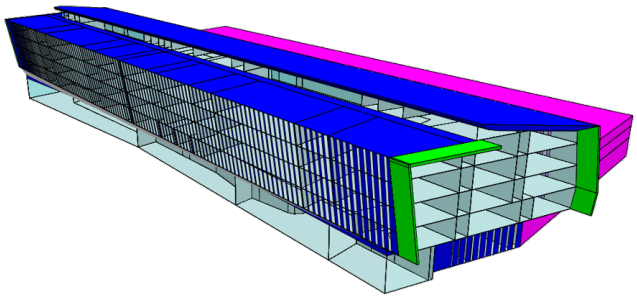
## FACILITY ENERGY AUDITING

An energy audit is like a medical check-up for your building. Our energy engineers have audited more than 500 million square feet of buildings. Our engineers understand the complexity of buildings and systems and how they work in order to identify the best opportunities.

TLC's audit experience ranges from high level ASHRAE level 1 audits to full investment grade energy studies. We can deliver recommendations on all energy and water consuming systems, including HVAC equipment, fans, pumps, lighting, plumbing fixtures, kitchen equipment, and more. The goal of all of our audits is to provide our clients with the information needed to make informed decisions about the future of their buildings and direction of their projects.

### Client benefits of performing an energy audit:

- Thorough building analysis
- Increased understanding of building energy consumption
- Identification of current system deficiencies



### CASE STUDY: CITY OF ORLANDO ENERGY UPGRADES PHASE II


Initially contracted to audit and engineer energy conservation measures (ECMs) for 27 city-owned buildings, TLC was awarded subsequent contracts to audit, identify and design ECMs for an additional 55 buildings, including the Amway Center and City Hall as part of Orlando's GreenWorks program.

TLC's detailed analysis revealed that the 875,000 SF Amway Center was the city's largest energy consumer by cost, totaling approximately $3.8 million annually. Initial efforts strategically focused on the energy performance analysis and audit of the indoor lighting systems within the "bowl", audit of the indoor lighting systems outside the bowl and audit of the indoor non-lighting systems (HVAC).

In 2021, the City was able to realize a 23% reduction across more than five million square feet of the city's building portfolio. TLC contributed to this significant reduction with audits, retro-commissioning and replacement of inefficient equipment with higher efficiency equipment. The City has been recognized by the Department of Energy for their continuing efforts to be the greenest, most sustainable city in America.

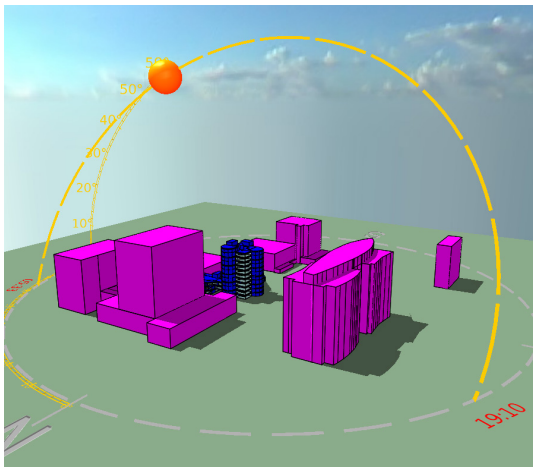
## ENERGY MODELING

A building energy model is an invaluable tool in predicting the energy consumption and demand impact of changes to building systems and changes to sequences of operation. An essential part of any investment grade energy project, the model allows the identified energy conservation measure (ECM) opportunities to be operationally evaluated to determine their viability. Following a building energy audit, the collected information is used to build a model your facility or facilities. We use current and past utility bills and/or onsite data logging to allow calibration of our electronic models to the historical consumption of the building. This model can then be used to analyze different building envelope, HVAC and lighting systems to determine the most efficiency energy solutions. We analyze building systems and calculate detailed energy savings utilizing hourly, site-specific weather data.

In addition to modeling existing facilities, TLC has experience building energy models for new projects in design. Integrating ECMs from the envelope and MEP systems, can result in a lower project first cost and operational cost for the owner. On projects pursuing LEED certification, TLC will complete the LEED forms necessary for EA credits and provide recommendations to increase EA points. Our modeling expertise includes a variety of building types including healthcare facilities, educational buildings (both K-12 and higher education), public assembly facilities, industrial and manufacturing buildings, office buildings, military and judicial buildings, and technically complex spaces such as vivarium and research facilities.

### CASE STUDY: DUAL FUNCTION FACILITY YERKES NATIONAL PRIMATE RESEARCH CENTER, ATLANTA, GEORGIA

Energy modeling of the vivarium located in the Dual Function Facility for LEED, and to aid the owners in making critical decisions on the final design with respect to energy efficiency.



**Client benefits from having an energy model created:**

- **Calculate annual and lifecycle energy and cost savings for proposed ECMs**
- **Creation of a calibrated building model to use in on-going analyses of your building to analyze energy consumption impact of new improvements, additions, and/or modifications to the building and/or the building's systems**
- **Aid in development of accurate system operation strategies**
- **Compare existing and alternative systems operational costs**

## UTILITY RATE & REBATE ANALYSIS

Understanding how a building uses energy in relation to how a utility charges for energy for that building is a powerful tool that can be used to lower utility costs. Investigating utility tariff options in the context of historical demand and usage can often lead to substantial dollar savings, in turn allowing clients to reinvest their energy dollars in facility improvements.

Examples include propane-air systems that allow a client to utilize an interruptible gas rate structure that results in lower gas costs. In addition to rate analyses, many utilities offer rebates or incentives for installing new energy efficient systems and equipment. TLC can help you understand and apply for rebates where available, and these rebates can often improve the financial viability of desired energy efficiency improvements.

**Client benefits from utility rate analysis:**

- **Lower energy rates**
- **Lower utility costs**
- **Reduced cost of energy efficiency measures**
- **Ability to reallocate operational funds to capital improvements**

## PERFORMANCE CONTRACTING DESIGN SUPPORT (ESCO/UTILITY/EAAS)

Developing an ESPC or UESC contract can be a time consuming and technical process, and numerous ESCOs, utilities and EaaS providers rely on TLC to provide engineering support for these efforts. Our team understands the process required to develop these projects, and our energy engineers are a seamless addition to your team. From preliminary auditing and energy analysis to system design, commissioning, and M&V services, TLC can provide the support you need to successfully complete your project.

Some of our clients prefer to outsource the majority of their engineering tasks to TLC, while others pick and choose the skills needed augment their internal resources. Our goal in providing ESPC/UESC/EaaS support is to make the life of your project developers easier and to ensure that your project is successful.

**Client benefits of having TLC provide ESCO/Utility/EaaS design support:**

- **Engineering team that is experienced with all phases of the project**
- **Flexible resources based on individual needs**
- **Highest quality engineering analysis**

## DISTRICT ENERGY PLANT ANALYSIS

Because we have an extensive background working with utilities and building owners in the development and evaluation of district energy options, our team brings a high level of expertise to clients evaluating system alternatives. Our team can help quantify the cost of district energy alternatives to allow our clients to make more educated decisions regarding their facilities.

**Client benefits of district energy plant analysis:**

- **Provides a financial basis for central plant decision making**
- **Provide a full understanding of the impact of a heating and cooling plant**
- **Identifies a clear pathway to meet future goals**
- **Development of recommended energy conservation measures (ECMs)**

## THIRD-PARTY PROJECT REVIEW

Many building owners do not have significant experience executing performance contracts. TLC's experience working with performance contracts and completing hundreds of energy studies make us a great resource when you need third-party review of your projects. We provide thorough and expert review of your proposed projects to ensure viability of the energy savings. Every ECM is evaluated for proper calculation methodology, proper assumptions and reasonable results. The measurement and verification protocols are also reviewed to verify that they are fully encompassing and truly measure what is being guaranteed so that the owner is protected should the contract supplier not meet expectations.

TLC has a team of engineers that are Department of Energy (DOE) Approved Project Facilitators, which allows them to work with government agencies to develop and support Energy Savings Performance Contract (ESPC) and Utility Energy Savings Contract (UESC).

**Client benefits to having a third-party review conducted:**

- **Expert review of savings calculation methodologies to ensure accuracy**
- **Works toward protection for owner should the ESPC/UESC not deliver on promises**
- **Empowers the owner to make informed, financially sound decisions**

## ADDITIONAL SERVICES

We understand the process of making an energy project a reality, from a preliminary discussion to measurement and verification of savings. In addition to the services outlined above, TLC can provide the following services:

- New technology application
- Measurement & Verification development and execution
- Data logging and utility metering
- Blower door testing
- Thermal imaging
- Lighting audits
- Energy Star certification
- Life cycle cost analysis
- Lower utility costs
- Energy savings through behavioral modification

## CONTACT OUR ENGERY EXPERTS FOR MORE INFORMATION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