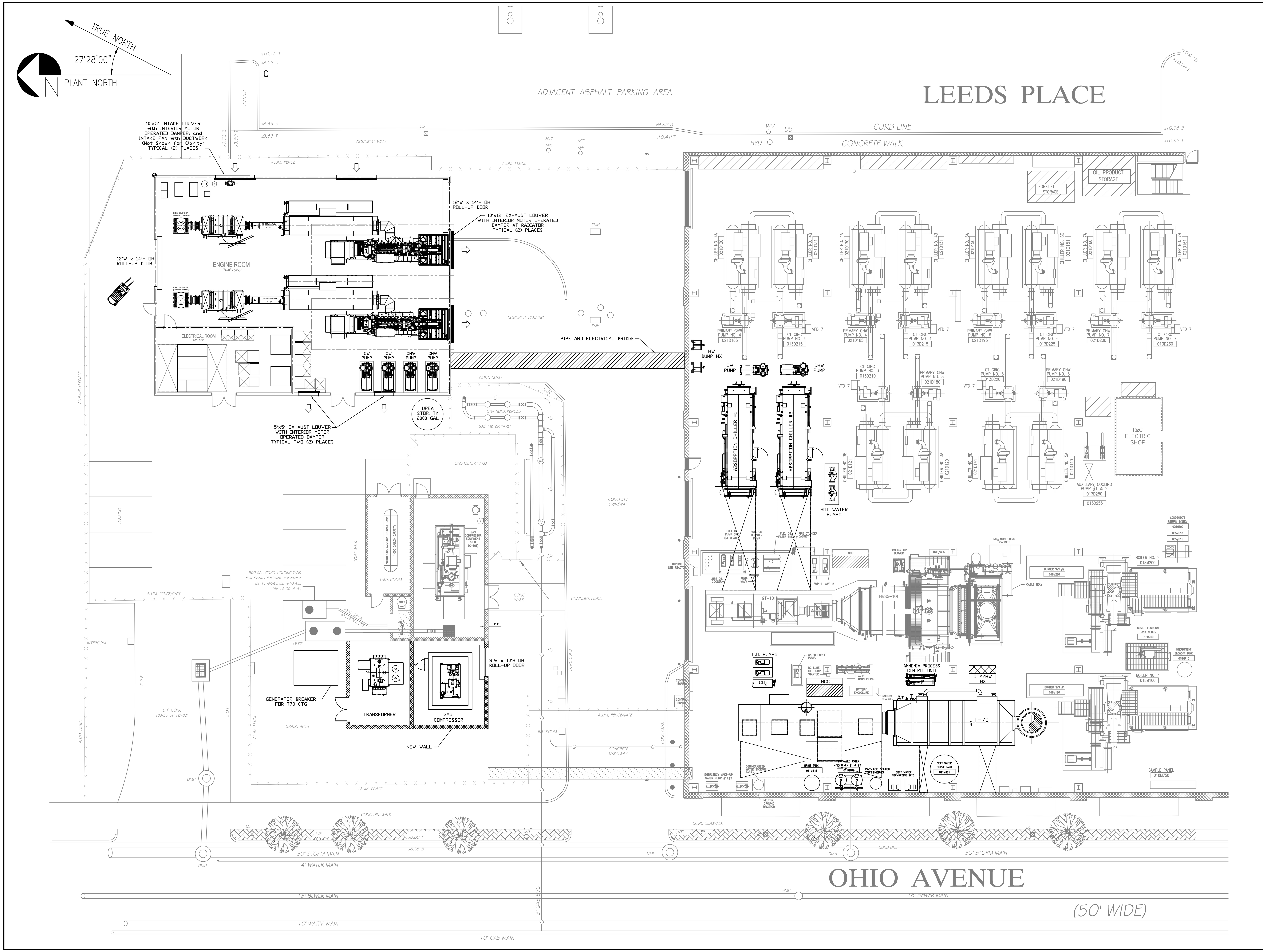
AC MICROGRID
ATLANTIC CITY, NJ

Drawing Title

CONCEPTUAL
SINGLE LINE DIAGRAM
MTCC IMPROVEMENTS

Drawing Number: E-002

Rev: A



EOR

SES
Sustainable Engineering Services, LLC

5429 Harding Highway
Bldg. 500
Mays Landing, NJ 08330

EPC

5429 Harding Highway
Bldg. 500
Mays Landing, NJ 08330

Project/Client

AC MICROGRID/ DCO ENERGY

09-19-2017

IN PROGRESS

Revision History

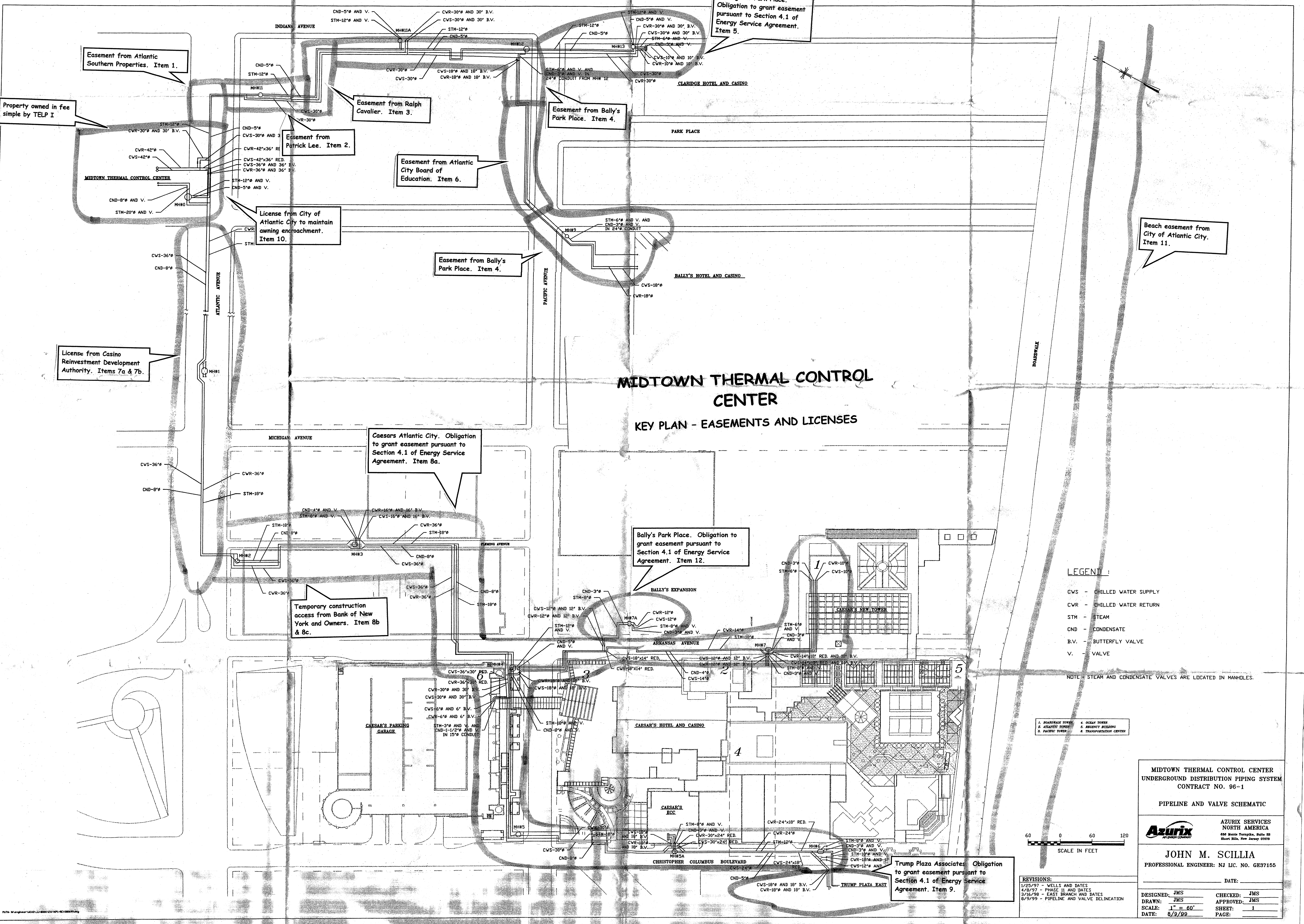
No.	Date	Description
A	7–21–17	REVIEW
B	9–19–17	REVISED CONCEPT

Proj.#: 80–500–434	Drawn by: EFP
Scale: 3/32"=1'-0"	Check by:
Sheet: 1 OF 1	Appv'd by:
Date: 9–15–17	Size: 24" x 36"

Drawing Title

GENERAL ARRANGMENT

Drawing Number	Rev
M-100	B



MIDTOWN THERMAL CONTROL CENTER
KEY PLAN - EASEMENTS AND LICENSES
Easement from Atlantic Southern Properties. Item 1.
Property owned in fee simple by TELP I
Easement from Patrick Lee. Item 2.
Easement from Ralph Cavalier. Item 3.
Easement from Bally's Park Place. Item 4.
Claridge at Park Place. Obligation to grant easement pursuant to Section 4.1 of Energy Service Agreement. Item 5.
Easement from Atlantic City Board of Education. Item 6.
License from City of Atlantic City to maintain awning encroachment. Item 10.
Easement from Bally's Park Place. Item 4.
Beach easement from City of Atlantic City. Item 11.
License from Casino Reinvestment Development Authority. Items 7a & 7b.
Caesars Atlantic City. Obligation to grant easement pursuant to Section 4.1 of Energy Service Agreement. Item 8a.
Bally's Park Place. Obligation to grant easement pursuant to Section 4.1 of Energy Service Agreement. Item 12.
Temporary construction access from Bank of New York and Owners. Item 8b & 8c.
Trump Plaza Associates. Obligation to grant easement pursuant to Section 4.1 of Energy Service Agreement. Item 9.
INDIANA AVENUE
PARK PLACE
ATLANTIC AVENUE
PACIFIC AVENUE
MICHIGAN AVENUE
ARKANSAS AVENUE
FLEMING AVENUE
CHRISTOPHER COLUMBUS BOULEVARD
BOARDWALK
CLARIDGE HOTEL AND CASINO
BALLY'S HOTEL AND CASINO
BALLY'S EXPANSION
CAESAR'S NEW TOWER
CAESAR'S HOTEL AND CASINO
CAESAR'S PARKING GARAGE
TRUMP PLAZA EAST
MIDTOWN THERMAL CONTROL CENTER
LEGEND:
CWS - CHILLED WATER SUPPLY
CWR - CHILLED WATER RETURN
STM - STEAM
CND - CONDENSATE
B.V. - BUTTERFLY VALVE
V. - VALVE
NOTE: STEAM AND CONDENSATE VALVES ARE LOCATED IN MANHOLES.
SCALE IN FEET
MIDTOWN THERMAL CONTROL CENTER
UNDERGROUND DISTRIBUTION PIPING SYSTEM
CONTRACT NO. 96-1
PIPELINE AND VALVE SCHEMATIC
AZURIX SERVICES NORTH AMERICA
JOHN M. SCILLIA
PROFESSIONAL ENGINEER: NJ LIC. NO. GE37155
REVISIONS:
1/25/97 - WELLS AND DATES
4/8/97 - PHASE II AND DATES
3/16/98 - EAST BRANCH AND DATES
8/9/99 - PIPELINE AND VALVE DELINEATION
DESIGNED: JMS
DRAWN: JMS
SCALE: 1" = 60'
DATE: 8/9/99
CHECKED: JMS
APPROVED: JMS
SHEET: 1

Cooling 6 yr Average

COOLING 6 YEAR AVERAGE															
			BUDGET	ACTUAL BILLED											
1	Caesars ETS1		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		243,742	215,582	**264,542**	**165,514**	**281,234**	**447,764**	**604,951**	**639,810**	**508,391**	**296,817**	**190,781**	**212,667**	4,071,795
	2017		373,297	414,221	395,195	184,553	291,519	466,448	625,344	589,372	465,955	380,289	174,842	156,651	4,517,686
	2016		323,691	338,449	242,497	152,663	239,881	430,384	601,754	608,121	462,831	289,888	146,035	238,407	4,074,601
	2015		173,232	174,362	155,935	159,327	312,302	446,461	587,755	574,954	508,333	246,807	200,336	169,169	3,708,973
	2014		221,925	233,438	250,340	206,376	317,570	475,975	544,703	528,857	461,909	297,091	159,659	151,565	3,849,408
	2013		234,562	261,804	277,142	220,652	313,247	527,023	712,052	656,036	482,182	369,443	206,102	211,243	4,471,488
	2012		264,488	258,676	220,065	226,220	421,761	544,131	732,608	700,759	508,498	348,044	237,352	240,876	4,703,477
	2011		233,908	190,909	191,574	227,387	441,638	623,468	797,986	744,762	622,257	344,657	234,820	191,328	4,844,694
	2010		265,347	203,366	187,489	251,393	447,458	691,587	716,049	811,523	647,931	367,959	194,573	229,123	5,013,798
	2009		301,346	237,226	242,024	239,082	363,771	547,493	670,911	768,694	509,178	338,670	257,009	279,553	4,754,957
	2008		238,836	228,000	228,364	268,190	373,747	622,279	712,826	684,482	592,091	525,407	280,004	248,772	5,002,998
	2007		297,838	243,368	255,118	246,116	396,024	574,507	718,098	746,616	601,032	536,378	250,397	236,630	5,102,122
		3 Year Average	**290,073**	**309,011**	**264,542**	**165,514**	**281,234**	**447,764**	**604,951**	**590,816**	**479,040**	**305,661**	**173,738**	**188,076**	**4,100,420**
2	Caesars ETS2		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		382,714	322,442	**372,902**	**291,608**	**464,721**	**693,811**	**901,169**	**939,749**	**779,388**	**499,510**	**335,940**	**330,204**	6,314,158
	2017		621,230	602,525	583,132	346,038	477,267	700,518	893,783	812,794	670,797	552,756	281,329	323,212	6,865,381
	2016		329,319	346,323	264,728	245,151	392,690	658,770	921,097	930,236	748,786	529,702	337,021	395,954	6,099,777
	2015		267,956	237,503	270,845	283,634	524,206	722,146	888,627	827,568	761,239	418,582	340,330	290,334	5,832,970
	2014		332,870	408,389	452,582	342,881	523,691	777,430	883,929	857,802	744,133	517,250	296,053	265,499	6,402,509
	2013		270,175	241,442	263,674	291,698	457,375	755,602	966,685	894,160	692,505	582,022	332,004	282,186	6,029,528
	2012		320,768	354,200	413,547	449,083	760,900	856,635	1,184,887	1,148,672	877,695	597,519	247,553	281,590	7,493,049
	2011		307,729	273,369	285,590	355,215	652,405	922,044	1,152,658	1,060,459	928,373	566,406	435,998	359,788	7,300,033
	2010		327,108	247,274	304,719	402,445	633,593	915,466	973,471	1,007,400	824,062	499,825	303,814	261,516	6,700,693
	2009		365,830	337,762	360,252	369,703	595,448	878,365	1,068,338	1,196,521	818,063	505,458	332,983	336,544	7,165,267
	2008		389,718	354,910	319,129	367,090	547,807	1,056,855	1,179,370	1,127,280	986,310	768,006	393,910	308,603	7,798,988
	2007		422,887	387,764	372,403	372,755	581,339	899,304	1,098,276	1,140,306	905,133	795,183	337,915	366,150	7,679,415
		3 Year Average	**406,168**	**395,450**	**372,902**	**291,608**	**464,721**	**693,811**	**901,169**	**856,866**	**726,941**	**500,347**	**319,560**	**336,500**	**6,266,043**
3	Caesars ETS3		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		209,478	168,797	**231,466**	**201,453**	**265,378**	**340,294**	**432,055**	**444,672**	**367,547**	**250,157**	**192,011**	**191,630**	3,294,937
	2017		319,064	299,308	287,250	197,599	239,743	335,835	441,722	410,410	341,491	288,615	194,998	167,363	3,523,398
	2016		196,896	211,187	206,873	189,909	255,156	348,707	460,758	474,862	370,771	252,226	167,793	216,186	3,351,324
	2015		184,834	156,898	200,276	216,850	301,236	336,339	393,684	374,836	354,947	245,752	232,491	200,186	3,198,329
	2014		185,679	173,169	189,442	206,835	305,476	395,697	425,071	437,200	341,920	261,070	205,253	247,389	3,374,201
	2013		135,451	199,234	220,933	206,261	276,110	386,752	471,964	380,075	292,253	251,854	170,536	152,651	3,144,074
	2012		172,982	187,491	193,889	194,413	295,419	354,293	459,190	434,075	304,872	203,652	127,538	132,551	3,060,365
	2011		181,783	272,868	242,512	250,489	349,676	470,243	582,331	525,387	447,763	242,471	182,818	161,385	3,909,726
	2010		205,005	207,124	214,464	227,856	335,208	482,869	397,149	476,275	402,269	256,150	155,089	118,762	3,478,220
	2009		26,157	24,378	32,895	37,426	47,119	56,170	75,249	87,178	63,629	51,152	42,848	29,598	573,799
	2008		27,124	26,310	29,693	44,933	54,116	72,331	81,872	82,517	75,183	48,815	41,701	31,294	615,889
	2007		24,102	14,998	23,048	27,549	37,198	42,997	58,246	63,422	55,703	50,267	35,157	32,112	464,799
		3 Year Average	**233,598**	**222,464**	**231,466**	**201,453**	**265,378**	**340,294**	**432,055**	**420,036**	**355,736**	**262,198**	**198,427**	**194,578**	**3,357,684**
6	Caesars ETS6		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		20,366	24,242	**26,293**	**29,860**	**39,431**	**53,258**	**70,707**	**72,326**	**60,455**	**46,821**	**34,483**	**30,039**	508,280

Cooling 6 yr Average

	2017		29,203	25,751	29,037	35,333	43,918	59,175	73,149	70,914	59,886	51,642	31,997	26,536	536,541
	2016		23,281	18,183	26,689	27,840	35,497	53,669	74,526	76,767	60,346	46,987	31,979	28,873	504,637
	2015		21,576	17,782	23,152	26,407	38,877	46,931	64,445	68,431	60,766	45,747	35,280	31,836	481,230
	2014		19,673	17,630	20,756	25,149	35,141	47,408	58,800	57,943	53,628	43,915	29,657	27,856	437,556
	2013		28,692	25,605	28,465	30,485	36,859	49,204	67,112	64,584	52,226	41,932	28,620	24,076	477,860
	2012		29,217	24,758	30,128	30,501	38,776	48,339	65,170	63,632	53,775	41,355	29,634	29,849	485,135
	2011		27,190	25,841	31,849	33,144	44,471	68,313	83,733	81,341	69,124	52,856	38,439	34,897	591,197
	2010		26,032	22,671	31,507	40,248	52,941	71,074	60,417	62,159	62,510	51,349	41,405	28,624	550,937
	2009		26,157	24,378	32,895	37,426	47,119	56,170	75,249	87,178	63,629	51,152	42,848	29,598	573,799
	2008		27,124	26,310	29,693	44,933	54,116	72,331	81,872	82,517	75,183	48,815	41,701	31,294	615,889
	2007		24,102	14,998	23,048	27,549	37,198	42,997	58,246	63,422	55,703	50,267	35,157	32,112	464,799
		3 Year Average	**24,687**	**20,572**	**26,293**	**29,860**	**39,431**	**53,258**	**70,707**	**72,037**	**60,333**	**48,125**	**33,085**	**29,082**	**507,469**
11	**Caesars ETS11**		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
	2018		13,619	12,161	19,186	19,060	31,130	49,366	62,896	66,559	53,973	32,984	19,685	21,138	401,756
	2017		20,776	21,863	21,574	14,818	25,816	43,973	59,008	49,369	41,212	31,201	13,534	11,097	354,241
	2016		20,327	17,299	20,288	20,870	26,627	43,256	63,751	68,541	50,824	28,735	12,456	15,446	388,420
	2015		16,084	11,191	15,696	21,492	40,947	60,868	65,929	66,356	56,469	35,277	28,493	29,692	448,494
	2014		17,606	17,717	20,549	21,912	39,975	54,706	58,436	58,355	52,124	40,027	19,018	16,250	416,675
	2013		20,102	17,835	21,850	21,177	32,464	52,306	66,915	58,679	42,276	35,529	15,444	14,809	399,386
	2012		24,067	22,263	29,410	30,201	45,851	53,799	61,879	60,727	46,643	30,807	20,972	24,707	451,326
	2011		14,193	10,896	11,955	16,414	33,078	49,187	64,531	62,454	57,641	35,587	27,287	26,003	409,227
	2010		9,036	10,230	9,952	15,272	28,841	54,014	50,378	79,730	69,060	36,242	14,819	15,744	393,318
	2009		13,785	11,467	12,165	15,230	24,701	36,223	55,949	62,312	57,508	36,531	12,001	10,114	347,986
	2008		12,681	12,486	11,571	18,504	21,970	50,222	63,247	61,327	48,296	31,552	17,318	15,197	364,371
	2007		13,243	12,286	12,492	13,117	24,385	46,662	57,462	58,583	40,329	34,493	12,441	10,613	336,106
		3 Year Average	**19,062**	**16,784**	**19,186**	**19,060**	**31,130**	**49,366**	**62,896**	**61,422**	**49,502**	**31,738**	**18,161**	**18,745**	**397,052**
4	**Claridge**		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
	2018		145,082	143,793	147,526	157,309	196,636	268,772	334,362	329,018	304,890	217,222	185,231	176,166	2,606,007
	2017		167,983	172,613	152,162	184,598	236,245	310,544	366,225	329,778	291,982	255,688	139,402	110,361	2,717,581
	2016		111,498	113,172	132,122	149,391	189,533	265,409	328,101	296,245	330,036	235,874	183,353	167,758	2,502,492
	2015		124,301	129,849	158,295	137,938	164,129	230,362	308,760	269,152	227,903	116,328	127,568	119,804	2,114,389
	2014		232,833	247,730	196,738	197,700	214,937	292,889	363,548	387,876	334,043	255,018	151,106	136,649	3,011,067
	2013		266,803	237,311	273,716	291,641	340,422	408,680	491,998	454,811	411,024	355,920	258,006	233,800	4,024,132
	2012		289,556	260,138	281,648	275,732	286,005	358,781	447,596	462,844	374,075	305,146	200,360	270,509	3,812,390
	2011		201,397	224,891	394,675	390,696	464,575	488,678	550,271	523,869	461,542	389,819	331,765	323,240	4,745,418
	2010		136,928	116,398	98,938	166,748	313,675	352,277	341,711	367,094	319,304	254,986	244,220	216,043	2,928,322
	2009		293,159	246,074	221,423	196,174	234,465	236,490	268,306	299,660	217,715	191,451	189,514	161,090	2,755,521
	2008		325,831	316,645	350,813	337,072	343,645	449,895	463,971	436,116	399,178	360,348	273,268	294,768	4,351,550
	2007		349,790	306,536	350,340	347,260	407,206	461,591	537,944	539,278	456,951	125,692	318,320	317,948	4,518,856
		3 Year Average	**134,594**	**138,545**	**147,526**	**157,309**	**196,636**	**268,772**	**334,362**	**298,392**	**283,307**	**202,630**	**150,108**	**132,641**	**2,444,821**
5	**Ballys Park Place - MTCC**		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
	2018		660,972	689,457	879,991	861,726	926,517	280,056	521,227	741,104	696,563	1,142,719	822,953	735,261	8,958,544
	2017		827,215	800,392	828,946	953,179	852,475	136,337	217,882	149,523	198,097	1,393,976	858,852	752,655	7,969,529
	2016		820,394	895,694	960,521	838,182	1,004,962	341,365	771,458	857,550	450,583	1,264,015	787,640	740,323	9,732,687
	2015		741,221	674,604	850,507	793,817	922,114	362,466	574,341	299,992	341,544	1,137,866	938,914	812,763	8,450,148
	2014		674,326	690,354	817,791	811,238	1,197,300	756,702	273,930	152,414	268,251	1,269,181	833,473	910,420	8,655,380
	2013		634,557	549,974	624,421	735,857	879,075	397,119	382,034	195,880	249,793	1,229,397	674,554	664,524	7,217,185
	2012		658,773	671,915	776,267	887,628	-	455,884	864,342	745,543	406,270	432,205	616,788	684,284	7,199,899
	2011		520,012	530,744	658,355	886,651	1,637,312	2,224,733	656,914	733,695	2,087,716	1,350,236	878,202	720,295	12,884,865

Cooling 6 yr Average

	2010		665,844	591,237	800,900	1,014,180	1,526,778	1,580,774	668,582	440,701	360,549	865,917	703,472	535,780	9,754,714
	2009		752,660	716,042	897,806	1,101,185	1,533,871	1,999,088	2,324,142	975,609	1,864,932	1,253,618	838,507	658,595	14,916,055
	2008		1,296,216	1,229,406	1,120,890	1,329,543	1,516,454	861,671	341,778	390,098	1,023,526	1,286,616	846,265	777,762	12,020,225
	2007		1,174,362	1,001,195	1,235,825	1,277,879	1,770,777	1,952,073	458,959	477,525	1,125,838	2,096,591	1,283,192	1,173,889	15,028,105
		3 Year Average	**796,277**	**790,230**	**879,991**	**861,726**	**926,517**	**280,056**	**521,227**	**435,688**	**330,075**	**1,265,286**	**861,802**	**768,580**	**8,717,455**
5	**Ballys Park Place- On Site**		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
	2018		-	-	-	-	**308,229**	**1,486,240**	**1,693,897**	**1,774,837**	**1,464,378**	**159,223**	-	-	6,886,803
	2017		-	-	-	-	344,214	1,606,135	1,964,405	1,795,047	1,461,797	-	-	-	7,171,598
	2016		-	-	-	-	138,152	1,400,123	1,462,828	1,424,852	1,319,821	-	-	-	5,745,776
	2015		-	-	-	-	442,320	1,452,463	1,654,458	1,826,466	1,497,234	-	-	-	6,872,941
	2014		-	-	-	-	-	1,104,523	1,865,965	1,930,442	1,513,438	-	-	-	6,414,368
	2013		-	-	-	-	346,181	1,811,369	2,293,637	2,237,414	1,518,548	-	-	-	8,207,149
	2012		-	-	-	-	-	1,822,068	1,899,861	1,908,971	1,633,607	955,337	-	-	8,219,844
	2011							-	2,405,156	1,918,822	-	-	-	-	4,323,978
	2010		-	-	-	-	-	864,531	2,381,924	2,332,067	1,984,016	389,153	-	-	7,951,691
	2009		-	-	-	-	-	-	197,946	1,949,754	-	-	-	-	2,147,700
	2008		-	-	-	-	-	1,451,370	2,350,416	2,313,964	1,294,323	-	-	-	7,410,073
	2007		-	-	-	-	-	279,856	2,389,579	2,404,178	1,222,963	-	-	-	6,296,576
		3 Year Average	**-**	**-**	**-**	**-**	**308,229**	**1,486,240**	**1,693,897**	**1,682,122**	**1,426,284**	**-**	**-**	**-**	**6,596,772**
5	**Ballys Park Place- Total**		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
	2018		660,972	689,457	**879,991**	**861,726**	**1,234,746**	**1,766,296**	**2,215,124**	**2,515,940**	**2,160,940**	**1,301,941**	**822,953**	**735,261**	15,845,347
	2017		827,215	800,392	828,946	953,179	1,196,689	1,742,472	2,182,287	1,944,570	1,659,894	1,393,976	858,852	752,655	15,141,127
	2016		820,394	895,694	960,521	838,182	1,143,114	1,741,488	2,234,286	2,282,402	1,770,404	1,264,015	787,640	740,323	15,478,463
	2015		741,221	674,604	850,507	793,817	1,364,434	1,814,928	2,228,799	2,126,458	1,838,778	1,137,866	938,914	812,763	15,323,088
	2014		674,326	690,354	817,791	811,238	1,197,300	1,861,225	2,139,895	2,082,856	1,781,689	1,269,181	833,473	910,420	15,069,748
	2013		634,557	549,974	624,421	735,857	1,225,256	2,208,488	2,675,670	2,433,294	1,768,341	1,229,397	674,554	664,524	15,424,334
	2012		658,773	671,915	776,267	887,628	1,582,045	2,277,952	2,764,203	2,654,514	2,039,877	1,387,542	616,788	684,284	17,001,787
	2011														-
	2010														-
	2009														-
	2008														-
	2007														-
		3 Year Average	**796,277**	**790,230**	**879,991**	**861,726**	**1,234,746**	**1,766,296**	**2,215,124**	**2,117,810**	**1,756,359**	**1,265,286**	**861,802**	**768,580**	**15,314,226**
7	**Bally Wild Wild West**		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
	2018		210,260	199,728	**142,045**	**151,172**	**212,773**	**346,137**	**465,784**	**480,451**	**351,421**	**186,853**	**143,473**	**131,586**	3,021,684
	2017		115,679	106,595	121,576	145,364	219,003	338,726	463,886	410,205	330,330	254,336	192,234	200,726	2,898,660
	2016		145,309	152,776	146,392	181,369	220,412	351,961	468,386	515,388	363,386	224,856	122,818	121,222	3,014,275
	2015		107,387	123,565	158,167	126,784	198,904	347,725	465,081	398,649	352,602	141,409	153,605	148,847	2,722,724
	2014		121,049	112,228	87,176	87,086	128,992	303,655	410,206	379,631	307,149	207,638	124,325	122,294	2,391,426
	2013		96,714	116,344	128,599	127,467	158,432	342,347	438,415	394,563	295,654	251,269	164,255	125,428	2,639,486
	2012		256,412	181,678	260,713	277,449	366,296	411,691	707,508	614,516	295,046	121,273	82,176	103,269	3,678,026
	2011		165,129	158,359	189,941	236,446	374,433	469,953	548,555	514,187	425,954	231,362	214,363	130,573	3,659,255
	2010		267,277	250,430	347,427	280,240	358,158	474,789	332,232	446,397	294,870	134,898	101,175	100,132	3,388,025
	2009		212,498	202,506	224,832	231,808	231,940	491,489	577,657	666,917	379,848	232,669	208,017	164,037	3,824,218
	2008		127,606	158,634	203,968	253,822	294,650	495,214	563,127	649,068	521,125	256,910	207,969	210,942	3,943,035
	2007		132,310	111,714	176,003	210,636	351,263	615,819	840,046	842,906	623,476	485,595	165,374	129,532	4,684,674
		3 Year Average	**122,792**	**127,645**	**142,045**	**151,172**	**212,773**	**346,137**	**465,784**	**441,414**	**348,773**	**206,867**	**156,219**	**156,932**	**2,878,553**
8	**Trump East ETS 8**		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	

Cooling 6 yr Average

	2018		20,623	23,436	**23,888**	**22,665**	**31,873**	**43,248**	**55,509**	**63,920**	**52,792**	**23,172**	**29,935**	**26,910**	417,972
	2017		21,978	23,511	19,535	15,424	26,633	38,726	55,837	50,751	41,032	34,605	24,291	17,980	370,303
	2016		19,778	24,024	30,206	27,175	28,460	44,620	56,590	71,845	55,611	7,417	26,452	25,209	417,387
	2015		15,949	14,163	21,923	25,395	40,526	46,399	54,100	59,958	51,383	31,050	31,676	27,761	420,283
	2014		43,286	43,494	62,526	75,625	91,261	169,753	241,534	230,281	199,161	170,030	61,121	30,060	1,418,132
	2013		47,994	45,002	61,013	70,940	110,152	186,121	267,542	237,747	174,929	141,664	70,259	42,105	1,455,468
	2012		58,238	57,662	78,785	85,720	127,600	176,999	252,366	236,869	168,815	104,484	56,967	57,802	1,462,306
	2011		79,205	73,843	57,488	85,990	177,392	248,926	269,868	187,911	170,372	87,143	88,870	68,889	1,595,897
	2010		70,352	65,983	84,291	88,540	143,340	235,236	275,725	289,156	197,246	112,082	74,326	84,724	1,721,001
	2009		82,456	78,275	98,626	105,640	151,425	221,425	305,713	337,338	220,952	127,891	91,544	64,917	1,886,202
	2008		85,736	81,819	100,312	106,724	134,915	251,774	277,175	283,824	243,885	185,821	99,658	84,156	1,935,799
	2007		97,948	78,255	98,786	107,067	162,130	235,253	263,529	307,014	240,838	198,033	90,475	91,006	1,970,334
		3 Year Average	**19,235**	**20,566**	**23,888**	**22,665**	**31,873**	**43,248**	**55,509**	**60,851**	**49,342**	**24,357**	**27,473**	**23,650**	**402,658**
9	**Trump Plaza ETS 9**		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Totals**
	2018		10,626	8,224	**116,075**	**98,678**	**158,699**	**250,950**	**278,565**	**372,291**	**294,420**	**148,456**	**164,875**	**128,117**	**2,029,978**
	2017		129,344	116,415	111,811	73,403	76,482	105,434	133,669	128,002	114,257	101,915	23,389	9,421	1,123,542
	2016		66,557	89,252	113,927	113,333	198,374	317,102	269,296	440,660	351,279	230,929	212,032	132,672	2,535,413
	2015		94,021	108,343	122,488	109,297	201,241	330,315	432,731	338,107	265,991	107,220	141,296	125,840	2,376,890
	2014		327,651	260,503	317,557	383,011	609,315	905,352	1,050,556	874,490	683,558	424,614	178,475	129,999	6,145,081
	2013		215,278	200,692	261,817	420,950	570,059	740,108	1,031,365	941,463	770,987	613,346	366,151	346,947	6,479,163
	2012		221,935	205,980	354,683	411,037	616,519	721,890	1,019,076	939,452	681,920	430,796	238,840	282,577	6,124,705
	2011		282,324	329,803	319,254	440,485	695,551	798,889	990,564	885,647	729,121	413,486	315,044	238,498	6,438,666
	2010		321,408	250,168	301,160	388,394	605,510	841,938	945,661	907,598	806,222	491,339	355,000	239,935	6,454,333
	2009		298,132	235,501	314,152	365,704	519,311	728,092	968,028	1,131,191	702,492	504,756	384,248	274,927	6,426,534
	2008		496,091	459,059	454,910	480,303	580,970	877,165	991,321	939,599	798,124	641,590	378,363	311,568	7,409,063
	2007		397,303	275,581	403,884	479,096	669,970	819,902	1,010,882	1,061,621	837,197	721,229	427,431	478,188	7,582,284
		3 Year Average	**96,641**	**104,670**	**116,075**	**98,678**	**158,699**	**250,950**	**278,565**	**302,256**	**243,842**	**146,688**	**125,572**	**89,311**	**2,011,948**
10	**Boardwalk Hall**		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
	2018		92,524	41,121	**15,358**	**4,121**	**14,249**	**52,517**	**132,404**	**115,761**	**120,952**	**13,177**	**8,562**	**10,191**	620,937
	2017		26,015	35,236	36,237	12,120	21,654	46,001	191,704	182,525	127,126	72,795	25,610	46,313	823,336
	2016		6,510	9,633	11,911	10	5,816	80,359	164,261	226,601	196,759	20,972	2,566	12,534	737,932
	2015		15,784	4,784	13,285	4,353	29,527	83,708	173,651	154,238	229,389	13,641	10,234	2,373	734,967
	2014		19,137	78,972	64,872	17,339	40,907	77,105	106,739	130,609	187,103	61,397	152,494	76,887	1,013,561
	2013		43,296	38,070	46,654	4,752	11,136	22,456	93,796	81,641	110,511	29,627	11,941	3,398	497,278
	2012		58,105	41,423	53,144	171	16,396	25,877	71,328	122,906	68,135	42,159	70,510	36,387	606,541
	2011		49,667	47,780	52,095	4,356	5,040	29,927	65,314	66,259	37,730	8,480	11,195	11,724	389,567
	2010		3,050	2,486	4,949	3,458	3,986	33,875	70,516	74,008	32,411	7,036	13,569	75,000	324,344
	2009		355	788	1,654	-	2,714	21,610	36,880	66,215	39,521	3,170	22	2,772	175,701
	2008		8,656	4,311	7,035	1,869	31,330	34,383	74,844	89,704	29,410	21,573	398	4,730	308,243
	2007		-	-	4,372	-	3,621	57,634	107,994	81,223	69,307	47,635	19,043	9,813	400,642
		3 Year Average	**16,103**	**16,551**	**20,478**	**5,494**	**18,999**	**70,023**	**176,539**	**187,788**	**184,425**	**35,803**	**12,803**	**20,407**	**765,412**
12	**Pier at Caesars**		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
	2018		49,901	48,659	**92,209**	**108,353**	**175,347**	**245,017**	**401,603**	**414,197**	**306,916**	**187,037**	**143,906**	**128,538**	2,301,684
	2017		86,268	79,090	83,238	97,060	215,996	160,032	410,140	290,930	249,000	155,000	69,591	48,806	1,945,151
	2016		93,329	87,410	105,540	120,313	156,036	250,259	361,960	368,827	234,873	145,579	94,436	90,082	2,108,644
	2015		99,511	77,714	87,849	107,687	154,009	324,759	432,710	400,688	322,719	151,154	133,037	118,708	2,410,545
	2014		131,603	113,782	132,226	159,235	220,345	296,952	335,866	337,164	281,618	191,551	128,213	131,512	2,460,067
	2013		128,465	125,729	146,538	167,721	223,525	323,265	409,312	374,857	297,715	235,010	168,483	143,946	2,744,566

Cooling 6 yr Average

2012		148,640	150,605	192,930	200,622	249,495	336,836	443,125	431,501	337,813	219,945	138,462	143,861	2,993,835
	3 Year Average	**93,036**	**81,405**	**92,209**	**108,353**	**175,347**	**245,017**	**401,603**	**353,482**	**268,864**	**150,578**	**99,021**	**85,865**	**2,154,780**
ACCC		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
2018			1,144		**32,668**	**11,818**	**112,722**	**87,659**	**94,984**	**129,701**	**22,764**	**7,024**	**500**	500,984
2017		-	-	-	53,781	12,422	116,990	97,738	114,695	83,549	84,242	4,097	4,152	571,666
2016		-	-	-	11,555	11,214	108,453	77,580	135,386	191,583	22,120	12,822	-	570,713
2015		-	-	89	4,288	45,244	73,150	74,144	65,553	107,383	29,211	30,507	-	429,568
2014		-	-	-	6,045	13,984	68,583	17,848	24,259	146,391	49,760	9,522	-	336,392
2013		-	-	-	5,621	28,853	77,002	71,742	68,926	76,682	44,934	5,095	-	378,854
2012		-	-	-	2,220	30,314	48,296	72,165	64,462	83,168	24,129	-	2,240	326,994
2011		-	-	-	1,858	9,493	125,349	66,820	51,114	61,145	27,431	1,033	2,761	347,004
2010		-	-	-	-	16,843	112,240	162,004	15,980	55,236	13,866	-	-	376,169
2009		-	-	-	-	-	45,042	65,196	72,428	62,868	6,679	-	-	252,213
2008		-	-	-	2,132	3,090	151,465	169,345	52,248	135,313	11,615	4,376	-	529,584
2007		-	-	-	2,137	7,301	117,547	161,224	135,119	162,668	70,728	1,247	-	657,971
	3 Year Average	**-**	**-**	**30**	**23,208**	**22,960**	**99,531**	**83,154**	**105,211**	**127,505**	**45,191**	**15,809**	**1,384**	**523,982**
Wilmington - Justice		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
2018		107,410	107,697	**84,218**	**135,206**	**199,642**	**260,462**	**310,520**	**305,854**	**231,458**	**135,429**	**83,115**	**69,346**	2,030,357
2017		68,411	84,442	99,908	168,211	214,623	299,015	333,616	310,731	257,781	220,370	129,142	102,133	2,288,383
2016		43,892	51,104	95,002	105,295	155,912	250,854	327,055	357,255	239,255	158,737	94,070	73,583	1,952,014
2015		45,626	41,465	57,743	132,112	228,390	231,516	270,890	245,388	218,089	107,340	84,807	76,687	1,740,053
2014		50,200	45,740	58,685	100,022	194,912	261,097	294,959	273,391	256,546	178,711	69,587	60,147	1,843,995
2013		47,177	39,114	45,397	101,446	193,325	293,694	367,790	309,813	245,031	178,256	79,430	65,383	1,965,855
2012		52,315	49,640	101,072	94,544	206,466	238,069	311,001	285,596	208,507	138,228	47,690	50,967	1,784,095
2011		43,732	52,413	73,104	121,846	210,637	273,134	325,820	283,180	248,150	135,903	94,481	68,405	1,930,805
2010		61,949	49,206	84,010	128,974	187,639	274,990	356,170	312,236	249,150	131,550	65,275	45,589	1,946,738
2009		60,565	53,896	61,425	113,395	227,206	320,421	344,238	383,771	234,317	117,120	65,465	58,497	2,040,316
2008		58,778	54,660	69,123	155,305	210,482	383,869	435,228	370,999	332,214	259,392	107,334	68,163	2,505,547
2007		103,653	40,671	75,999	102,424	236,651	351,652	421,054	437,599	349,410	286,177	82,720	54,867	2,542,877
	3 Year Average	**52,643**	**59,004**	**84,218**	**135,206**	**199,642**	**260,462**	**310,520**	**304,458**	**238,375**	**162,149**	**102,673**	**84,134**	**1,993,483**
Wilmington - King Street		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
2018		-	**-**	**1,363**	**11,414**	**32,755**	**63,021**	**94,918**	**92,241**	**63,398**	**18,164**	**1,789**	**-**	379,063
2017		-	-	1,083	20,725	24,102	65,410	93,387	89,500	66,621	46,494	6,176	-	413,498
2016		-	-	3,006	11,680	26,493	59,473	100,884	112,653	74,649	23,682	-	-	412,520
2015		-	-	-	1,838	47,669	64,180	90,483	84,897	64,523	13,846	5,368	-	372,804
2014		-	0	-	2,913	24,073	51,351	68,744	56,433	46,600	15,059	75	-	265,248
2013		-	-	0	11,922	27,421	51,310	94,947	68,397	43,701	13,994	-	-	311,694
2012		-	-	9,210	10,204	47,575	62,423	88,727	75,956	48,115	12,098	-	-	354,308
2011		-	-	-	16,215	46,173	69,965	94,970	78,610	49,896	16,243	554	-	372,626
2010		728	-	10,606	31,172	49,560	86,423	93,606	79,341	57,975	20,934	1,866	-	432,211
2009		4	830	1,689	23,284	32,122	58,649	82,000	93,561	55,418	21,553	9,558	1,240	379,908
2008		1,655	1,375	2,688	24,402	34,288	77,594	92,398	70,991	57,831	32,273	19,843	4,059	419,397
2007		4,057	797	9,214	14,484	50,779	80,374	91,513	95,488	70,829	57,484	15,352	72	490,443
	3 Year Average	**-**	**-**	**1,363**	**11,414**	**32,755**	**63,021**	**94,918**	**95,683**	**68,598**	**28,007**	**3,848**	**-**	**399,607**

S:\Historical Average Production

Thermal 6 yr Average

THERMAL 6 YEAR AVERAGE															
			BUDGET	ACTUAL BILLED											
1	Caesars ETS1		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		6,110	3,352	**2,846**	**2,197**	**1,172**	**1,034**	**972**	**1,338**	**1,478**	**1,527**	**1,830**	**3,106**	26,960
	2017		3,901	3,307	3,849	3,369	1,061	1,056	1,072	1,182	1,155	1,260	1,551	2,748	25,511
	2016		3,968	3,935	2,496	1,648	1,299	1,042	952	932	947	1,182	1,509	2,960	22,870
	2015		2,806	2,929	2,192	1,574	1,155	1,004	893	893	859	1,190	1,310	1,463	18,267
		3 year Average	**3,558**	**3,390**	**2,846**	**2,197**	**1,172**	**1,034**	**972**	**1,002**	**987**	**1,211**	**1,457**	**2,390**	**22,216**
2	Caesars ETS2		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		6,808	5,490	**7,807**	**4,143**	**4,205**	**3,538**	**3,290**	**3,197**	**3,176**	**4,291**	**5,223**	**6,716**	57,884
	2017		11,016	9,406	9,936	2,112	4,174	3,624	3,305	2,854	2,772	3,350	4,575	7,249	64,373
	2016		8,587	7,887	5,859	4,925	4,159	3,260	3,236	3,156	3,230	4,245	5,612	8,224	62,380
	2015		8,993	9,250	7,626	5,393	4,281	3,730	3,328	3,161	3,267	4,379	4,654	4,900	62,962
		3 year Average	**9,532**	**8,848**	**7,807**	**4,143**	**4,205**	**3,538**	**3,290**	**3,057**	**3,090**	**3,991**	**4,947**	**6,791**	**63,238**
3	Caesars ETS3		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		7,098	4,674	**6,973**	**4,771**	**4,048**	**2,870**	**2,428**	**2,375**	**2,503**	**3,276**	**4,547**	**6,204**	51,767
	2017		9,332	7,458	8,138	3,690	2,842	2,220	2,274	2,098	2,164	2,931	4,270	5,344	52,761
	2016		6,846	6,219	5,304	4,641	4,143	2,771	1,965	1,894	1,814	2,445	3,250	6,723	48,015
	2015		7,328	7,410	7,476	5,983	5,159	3,620	3,045	3,281	3,640	4,815	5,751	5,981	63,489
		3 year Average	**7,835**	**7,029**	**6,973**	**4,771**	**4,048**	**2,870**	**2,428**	**2,424**	**2,539**	**3,397**	**4,424**	**6,016**	**54,755**
6	Caesars ETS6		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		856	519	**641**	**428**	**320**	**246**	**229**	**166**	**173**	**267**	**364**	**513**	4,722
	2017		778	608	714	420	355	278	254	256	245	213	338	630	5,089
	2016		776	625	521	462	344	269	253	243	258	345	458	716	5,270
	2015		750	848	688	402	260	190	181	188	187	293	350	424	4,761
		3 year Average	**768**	**694**	**641**	**428**	**320**	**246**	**229**	**229**	**230**	**284**	**382**	**590**	**5,040**
11	Caesars ETS11		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		925	674	**870**	**564**	**498**	**431**	**355**	**599**	**343**	**409**	**453**	**687**	6,808
	2017		920	782	869	418	414	342	235	218	247	290	487	758	5,980
	2016		932	791	632	588	504	422	398	338	289	341	381	758	6,374
	2015		1,001	992	1,109	687	577	529	432	468	407	513	523	637	7,874
		3 year Average	**951**	**855**	**870**	**564**	**498**	**431**	**355**	**341**	**314**	**381**	**464**	**718**	**6,743**
4	Claridge		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		4,362	3,202	**3,466**	**2,564**	**1,955**	**1,134**	**1,197**	**1,466**	**1,660**	**2,162**	**2,815**	**3,415**	29,398
	2017		4,074	3,572	3,727	2,664	2,410	1,885	1,613	1,466	1,528	1,979	2,447	3,347	30,712
	2016		3,435	3,306	2,867	2,718	2,125	445	1,122	1,299	1,697	2,316	3,018	3,877	28,225
	2015		4,326	4,873	3,803	2,311	1,330	1,073	857	900	652	1,066	1,715	1,811	24,717
		3 year Average	**3,945**	**3,917**	**3,466**	**2,564**	**1,955**	**1,134**	**1,197**	**1,222**	**1,292**	**1,787**	**2,393**	**3,012**	**27,885**
5	Ballys Park Place		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		17,791	14,046	**15,769**	**12,526**	**11,014**	**9,270**	**8,687**	**7,858**	**8,280**	**10,192**	**11,331**	**13,802**	140,566
	2017		17,250	14,976	17,046	13,436	12,436	10,626	9,911	10,079	9,719	10,386	11,717	16,155	153,737
	2016		17,621	19,457	14,617	12,034	10,504	8,361	7,618	7,424	8,357	11,061	12,717	15,638	145,409
	2015		17,321	18,068	15,645	12,108	10,101	8,823	8,531	8,390	8,074	10,174	10,683	11,432	139,350
		3 year Average	**17,397**	**17,500**	**15,769**	**12,526**	**11,014**	**9,270**	**8,687**	**8,631**	**8,717**	**10,540**	**11,706**	**14,408**	**146,165**
7	Bally Wild Wild West		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		6,140	4,619	**4,321**	**2,658**	**2,193**	**1,901**	**1,392**	**1,117**	**1,172**	**1,710**	**2,443**	**3,621**	33,285
	2017		4,325	4,269	5,096	2,421	2,487	2,106	1,539	1,514	1,836	1,998	3,253	5,286	36,130
	2016		4,622	4,164	3,519	3,086	2,372	1,949	1,416	1,373	1,595	2,237	2,739	4,035	33,107
	2015		5,634	5,807	4,347	2,466	1,720	1,648	1,220	919	1,012	1,550	2,417	2,786	31,527
		3 year Average	**4,860**	**4,747**	**4,321**	**2,658**	**2,193**	**1,901**	**1,392**	**1,269**	**1,481**	**1,928**	**2,803**	**4,036**	**33,588**
8	Trump East ETS 8		January	February	March	April	May	June	July	August	September	October	November	December	
	2018		1,384	1,471	**1,170**	**751**	**621**	**370**	**405**	**615**	**460**	**819**	**857**	**1,143**	10,066
	2017		1,061	928	1,168	440	660	391	389	390	364	401	506	501	7,199
	2016		696	1,010	1,199	1,045	641	385	401	441	428	1,146	594	874	8,860
	2015		2,304	1,277	1,142	767	561	335	425	395	312	464	564	560	9,107
		3 year Average	**1,354**	**1,072**	**1,170**	**751**	**621**	**370**	**405**	**409**	**368**	**670**	**555**	**645**	**8,389**
9	Trump Plaza ETS 9		January	February	March	April	May	June	July	August	September	October	November	December	Totals
	2018		7,470	4,706	**4,865**	**4,619**	**2,281**	**1,171**	**1,030**	**1,952**	**2,250**	**2,694**	**4,388**	**5,823**	43,247
	2017		6,684	5,592	5,993	7,604	1,875	-	55	136	132	1,296	2,141	4,599	36,107
	2016		5,137	5,040	4,258	3,800	2,665	1,728	1,448	1,501	1,612	2,353	4,880	6,405	40,827
	2015		5,478	6,203	4,345	2,452	2,303	1,784	1,586	1,491	1,446	1,478	2,765	4,056	35,387
		3 year Average	**5,766**	**5,612**	**4,865**	**4,619**	**2,281**	**1,171**	**1,030**	**1,043**	**1,063**	**1,709**	**3,262**	**5,020**	**37,440**

Thermal 6 yr Average

		January	February	March	April	May	June	July	August	September	October	November	December	
10	**Boardwalk Hall**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
2018		12,315	8,388	**5,641**	**1,477**	**588**	**462**	**466**	**586**	**555**	**591**	**1,539**	**3,663**	36,272
2017		9,971	9,521	10,104	1,842	309	253	262	285	250	278	2,833	6,436	42,344
2016		1,702	9,224	4,652	462	468	291	261	265	253	280	1,672	6,963	26,493
2015		11,300	11,143	7,809	3,604	1,575	1,306	1,342	1,341	1,238	1,236	2,250	1,836	45,981
	3 year Average	**7,658**	**9,963**	**7,522**	**1,969**	**784**	**617**	**622**	**630**	**580**	**598**	**2,252**	**5,078**	**38,273**
ACCC		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
2018		7,674	3,800	**2,941**	**1,121**	**244**					**147**	**1,186**	**3,274**	20,387
2017		4,880	3,401	3,305	741	3	-	-	-	-	18	1,216	4,925	18,489
2016		6,189	5,404	2,578	1,500	485	-	-	-	-	198	1,070	3,191	20,615
2015		6,943	8,924	4,987	1,656	117	-	-	-	-	206	521	1,147	24,500
2014		7,080	5,904	5,372	1,186	188	-	-	10	17	126	1,909	2,955	24,748
2013		4,968	4,765	4,084	662	232	-	-	-	-	89	1,842	3,368	20,008
2012		3,267	2,943	1,760	589	-	-	-	-	-	79	2,895	1,874	13,406
2011		5,942	4,195	3,041	1,219	-	-	-	-	-	-	565	3,033	17,995
2010		5,072	5,274	1,925	165	3	-	-	-	-	135	798	5,019	18,391
2009		5,860	4,424	3,646	1,182	-	-	-	-	-	173	408	3,496	19,189
2008		4,563	3,764	2,533	992	-	-	-	-	-	480	1,449	2,783	16,564
2007		3,949	6,867	3,513	1,194	1	-	-	-	-	-	947	2,180	18,651
	3 year Average	**6,004**	**5,910**	**3,623**	**1,299**	**202**	**-**	**-**	**-**	**-**	**141**	**936**	**3,088**	**21,201**
Wilmington - Justice		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
2018		2,680	1,846	**1,688**	**1,182**	**1,001**	**724**	**679**	**601**	**627**	**839**	**1,138**	**1,708**	14,713
2017		1,776	1,341	1,748	943	869	696	668	625	606	771	1,450	2,431	13,924
2016		2,195	1,878	1,340	1,088	1,004	757	708	674	712	834	1,194	2,074	14,458
2015		2,631	2,663	1,976	1,516	1,130	718	662	653	635	910	1,117	1,329	15,939
2014		2,551	2,025	1,863	1,181	1,031	819	779	922	1,142	1,437	1,683	2,015	17,448
2013		1,935	1,757	1,507	951	898	920	857	945	1,060	1,291	1,756	2,134	16,011
2012		1,514	1,145	808	610	466	350	289	316	383	694	1,340	1,546	9,460
2011		1,676	1,405	1,150	626	415	277	256	326	418	693	866	1,237	9,344
2010		1,993	1,725	969	554	353	245	336	290	357	619	915	2,000	10,356
2009		2,540	1,547	1,348	941	949	840	512	505	455	570	637	1,681	12,525
2008		2,044	1,848	1,589	1,322	1,271	923	894	938	1,045	1,459	1,631	1,895	16,859
2007		2,248	2,220	1,442	1,181	842	894	1,124	1,179	1,196	1,434	1,459	1,880	17,099
	3 year Average	**2,201**	**1,961**	**1,688**	**1,182**	**1,001**	**724**	**679**	**651**	**651**	**838**	**1,254**	**1,945**	**14,774**
Wilmington - King Street		**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	
2018		919	518	**479**	**194**	**61**	**4**	**-**	**0**	**-**	**28**	**254**	**524**	2,981
2017		711	396	529	139	67	12	-	-	-	-	405	822	3,081
2016		792	612	316	258	117	-	-	-	-	47	282	741	3,165
2015		918	970	592	185	-	-	-	-	-	-	234	346	3,244
2014		732	676	503	203	-	-	-	-	-	99	545	583	3,341
2013		751	648	453	60	-	-	-	-	-	68	405	602	2,986
2012		536	398	125	40	-	-	-	-	-	17	379	453	1,949
2011		729	441	272	59	-	-	-	-	-	47	66	298	1,913
2010		620	690	259	53	31	-	-	-	-	-	146	554	2,353
2009		503	237	205	124	42	3	-	-	-	49	233	516	1,912
2008		369	298	171	83	14	8	-	8	8	6	227	314	1,506
2007		318	482	186	104	23	4	-	-	-	8	218	320	1,663
	3 year Average	**807**	**659**	**479**	**194**	**61**	**4**	**-**	**-**	**-**	**16**	**307**	**636**	**3,163**

S:\Historical Average Production

	January	February	March	April	May	June	July	August	September	October	November	December	
2016 Budget - MTCC	54,322	61,658	45,924	35,409	29,224	20,923	19,070	18,866	20,480	27,951	36,830	57,173	427,830
2016 Budget - ACCC	6,189	5,404	2,578	1,500	485	-	-	-	-	198	1,070	3,191	20,615
2016 Budget - WL	2,987	2,490	1,656	1,346	1,121	757	708	674	712	881	1,476	2,815	17,623
2016 Budget -Total	57,309	64,148	47,580	36,755	30,345	21,680	19,778	19,540	21,192	28,832	38,306	59,988	**445,453**
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2017 Actual - MTCC	69,312	60,419	66,640	38,416	29,023	22,781	20,909	20,478	20,412	24,382	34,118	53,053	459,943
2017 Actual ACCC	4,880	3,401	3,305	741	3	-	-	-	-	18	1,216	4,925	18,489
2017 Actual -WL	2,487	1,737	2,277	1,082	936	708	668	625	606	771	1,855	3,253	17,005
2017 Actual - ALL	***76,679***	***65,557***	***72,222***	***40,239***	***29,962***	***23,489***	***21,577***	***21,103***	***21,018***	***25,171***	***37,189***	***61,231***	***495,437***
2018 Actual - MTCC	71,259	51,141	54,368	36,698	28,893	22,428	20,451	21,267	22,050	27,939	35,791	48,692	440,976
2018 Actual ACCC	7,674	3,800	2,941	1,121	244	-	-	-	-	147	1,186	3,274	20,387
2018 Actual -WL	3,599	2,364	2,167	1,376	1,062	728	679	601	627	867	1,392	2,231	17,693
2018 Actual - ALL	***82,532***	***57,305***	***59,476***	***39,195***	***30,199***	***23,155***	***21,130***	***21,868***	***22,677***	***28,953***	***38,368***	***54,198***	***479,056***

Billing Cycle	***kWh Use***	***kW Demand***
Oct-15	4,468,367	6658
Nov-15	4,382,917	6729
Dec-15	4,555,980	6887
Jan-16	4,743,191	7051
Feb-16	4,493,381	7191
Mar-16	4,725,355	7041
Apr-16	4,806,524	6851
May-16	4,804,690	8381
Jun-16	5,677,798	9077
Jul-16	6,012,636	9044
Aug-16	5,928,771	9209
Sep-16	5,462,626	8589

Billing Cycle	***kWh Use***	***kW Demand***
Oct-15	3,410,700	5158
Nov-15	3,309,600	5175
Dec-15	3,398,400	5204
Jan-16	3,430,500	5150
Feb-16	3,166,500	5111
Mar-16	3,318,600	5043

Apr-16	3,189,600	4890
May-16	3,278,400	4985
Jun-16	3,191,700	4995
Jul-16	3,447,000	5215
Aug-16	3,462,600	5262
Sep-16	3,269,400	5161

Billing Cycle	**kWh Use**	**kW Demand**
Oct-16	396,000	1440
Nov-16	433,600	1422
Dec-16	456,800	1325
Jan-17	567,600	1585
Feb-17	522,800	1474
Mar-17	582,000	1797
Apr-16	402,400	963
May-16	452,800	1190
Jun-16	507,600	1826
Jul-16	486,000	1750
Aug-16	528,800	1376
Sep-16	602,400	2106

Billing Cycle	**kWh Use**	**kW Demand**
Oct-15	1,560,600	2403
Nov-15	1,414,800	2331
Dec-15	1,432,800	2189
Jan-16	1,265,400	1892
Feb-16	1,162,800	1915
Mar-16	1,333,800	2084

Apr-16	1,378,800	2327
May-16	1,530,000	2561
Jun-16	1,645,200	2720
Jul-16	1,893,600	3015
Aug-16	1,940,400	3107
Sep-16	1,765,800	2974

Billing Cycle	kWh Use	kW Demand
Oct-15	9,835,667	15659
Nov-15	9,540,917	15657
Dec-15	9,843,980	15605
Jan-16	10,006,691	15678
Feb-16	9,345,481	15691
Mar-16	9,959,755	15965
Apr-16	9,777,324	15031
May-16	10,065,890	17117
Jun-16	11,022,298	18618
Jul-16	11,839,236	19024
Aug-16	11,860,571	18954
Sep-16	11,100,226	18830
Total	124,198,036	16819
	10,349,836	

Billing Cycle	kWh Use
Oct-15	9,835,667

Nov-15	9,540,917
Dec-15	9,843,980
Jan-16	10,006,691
Feb-16	9,345,481
Mar-16	9,959,755
Apr-16	9,777,324
May-16	10,065,890
Jun-16	11,022,298
Jul-16	11,839,236
Aug-16	11,860,571
Sep-16	11,100,226
	10,349,836

Billing Cycle	**kW Demand**
Oct-15	15,659
Nov-15	15,657
Dec-15	15,605
Jan-16	15,678
Feb-16	15,691
Mar-16	15,965
Apr-16	15,031
May-16	17,117
Jun-16	18,618
Jul-16	19,024
Aug-16	18,954
Sep-16	18,830
	16,819

Billing Cycle	**Load Factor**
Oct-15	84.42%
Nov-15	84.63%

Dec-15	84.79%	
Jan-16	85.79%	
Feb-16	88.63%	
Mar-16	83.85%	
Apr-16	90.34%	
May-16	79.04%	
Jun-16	82.23%	
Jul-16	83.65%	
Aug-16	84.11%	
Sep-16	81.87%	
		84.45%

Billing Cycle		**Delivery Charges**		**BGS Supply Charges**
Oct-15	$	484,919	$	633,961
Nov-15	$	466,196	$	602,521
Dec-15	$	478,532	$	613,562
Jan-16	$	514,942	$	706,311
Feb-16	$	485,406	$	647,388
Mar-16	$	458,335	$	571,341
Apr-16	$	463,938	$	604,549
May-16	$	492,742	$	795,321
Jun-16	$	499,847	$	615,715
Jul-16	$	548,013	$	703,976
Aug-16	$	552,388	$	711,005
Sep-16	$	481,645	$	569,465
	$	493,909	$	647,926
	$	5,926,903	$	7,775,114
			$	13,702,017

Billing Cycle	Boardwalk Hall		Caesar's	
Oct-15	13641		992165	
Nov-15	10234		836930	
Dec-15	2373		721217	
Jan-16	6510		569823	
Feb-16	9633		931441	
Mar-16	11911		761075	
Apr-16	10		636433	
May-16	5816		949851	
Jun-16	80359		1534786	
Jul-16	164261		2121886	
Aug-16	226601		1550406	
Sep-16	196759		1693558	
		728108		13299571

Billing Cycle	Boardwalk Hall Thermal Load MMBTUs	Caesar'sThermal Load MMBTUs
Oct-15	1236	11190
Nov-15	2250	12588
Dec-15	1836	13405
Jan-16	1702	14263
Feb-16	9224	19457
Mar-16	4652	14812
Apr-16	462	12264
May-16	468	10449
Jun-16	291	7764

Jul-16	261	6804
Aug-16	265	6563
Sep-16	253	6538

Total Bally's Load

kVAR	Load Factor	Power Factor	Delivery Charges	
2901	90.21%	81.00%	$	195,656.00
2914	90.46%	87.70%	$	193,416.00
2805	88.92%	90.71%	$	202,659.00
3098	90.42%	92.24%	$	211,411.00
3167	92.99%	91.76%	$	199,681.00
3098	90.20%	87.10%	$	200,958.00
3063	97.44%	86.94%	$	196,868.00
4261	77.05%	82.76%	$	210,261.00
4559	86.88%	73.19%	$	238,367.00
4681	89.36%	70.42%	$	250,179.00
4683	86.53%	72.17%	$	248,929.00
4418	88.33%	74.07%	$	229,621.00

Caesar's Total Load

kVAR	Load Factor	Power Factor	Delivery Charges	
3090	88.88%	87.07%	$	203,895
3101	88.82%	87.87%	$	192,043
3012	87.77%	88.34%	$	193,024
3038	89.53%	88.40%	$	222,340
2989	92.19%	88.10%	$	211,391
2925	88.45%	87.78%	$	172,960

3085	90.59%	86.10%	$ 188,106
3161	88.39%	85.59%	$ 194,549
3203	88.75%	84.38%	$ 167,115
3406	88.84%	84.62%	$ 194,081
3552	88.45%	83.78%	$ 195,843
3252	87.98%	84.93%	$ 147,384

Boardwalk Hall Total Load

kVAR	Load Factor	Power Factor	Delivery Charges
1193	36.96%	56.29%	$ 21,869
1214	42.35%	55.90%	$ 22,894
1258	46.34%	54.64%	$ 23,736
1371	48.13%	55.08%	$ 27,891
1199	52.78%	55.85%	$ 25,541
1295	43.53%	57.63%	$ 28,704
963	58.04%	52.79%	$ 22,034
1019	51.14%	55.26%	$ 24,618
1333	38.61%	57.77%	$ 26,694
1318	37.33%	57.23%	$ 26,062
1325	51.65%	53.81%	$ 27,680
1310	39.73%	59.75%	$ 31,520

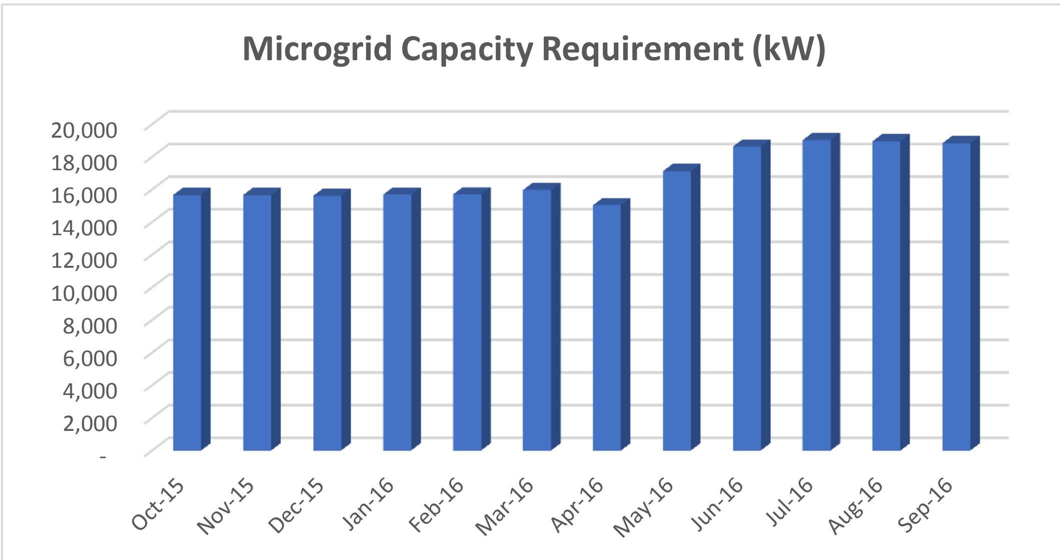
Atlanticare Total Load

kVAR	Load Factor	Power Factor	Delivery Charges
862	87.33%	94.12%	$ 63,499
815	84.20%	94.40%	$ 57,843
778	87.98%	94.24%	$ 59,113
639	89.97%	94.73%	$ 53,300
633	87.16%	94.95%	$ 48,793
745	86.12%	94.17%	$ 55,713

817	82.28%	94.34%	$ 56,930
921	80.26%	94.10%	$ 63,314
988	84.05%	93.99%	$ 67,671
1101	84.34%	93.92%	$ 77,691
1164	84.06%	93.63%	$ 79,936
1096	82.48%	93.82%	$ 73,120

Grand Total Microgrid

kVAR	Load Factor	Power Factor	Delivery Charges
8046	84.42%		$ 484,919.00
8044	84.63%		$ 466,196.00
7853	84.79%		$ 478,532.00
8146	85.79%		$ 514,942.00
7988	88.63%		$ 485,406.00
8063	83.85%		$ 458,335.00
7928	90.34%		$ 463,938.00
9362	79.04%		$ 492,742.00
10083	82.23%		$ 499,847.00
10506	83.65%		$ 548,013.00
10724	84.11%		$ 552,388.00
10076	81.87%		$ 481,645.00
106819	84.45%		$ 5,926,903.00
			$ 493,908.58



Microgrid Capacity Requirement (kW)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
Oct-15
Nov-15
Dec-15
Jan-16
Feb-16
Mar-16
Apr-16
May-16
Jun-16
Jul-16
Aug-16
Sep-16

	Total Cost
$	1,118,880
$	1,068,717
$	1,092,094
$	1,221,253
$	1,132,794
$	1,029,676
$	1,068,487
$	1,288,063
$	1,115,562
$	1,251,989
$	1,263,393
$	1,051,110
$	1,141,835
$	13,702,017

Thermal Load

Bally's	Total Cooling w/o Atlanticare
2,417,141	3,422,947
2,031,433	2,878,597
1,774,373	2,497,963
1,786,097	2,362,430
1,944,164	2,885,238
2,067,434	2,840,420
1,857,733	2,494,176
2,506,640	3,462,307
3,834,937	5,450,082
4,936,958	7,223,105
5,080,192	6,857,199
3,904,194	5,794,511
34141296	48,168,975

Bally's Thermal Load MMBTU	**Total Heating w/o Atlanticare**
11724	24150
15456	30294
19673	34914
22243	38208
23621	52302
18136	37600
12876	25602
12876	23793
10310	18365

9034	16099
8797	15625
9952	16743
	333695

BGS Supply Charges		***Total Cost***	
$	299,372.00	$	495,028.00
$	287,252.00	$	480,668.00
$	291,916.00	$	494,575.00
$	339,526.00	$	550,937.00
$	326,270.00	$	525,951.00
$	268,919.00	$	469,877.00
$	291,774.00	$	488,642.00
$	461,652.00	$	671,913.00
$	302,177.00	$	540,544.00
$	344,383.00	$	594,562.00
$	343,740.00	$	592,669.00
$	259,588.00	$	489,209.00

BGS Supply Charges		***Total Cost***	
$	194,775	$	398,670.00
$	183,167	$	375,210.00
$	183,870	$	376,894.00
$	213,227	$	435,567.00
$	202,898	$	414,289.00
$	164,031	$	336,991.00

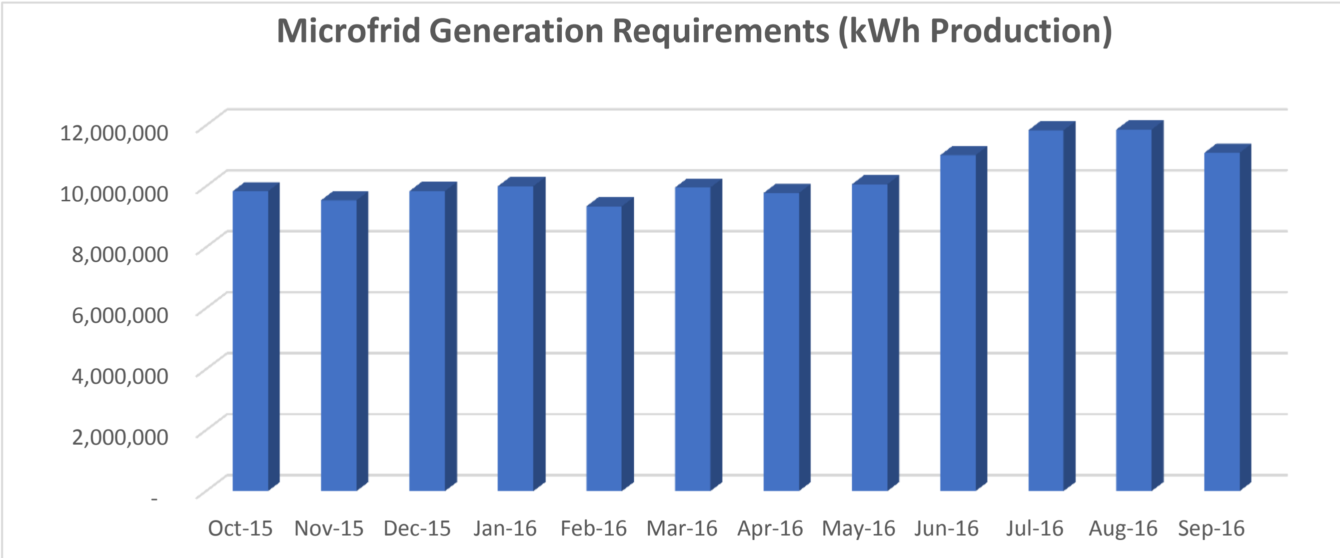
$	179,695	$	367,801.00
$	185,716	$	380,265.00
$	158,538	$	325,653.00
$	184,855	$	378,936.00
$	186,551	$	382,394.00
$	144,368	$	291,752.00

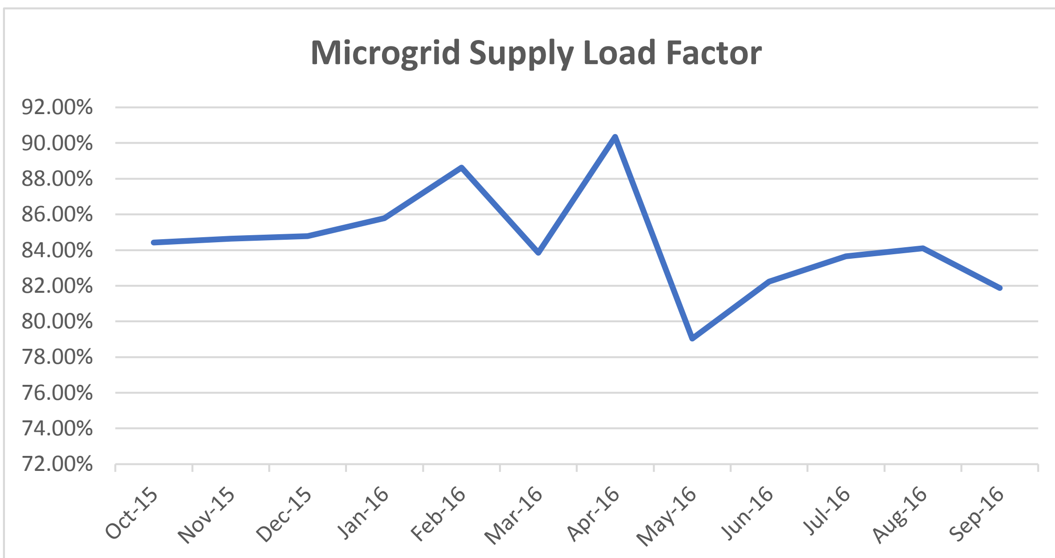
BGS Supply Charges		**Total Cost**	
$	22,004	$	43,873
$	25,299	$	48,193
$	29,614	$	53,350
$	58,033	$	85,924
$	30,440	$	55,981
$	37,702	$	66,406
$	28,994	$	51,028
$	32,453	$	57,071
$	30,804	$	57,498
$	31,790	$	57,852
$	34,233	$	61,913
$	32,209	$	63,729

BGS Supply Charges		**Total Cost**	
$	117,810	$	181,309
$	106,803	$	164,646
$	108,162	$	167,275
$	95,525	$	148,825
$	87,780	$	136,573
$	100,689	$	156,402

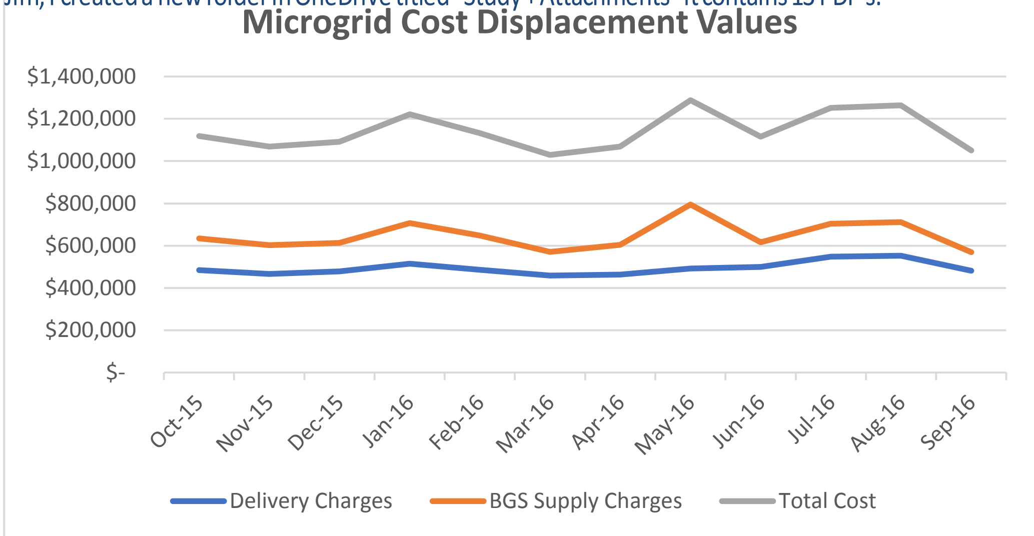
$	104,086	$	161,016
$	115,500	$	178,814
$	124,196	$	191,867
$	142,948	$	220,639
$	146,481	$	226,417
$	133,300	$	206,420

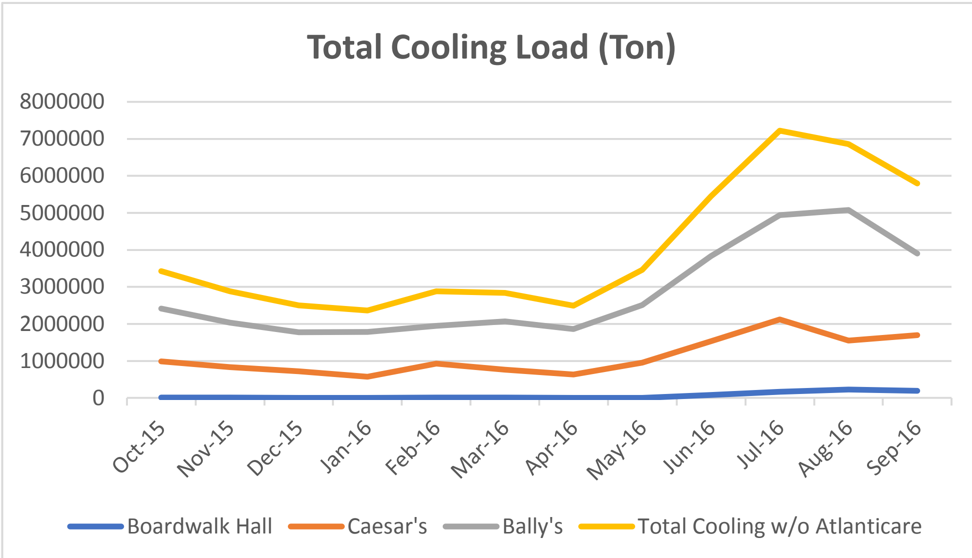
BGS Supply Charges		Total Cost	
$	633,960.69	$	1,118,879.69
$	602,521.25	$	1,068,717.25
$	613,562.07	$	1,092,094.07
$	706,311.05	$	1,221,253.05
$	647,387.77	$	1,132,793.77
$	571,340.56	$	1,029,675.56
$	604,548.61	$	1,068,486.61
$	795,320.70	$	1,288,062.70
$	615,715.15	$	1,115,562.15
$	703,975.86	$	1,251,988.86
$	711,004.80	$	1,263,392.80
$	569,465.24	$	1,051,110.24
$	7,775,113.76	$	13,702,016.76
$	647,926.15		


Microfrid Generation Requirements (kWh Production)
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
-
Oct-15
Nov-15
Dec-15
Jan-16
Feb-16
Mar-16
Apr-16
May-16
Jun-16
Jul-16
Aug-16
Sep-16

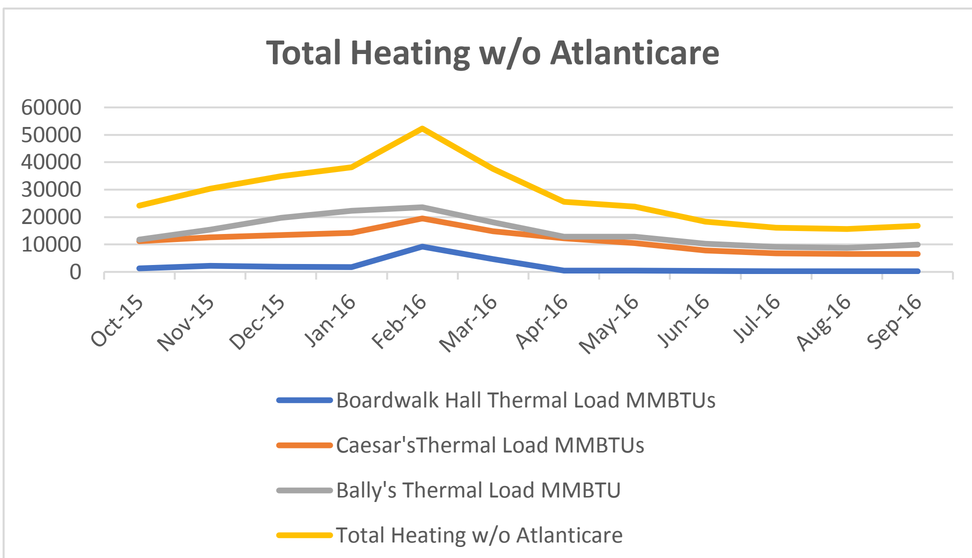

Microgrid Supply Load Factor
92.00%
90.00%
88.00%
86.00%
84.00%
82.00%
80.00%
78.00%
76.00%
74.00%
72.00%
Oct-15
Nov-15
Dec-15
Jan-16
Feb-16
Mar-16
Apr-16
May-16
Jun-16
Jul-16
Aug-16
Sep-16

Jim, I created a new folder in OneDrive titled “Study + Attachments” it contains 13 PDF’s.





Total Cooling Load (Ton)
8000000
7000000
6000000
5000000
4000000
3000000
2000000
1000000
0
Oct-15
Nov-15
Dec-15
Jan-16
Feb-16
Mar-16
Apr-16
May-16
Jun-16
Jul-16
Aug-16
Sep-16
Boardwalk Hall
Caesar's
Bally's
Total Cooling w/o Atlanticare



Total Heating w/o Atlanticare
60000
50000
40000
30000
20000
10000
0
Oct-15
Nov-15
Dec-15
Jan-16
Feb-16
Mar-16
Apr-16
May-16
Jun-16
Jul-16
Aug-16
Sep-16
Boardwalk Hall Thermal Load MMBTUs
Caesar'sThermal Load MMBTUs
Bally's Thermal Load MMBTU
Total Heating w/o Atlanticare

Project: AC Microgrid (Pre)

Contact Information:

Contact Name: Kyle, Gandy
Email Address: kgandy@dcoenergy.com
Phone Number: 609-226-9981

Utility Information:

ACE
Other

Number of Buses: 5

Bus Information:

Bus 1 Details:

Building/Bus Name: MTCC - Central Plant
Building/Bus address: Atlantic City, NJ
Slack Bus: Yes

This Bus contains demand
Demand data is not available
Building Functinality: Other
Building floor area (sq ft): 60000 Number of floors : 2
Elec. Rate Schedule: Gas
Rate Schedule:

Power Generation Technologies (CHP 1):
Prime mover: combustion/gas turbine
Power rating (kW): 5700
Number of units: 1
Electric efficiency (kW/kW): Power to heat ratio:

Power Generation Technologies (Diesel Generator 1):
Number of units: 1
Power rating (kW): 1000
Efficiency (kW/kW):
DieselFuelType: Diesel

Electric Chiller 1A:
Capacity (Ton): 2000
Efficiency:

Electric Chiller 1B:
Capacity (Ton): 1800
Efficiency:

Electric Chiller 2A:
Capacity (Ton): 2000
Efficiency:

Electric Chiller 2B:
Capacity (Ton): 1800
Efficiency:

Electric Chiller 3A:
Capacity (Ton): 967
Efficiency:

Electric Chiller 3B:
Capacity (Ton): 933
Efficiency:

Electric Chiller 4A:
Capacity (Ton): 967
Efficiency:

Electric Chiller 4B:
Capacity (Ton): 933
Efficiency:

Electric Chiller 5A:
Capacity (Ton): 967
Efficiency:

Electric Chiller 5B:
Capacity (Ton): 933
Efficiency:

Electric Chiller 6A:
Capacity (Ton): 967
Efficiency:

Electric Chiller 6B:
Capacity (Ton): 933
Efficiency:

Electric Chiller 7A:
Capacity (Ton): 967
Efficiency:

Electric Chiller 7B:
Capacity (Ton): 933
Efficiency:

Project: Project: AC Microgrid (Post)

Contact Information:
Contact Name: Kyle, Gandy
Email Address: kgandy@dcoenergy.com
Phone Number: 609-226-9981

Utility Information:
ACE
Other

Number of Buses: 6

Bus Information:

Bus 1 Details:

Building/Bus Name: MTCC - Central Plant
Building/Bus address: Atlantic City, NJ
Slack Bus: Yes

This Bus contains demand
Demand data is not available
Building Functinality: Other
Building floor area (sq ft): 600000
Number of floors : 2
Elec. Rate Schedule: Gas
Rate Schedule:

Power Generation Technologies (CHP 1):
Prime mover: combustion/gas turbine
Power rating (kW): 5200
Number of units: 1
Electric efficiency (kW/kW): Power
to heat ratio:

Power Generation Technologies (CHP 2):

Prime mover: combustion/gas turbine
Power rating (kW): 7600
Number of units: 1
Electric efficiency (kW/kW): Power
to heat ratio:

Power Generation Technologies (Diesel Generator 1):
Number of units: 1
Power rating (kW): 1000
Efficiency (kW/kW):
DieselFuelType: Diesel

Electric Chiller 1A:
Capacity (Ton): 2000
Efficiency:

Electric Chiller 1B:
Capacity (Ton): 1800
Efficiency:

Electric Chiller 2A:
Capacity (Ton): 2000
Efficiency:

Electric Chiller 2B:
Capacity (Ton): 1800
Efficiency:

Electric Chiller 3A:
Capacity (Ton): 967
Efficiency:

Electric Chiller 3B:
Capacity (Ton): 933
Efficiency:

Electric Chiller 4A:
Capacity (Ton): 967
Efficiency:

Electric Chiller 4B:
Capacity (Ton): 933
Efficiency:

Electric Chiller 5A:
Capacity (Ton): 967
Efficiency:

Electric Chiller 5B:
Capacity (Ton): 933
Efficiency:

Electric Chiller 6A:
Capacity (Ton): 967
Efficiency:

Electric Chiller 6B:
Capacity (Ton): 933
Efficiency:

Electric Chiller 7A:
Capacity (Ton): 967
Efficiency:

Electric Chiller 7B:
Capacity (Ton): 933
Efficiency:

Slack bus voltage (kV): 4.16

Bus 2 Details:

Building/Bus Name: Peaker Plant
Building/Bus address: Atlantic City, NJ
Slack Bus: No
This Bus does not contain demand
Power Generation Technologies (Diesel Generator 1):
Number of units: 1
Power rating (kW): 2600
Efficiency (kW/kW):
DieselFuelType: Natural Gas

Power Generation Technologies (Diesel Generator 2):
Number of units: 1
Power rating (kW): 2600
Efficiency (kW/kW):

DieselFuelType: Natural Gas

Voltage constraints Bus 2
Maximun acceptable voltage (kV):
Minimum acceptable voltage (kV):
Maximun acceptable voltage angle (rad):
Minimum acceptable voltage angle (rad):

Bus 3 Details:

Building/Bus Name: AC Medical
Building/Bus address: Atlantic City, NJ
Slack Bus: No

This Bus contains demand
Demand data is not available
Building Functinality:
Building floor area (sq ft):
Number of floors :
Elec. Rate Schedule: Gas
Rate Schedule:

Voltage constraints Bus 3
Maximun acceptable voltage (kV):
Minimum acceptable voltage (kV):
Maximun acceptable voltage angle (rad):
Minimum acceptable voltage angle (rad):
Bus 4 Details:

Building/Bus Name: Convention Hall
Building/Bus address: Atlantic City, NJ
Slack Bus: No

This Bus contains demand
Demand data is not available
Building Functinality:
Building floor area (sq ft):
Number of floors :

Elec. Rate Schedule: Gas
Rate Schedule:

Voltage constraints Bus 4
Maximun acceptable voltage (kV):
Minimum acceptable voltage (kV):
Maximun acceptable voltage angle (rad):
Minimum acceptable voltage angle (rad):

Bus 5 Details:

Building/Bus Name: Caesars
Building/Bus address: Atlantic City, NJ
Slack Bus: No

This Bus contains demand
Demand data is not available
Building Functinality:
Building floor area (sq ft):
Number of floors :
Elec. Rate Schedule: Gas
Rate Schedule:

Voltage constraints Bus 5
Maximun acceptable voltage (kV):
Minimum acceptable voltage (kV):
Maximun acceptable voltage angle (rad):
Minimum acceptable voltage angle (rad):

Bus 6 Details:

Building/Bus Name: Ballys, Park Place, & Wild West
Building/Bus address: Atlantic City, NJ
Slack Bus: No

This Bus contains demand
Demand data is not available
Building Functinality:

Building floor area (sq ft):
Number of floors :
Elec. Rate Schedule: Gas
Rate Schedule:

Voltage constraints Bus 6
Maximun acceptable voltage (kV):
Minimum acceptable voltage (kV):
Maximun acceptable voltage angle (rad):
Minimum acceptable voltage angle (rad):

Power Network Connection

	Node 1	Node 2	Node 3	Node 4	Node 5	Node 6
Node 1	-*-	1	1	1	1	1
Node 2	1	-*-	-*-	-*-	-*-	-*-
Node 3	1	-*-	-*-	-*-	-*-	-*-
Node 4	1	-*-	-*-	-*-	-*-	-*-
Node 5	1	-*-	-*-	-*-	-*-	-*-
Node 6	1	-*-	-*-	-*-	-*-	-*-

Ampacity

	Node 1	Node 2	Node 3	Node 4	Node 5	Node 6
Node 1	-*-	1290	2000	2000	2000	2000
Node 2	1290	-*-	-*-	-*-	-*-	-*-
Node 3	2000	-*-	-*-	-*-	-*-	-*-
Node 4	2000	-*-	-*-	-*-	-*-	-*-
Node 5	2000	-*-	-*-	-*-	-*-	-*-
Node 6	2000	-*-	-*-	-*-	-*-	-*-

Memorandum

To: Mike Hornsby

From: Fred DeSanti

Date: November 27, 2018

Subject: Atlantic City µGrid Option #3 Addendum

As we briefly discussed on the telephone today, we would like the Board to make its judgements regarding the Atlantic City µGrid Study already in your possession based upon the structure advanced in "Option #3" of the report. This option characterized in the report as the "Long term Utility Hybrid Tariff Model" represents a minimum cost option that would continue to rely upon existing Atlantic City Electric distribution infrastructure as well as largely maintaining Atlantic City Electric's current customer relationship with all of the µGrid customers.

We have also met with Atlantic City Electric last week to advance some additional details regarding this option which would capture additional Atlantic City Electric ratepayer cost benefits over the "retail displacement" or Option #1 "Current Business Practice" option that will likely occur should the µGrid project not come to fruition.

Under this scenario, the µGrid would pay on a continuing basis a distribution wires utilization charge or "credit" to Atlantic City Electric to help offset the otherwise ratepayer decoupling cost that would be associated with the loss in utility revenue associated with the retail displacement of the µGrid customers.

Inasmuch as we find current law and pending utility filings seeking to recover this lost utility transportation revenue, our proposal would result in substantially reducing that anticipated recovery from ratepayers. This would serve to reduce ratepayer cost associated with what they would otherwise expect to see added back into rates either through a direct "decoupling charge," or flowing back into rates in a future base rate case.

- PSE&G and ACE have both endorsed the concept of decoupling and included lost revenue recovery in recent filings made to the Board for energy efficiency expenses related to the new clean energy law's requirement that EDCs reduce energy use by 2% per year. Chapter 17 Laws of 2018

The New law requires:

3. a. No later than one year after the date of enactment of P.L.2018, c.17 (C.48:3-87.8 et al.), the Board of Public Utilities shall require each electric public utility and gas public utility to reduce the use of electricity, or natural gas, as appropriate, within its territory, by its customers, below what would have otherwise been used. For the purposes of this section, a gas public utility shall reduce the use of natural gas for residential, commercial, and industrial uses, but shall not be required to include a reduction in natural gas used for distributed energy resources such as combined heat and power.

Each electric public utility shall be required to achieve annual reductions in the use of electricity of two percent of the average annual usage in the prior three years within five years of implementation of its electric energy efficiency program. Each natural gas public utility shall be required to achieve annual reductions in the use of natural gas of 0.75 percent of the average annual usage in the prior three years within five years of implementation of its gas energy efficiency program. The amount of reduction mandated by the board that exceeds two percent of the average annual usage for electricity and 0.75 percent of the average annual usage for natural gas for the prior three years shall be determined pursuant to the study conducted pursuant to subsection b. of this section until the reduction in energy usage reaches the full economic, cost-effective potential in each service territory, as determined by the board.

e. (1) Each electric public utility and gas public utility shall file an annual petition with the board to demonstrate compliance with the energy efficiency and peak demand reduction programs, compliance with the targets established pursuant to the quantitative performance indicators, and for cost recovery of the programs, including any performance incentives or penalties, pursuant to section 13 of P.L.2007, c.340 (C.48:3-98.1). Each electric public utility and gas public utility shall file annually with the board a petition to recover on a full and current basis through a surcharge all reasonable and prudent costs incurred as a result of energy efficiency programs and peak demand reduction programs required pursuant to this section, including but not limited to recovery of and on capital investment, **and the revenue impact of sales losses resulting from implementation of the energy efficiency and peak demand reduction schedules**, which shall be determined by the board pursuant to section 13 of P.L.2007, c.340 (C.48:3-98.1).

And: Section 13 of P.L.2007, c.340 (C.48:3-98.1):

"All electric public utility and gas public utility investment in energy efficiency and conservation programs or Class I renewable energy programs may be eligible for rate treatment approved by the board, including a return on equity, or other incentives **or rate mechanisms that decouple utility revenue from sales of electricity and gas."**

- As you also know, PSE&G recently filed its plan to spend $2 billion over the next five years to accomplish this goal and recover all lost sales revenues. Below from their filing on October 11, 2018:

25. The recovery of lost revenues due to programs like the CEF-EE is standard practice across the country. New Jersey policy has repeatedly supported the recovery of lost revenues caused by energy efficiency programs. Specifically, the RGGI Law states:

"Investment in energy efficiency and conservation programs or Class I renewable energy resources may be eligible for rate treatment approved by the [BPU], including a return on equity, or other incentives or rate mechanisms that decouple utility revenue from sales of electricity and gas.**" The Clean Energy Law recognizes that a utility must include as part of its cost recovery "the revenue impact of sales losses resulting from implementation of energy efficiency [programs]", which the Board shall determine. The Board has approved decoupling mechanisms for two New Jersey gas utilities.**

26. The mechanics of lost revenue recovery can be accomplished in more than one manner. The Company designed a decoupling mechanism, called the Green Enabling Mechanism ("GEM"), which would address the issue of lost revenues consistent with the RGGI Law and the Clean Energy Law. PSE&G proposed the GEM in the base rate case it filed on January 12, 2018 ("2018 Rate Case"),15 and is reintroducing it here for consideration. The Company's decoupling proposal is discussed further in the testimonies of PSE&G witnesses Daniel Hansen, Ms. Reif, and Stephen Swetz. In the event that the Company's decoupling proposal is not approved, PSE&G would be open to discussing with the parties another form of decoupling or an annual lost revenue adjustment mechanism.

Therefore, it is entirely appropriate to consider the revenues lost to retail displacement as a ratepayer charge that will ultimately be borne by the customers of Atlantic City Electric.

From a regulatory perspective it would also appear that the Board currently possesses both the authority and jurisdiction to create the "pilot" utility tariff model to implement this option.

However, should the Board determine that enabling legislation be required to codify the pilot program or publish rules and regulations to create the required regulatory structure, the following principals should be considered:

- Would require MOU proof(s) of interest in retail displacement CHP and demonstrated economic potential for success by µGrid customers.
- Would be applicable only to µGrids that include hospitals, public sheltering facilities and facilities that would support the delivery of

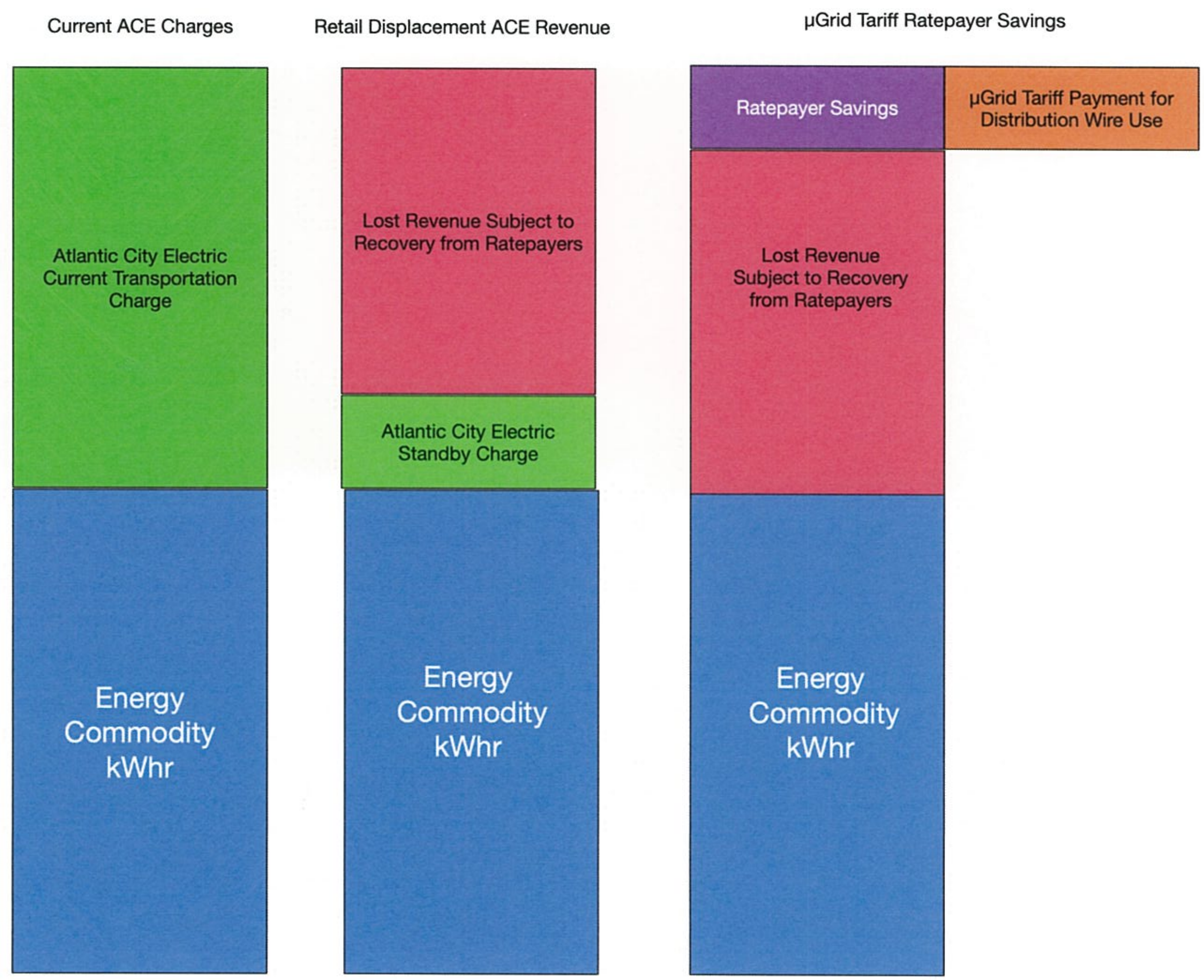
emergency, food, shelter, and other support services during storm or other emergencies.

- Tariff approved by the Board would be set for a prescribed term of 25 years to help reduce lender risk premiums.
- Wires charges, ratepayer "decoupling charges" would not be subject to change during pendency of the approved tariff.
- Commodity charges to customer(s) would be subject to natural gas cost indexing and inflation tracking changes to Atlantic City Electric TGS tariff.
- In the event of loss of µGrid customer (bankruptcy, etc.) Atlantic City Electric would, subject to Board approval, be required to purchase available commodity and capacity at prevailing BGSRSCP rates, if and until another µGrid customer could be brought unto the µGrid.

The charts that follow show the flow of funding to and from all stakeholder.

We would ask the Board to review our proposal based upon the structure detailed in the report in option #3 as amended in this document.

Atlantic City Electric Revenue Scenarios

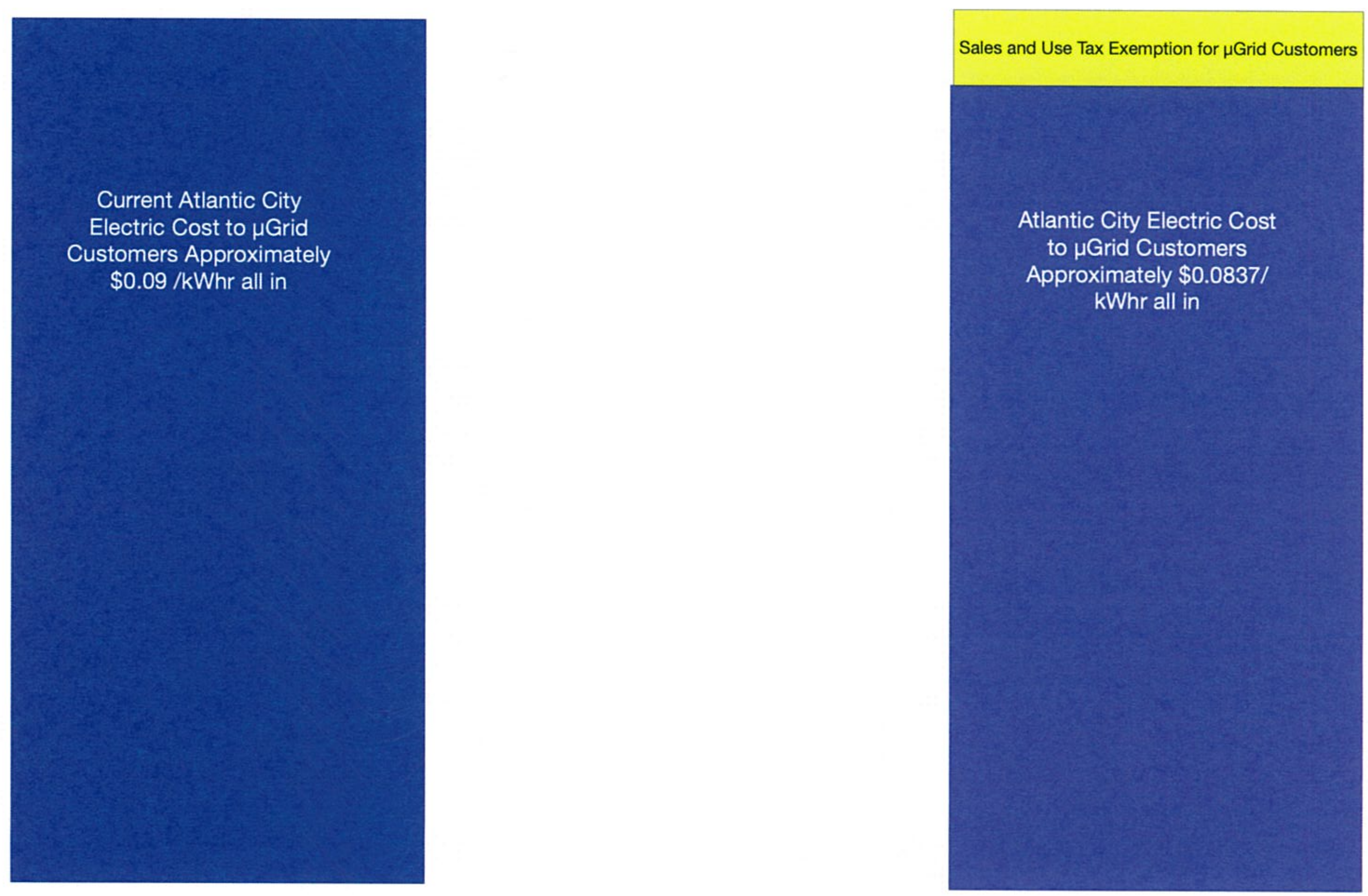


MTCC µGrid Revenue / Expense

µGrid Revenue Net to ACE

µGrid Net to MTCC

μGrid Custoemer Cost Comparison



CAESARS
ENTERTAINMENT

March 23, 2017

Mayor Donald A. Guardian
City of Atlantic City
City Hall
301 Bacharach Boulevard, Suite 706
Atlantic City, NJ 08401

Re: Microgrid Feasibility Letter of Support

Dear Mayor Guardian:

Bally's Atlantic City and Caesars Atlantic City are pleased to provide this letter of support for the Town Center Distributed Energy Resource (TCDER) Microgrid Feasibility Study Incentive Program application being submitted by the City of Atlantic City (City).

We have been following the work of the Board of Public Utilities and the development of the TCDER Microgrid Feasibility Study Incentive Program. While we obtain our thermal energy (steam and chilled water) from ACM Energy Partners, LLC (an affiliate company of DCO Energy, LLC) Midtown Thermal Control Center, we continue to have interest in the creation of energy resilient infrastructure to serve areas of the City that could stand alone during an extended utility grid outage.

We have met with DCO Energy, LLC with respect to this project and believe our geographic location, the existence of critical electrical and generating infrastructure, and interest by several neighboring properties creates a unique opportunity that would benefit the development of a local migrogrid. Such a microgrid would allow for the operation of critical facilities and shelters during a catastrophic event that impacts the electric grid for an extended period.

We are interested working with the City and DCO Energy, LLC to support your efforts related to the TCDER Microgrid Feasibility Study Incentive Program and believe that further investigating the feasibility of a local microgrid is a logical next step. Should you have any questions, please don't hesitate to contact me at 702-880-6876.

Sincerely,

Eric Dominguez
Vice President
Facilities, Engineering & Sustainability

Cc: Kevin Ortzman, Caesars Entertainment
David Satz, Caesars Entertainment
Amie Sabo, Caesars Entertainment
Lynne Hughes, Caesars Entertainment
Jonathan Wohl, DCO Energy, LLC

CRDA
Casino Reinvestment Development Authority

March 16, 2017

BY FIRST CLASS MAIL AND EMAIL:dguardian@cityofatlanticcity.org

The Honorable Donald A. Guardian
City of Atlantic City
301 Bacharach Boulevard, Suite 706
Atlantic City, NJ 08401

Re: Town Center Distributed Energy Resource Microgrid Application (TCDER) project

Dear Mayor Guardian:

The Casino Reinvestment Development Authority, as owner/operator of Boardwalk Hall, is pleased to provide this letter in support of the Town Center Distributed Energy Resource Microgrid Application (TCDER) project.

CRDA currently obtains its thermal energy (steam and chilled water) from the Midtown Thermal Control Center, which is owned and operated by ACM Energy Partners, LLC [an affiliate of DCO Energy, LLC (DCO)]. The Authority is closely monitoring the work of the Board of Public Utilities (BPU) in connection with the development of the TCDER Microgrid Feasibility Study Incentive Program, and supports the creation of resilient infrastructure capable of providing energy to the downtown area of Atlantic City during an extended utility grid outage.

CRDA has met with DCO and BPU representatives with respect to a Microgrid program for Atlantic City, and supports DCO's efforts regarding the TCDER project.

Sincerely,

Christopher M. Howard

atlantic city electric®
An Exelon Company

Vincent Maione
President
Atlantic City Electric Region

5100 Harding Highway
Mays Landing, NJ 08330

609.625.5864 – Telephone
609.625.5274 – Facsimile

vincent.maione@atlanticcityelectric.com

March 22, 2017

The Honorable Donald A. Guardian
Mayor, City of Atlantic City
1301 Bacharach Boulevard
Atlantic City, New Jersey 08401

Re: Atlantic City Electric Company
Letter of Support for Town Center Distributed Energy Resource Microgrid Feasibility Study Incentive Program

Dear Mayor Guardian:

On January 25, 2017 the New Jersey Board of Public Utilities ("BPU" or the "Board") approved the Town Center Distributed Energy Resource ("TC DER") Microgrid Feasibility Study Incentive Program (the "Program"). The BPU has recognized that significant information and data to evaluate and optimize the feasibility of a microgrid is needed from the utilities and, as part of the application process[1] for the Program, has required that Program applicants obtain a Letter of Support for the feasibility study from the electric and gas distribution companies that operate in the service territory where the proposed microgrid project will be located.

[1] There is a two-phase application process for the Program. The first phase is the feasibility study. The second phase is detailed engineering of the proposed microgrid project. The Board must approve an applicant's feasibility study in order for the applicant to move on to the second phase of the application process.

Representatives from Atlantic City Electric Company ("ACE" or the "Company") have met with the City of Atlantic City regarding a proposed TC DER microgrid project. ACE is pleased to offer this Letter of Support in connection with the City's proposed TC DER Microgrid Feasibility Study Application (the "Application"). ACE agrees to provide to the City of Atlantic City with reasonable and relevant information regarding the Company's distribution and transmission infrastructure which exists, is available, and is not subject to an enhanced level of system/operational security (referred to in this letter as the "Information"), that is necessary for the City of Atlantic City to complete a microgrid feasibility study. The City of Atlantic City acknowledges and agrees that any Information provided by the Company shall be returned at any point in the process that the Application is withdrawn, rejected by the BPU or delayed for a period of six months or more. ACE will provide the Information with the understanding that the City of Atlantic City will execute all Company required forms and agreements, including, but not limited to, confidentiality and/or non-disclosure agreements.[2]

Although ACE agrees to provide the Information to the City of Atlantic City, to the extent that special studies are required, the Company reserves the right to bill the City of Atlantic City for these special studies, according to ACE's tariff and/or customary practice. In addition, to the extent that interconnection applications are required for the distribution utility, PJM Interconnection, LLC or both, the City of Atlantic City acknowledges and agrees that it will be responsible for all applications and associated fees. Nothing in this Letter of Support shall be interpreted as circumventing or accelerating well-established practices for processing interconnection applications.

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[2] In accordance with N.J.A.C._14:4-7.8, the Company will also require signed consent forms before personally identifiable customer information will be released to any Program applicant.

ACE further reserves the right to review, comment, and take positions on the City of Atlantic City's feasibility study throughout the BPU's review process, including, but not limited to, any final report that may be issued by the Board as well as the remaining phases of the Program.

The Company is pleased to provide this Letter of Support and looks forward to working with the City of Atlantic City throughout this application process.

Respectfully submitted,

Vincent Maione
Regional President
Atlantic City Electric Company

cc: Irene Kim Asbury, Esquire, Secretary, BPU (First Class Mail and Electronic Mail)
Michael Winka, BPU (First Class Mail and Electronic Mail)
Frank E. DiCola, PE, DCO Energy (First Class Mail and Electronic Mail)

AtlantiCare
REGIONAL MEDICAL CENTER
A MEMBER OF GEISINGER HEALTH SYSTEM

March 20, 2017

Mayor Donald A. Guardian
City of Atlantic City
City Hall
301 Bacharach Boulevard
Suite 706
Atlantic City, NJ 08401

Re: Letter of Support

Dear Mayor Guardian:

AtlantiCare Regional Medical Center is pleased to provide this letter of support for the feasibility study for the Town Center Distributed Energy Resource Microgrid Application (TCDER) project.

We have been closely following the work of the Board of Public Utilities (BPU) with the development of the TCDER Microgrid Feasibility Study Incentive Program. As the region's only Level II Trauma Center it is imperative for us to continue to have interest in creating an energy resilient infrastructure to serve this area of Atlantic City that could stand alone during an extended utility grid outage.

We have met with DCO Energy, LLC with respect to the feasibility study for this project, and are interested in being one of the participants in the feasibility study. We are ready to work with and support the feasibility study regarding this Microgrid project.

Sincerely,

Margaret Belfield
Executive Vice President & Chief Operating Officer

South Jersey Gas®

David Robbins Jr.
President

March 20, 2017

Mayor Donald A. Guardian
City of Atlantic City
City Hall
301 Bacharach Boulevard
Suite 706
Atlantic City, NJ 08401

Re: Letter of Support

Dear Mayor Guardian:

South Jersey Gas(SJG) is pleased to provide this letter of support for the Town Center Distributed Energy Resource Microgrid Application (TCDER) project.

We have been closely following the work of The Board of Public Utilities (BPU) with the development of the TCDER Microgrid Feasibility Study Incentive Program. Our distribution system in Atlantic City was impacted during Superstorm Sandy, and participation in this Microgrid project can be beneficial for not only SJG to assist in adding electric grid reliability and resiliency, but also our customer's that are participating in the project as well.

We have met with DCO Energy, LLC with respect to this project, and are ready to work with and support them in their efforts regarding this Microgrid project.

We are pleased to be part of this project and evaluation of it.

Sincerely,

David Robbins Jr.

David Robbins, Jr.

1 South Jersey Plaza, Folsom, New Jersey 08037 • www.southjerseygas.com
Tel. 609-561-9000 • Fax 609-561-8225 • TDD ONLY 1-800-547-9085

Memorandum of Understanding
ACM Energy Partners Microgrid Project

This Memorandum of Understanding ("Memorandum") is made on February___, 2019 by and between the perspective parties reflected on the signature page of this document (each a "Party" and collectively, the "Parties").

Whereas, the Parties have expressed interest in participating in the proposed μGrid as has been detailed in the Atlantic City Microgrid Feasibility Study dated August 28, 2018.

Whereas, the Parties desire to enter into a non-binding Memorandum between each of them and ACM Energy Partners setting out the working arrangements that each of the Parties agree are necessary to (1) create the financial structure needed to complete the microgrid project, and (2) develop a contractual framework under which the parties might purchase thermal energy and electricity generated at the Midtown Thermal Energy Center as well as other locations included in the microgrid project; and

Whereas, the Parties understand that working together to leverage common infrastructure associated with the microgrid project may yield efficiency and cost reduction that benefit all participants; and

Whereas the Parties recognize both the significant public benefits attendant and state financial support associated with the creation of this resilient energy resource and its capability to assist in the provision of continuing life support services and shelters during weather and other public emergencies.

Purpose

The purpose of this Memorandum is to provide the framework for any future negotiations between the parties regarding the development of the microgrid project and the provision of steam, hot water, chilled water, and electricity to each of the properties under the control of the signatories to this Memorandum.

Obligations of the Parties

The Parties acknowledge that no contractual relationship is created between them by this Memorandum but agree to work together in good faith and in the spirit of partnership to further explore and define the financial, administrative and managerial commitments that would be necessary to develop and operate the microgrid project.

Cooperation

The Parties shall cooperate to develop a mutually beneficial structure for the proposed microgrid project that yields efficiency, cost savings and public good.

Communication Strategy

Marketing and any media or other public relations contact should always be consistent with the aims of the microgrid project and only undertaken with the express agreement of all Parties. Coordinated communications should be made with external organizations to solicit their support and further the aims of the project. A spirit of open and transparent communication amongst the Parties should be adhered to without breaching any confidentiality.

Liability

No liability shall arise or be assumed between the Parties or any third parties as a result of this Memorandum.

Governing Law

This Memorandum shall be construed in accordance with the laws of the State of New Jersey.

Assignment

No Party may assign or transfer the responsibilities made herein without the prior written consent of the non-assigning Party, which approval shall not be unreasonably withheld.

Amendment

This Memorandum may be amended or supplemented in writing, if the writing is executed by the Parties signatory to this Memorandum.

Understanding

1. This Memorandum is non-binding. Nothing in this Memorandum shall obligate any Party to make any expenditure or incur any costs.
2. This Memorandum is not intended to and does not create any right, benefit, or trust responsibility in favor of any Party or any third party.
3. This Memorandum will be effective upon the signature of each Party.

4. Any Party may terminate its participation in this Memorandum without cause or penalty by providing written notice to the other Party(ies).

Signatories

This Memorandum is signed on behalf of the Parties listed below and shall become effective as of the date of their signature.

AtlantiCare Regional Medical Center

By: ______________________________

Name: ______________________________

Title: ______________________________

Date: ______________________________

Bally's Atlantic City

By: ______________________________

Name: Kevin Ortzman

Title: Regional President

Date: ______________________________

Caesars Atlantic City

By: ______________________________

Name: Kevin Ortzman

Title: Regional President

Date: ______________________________

Boardwalk Hall

By: ______________________________

Name: ___________________________

Title: ____________________________

Date: ____________________________

ACM Energy Partners

By: ______________________________

Name: Frank E. DiCola

Title: Chairman

Date: ____________________________