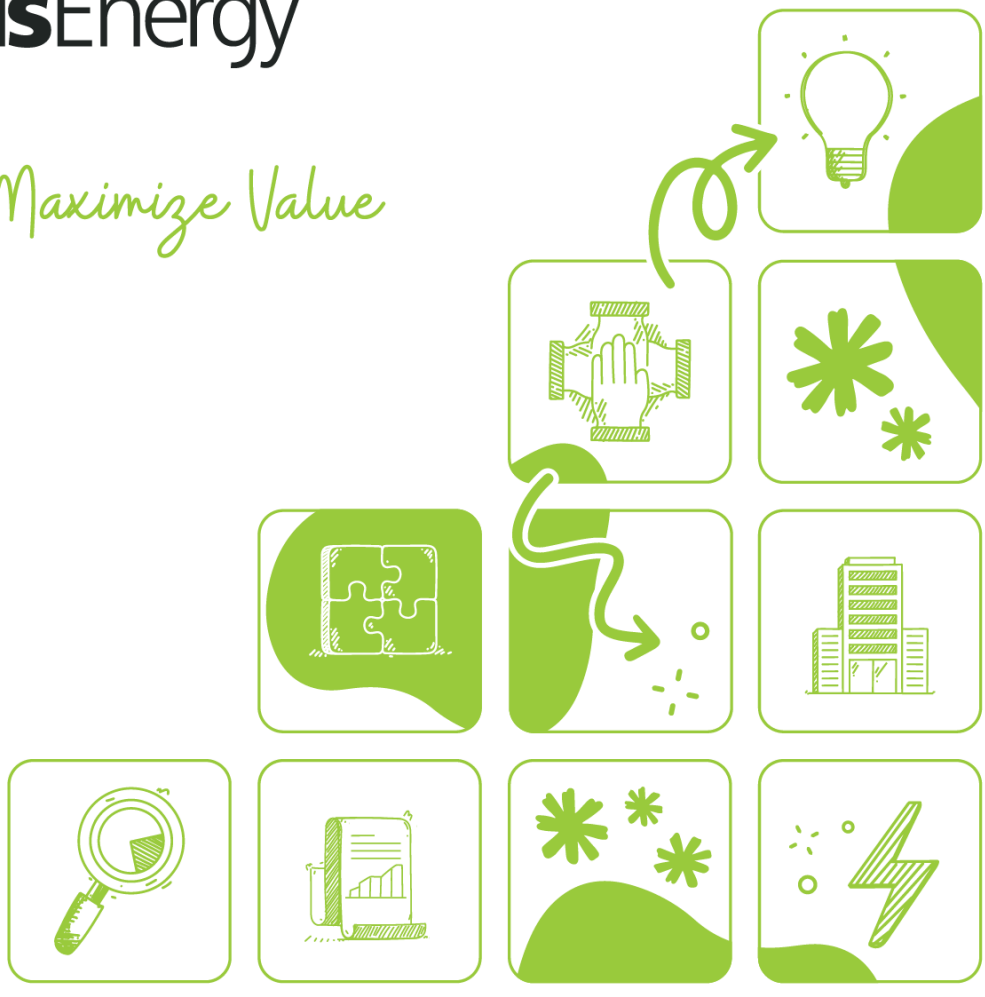
Using Energy Audits

To Maximize Operations

MichaelsEnergy

Minimize Waste, Maximize Value



White Paper

Table of Contents

Introduction

From rising energy costs, regulatory compliance, and corporate sustainability goals, there's a lot of pressure on organizations today to get a handle on how they're using power and find clever ways to reduce their environmental impact. Energy audits are used more frequently today as a critical tool to improve energy efficiency, reduce operating costs, and meet ESG (Environmental, Social, and Governance) initiatives. Audits have rapidly transitioned from being an optional assessment to a strategic necessity in many industries and states.

What is an Energy Audit?

Don't let the word "audit" scare you off - energy audits are actually pretty cool! Think of it as a check-up for your building's energy usage, usually done by an engineer. The goal? To find ways to save energy, cut costs, reduce those pesky greenhouse gas emissions, and make your business more sustainable. During the audit, the engineer takes a good look at how you're using energy, does some measurements, and crunches some numbers. Then, they come up with recommendations that fit your company's energy goals. Simple, right?

Importance of Energy Audits

While all energy audits are not created equal, there are generally four major benefits that they provide.

1. Roadmap to Savings
Audits point out specific steps you can take to use energy better, reduce how much you need, and lower your costs. It's like having a GPS for your energy spending, helping you focus on the projects that'll give you the biggest bang for your buck.

2. Industry Benchmarking
You'd be surprised how many businesses don't really know how they're doing energy-wise. An audit gives you a starting point, so you can see how you compare to others in your industry. It's like getting a report card for your energy use!

3. Regulatory Compliance
More and more states and cities throughout the U.S. are requiring buildings to meet specific energy efficiency standards. Some examples include **New York City, Boulder, Denver,** and the state of **Colorado** (*click each city or state for specific regulatory compliance*). These locations have rules that require certain-sized buildings to hit specific energy reduction targets within a set time - or face major penalties. An energy audit helps you navigate these ever-changing rules. It's like having a legal advisor for your energy use!

4. Funding and Incentives
Energy audits often uncover chances to take advantage of utility program incentives, tax breaks, and federal grants that can help pay for energy upgrades. It's like finding hidden treasure in your energy bills!

You can't manage what you don't measure.

Energy is no different!

Types of Energy Audits

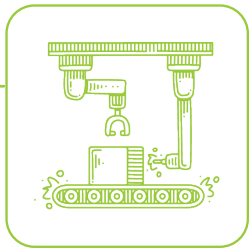
There are six main types of audits mentioned below. A more detailed description of each can be found in the following pages.

ASHRAE Level Audits

ASHRAE audits identify ways to improve energy efficiency and reduce costs. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) provide three levels of audits ranging from a quick review to a comprehensive study.

ITAC Audits

Industrial Training Assessment Center (ITAC) Audits help manufacturers identify ways to reduce energy, improve efficiency, and lower costs.



Tax Exemption Studies

A tax exemption study, also known as a predominant use study, is a review of a facility's operations and utility expenses to help them qualify for tax exemptions (and save big on energy bills).

Virtual Audits

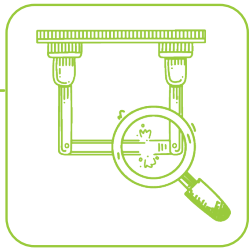
A virtual energy audit is a remote assessment of a building's energy usage that identifies opportunities to improve energy efficiency; without having an in-person visit.

Decarbonization Audit

A decarbonization audit is a comprehensive assessment of a facility's energy use and carbon emissions, with an actionable strategic plan to reduce carbon emissions over time.

Compressed Air Studies

Did you know compressed air systems can be real energy hogs in industrial facilities? Compressed air studies focus on finding energy-saving opportunities specifically for these systems.



ASHRAE Level Audits

ASHRAE audits help building owners and operators make informed decisions to save energy, reduce costs, and improve overall building performance. Because there are three different levels of ASHRAE audits, they also offer flexibility in how robust or straightforward their recommendations will be.

Level I: Walk-Through Audit

Think of this as a quick tour of your facility. We'll take a look around, spot some easy energy-saving opportunities, and give you a rough idea of costs and savings. It's a great starting point and helps you figure out what to focus on next.

Level II: Comprehensive Audit

This is where auditors roll up their sleeves and really dig in. Your engineer will analyze your energy consumption patterns, take some measurements on-site, and come up with a detailed list of ways you can save energy. Ever thought about fixing those compressed air leaks or installing some smart controls for your hot water? They might suggest things like that, along with costs and potential savings. It's the most common type of audit and gives you a ton of valuable insights without breaking the bank.

Level III: Investment-Grade Audit

Ready to make some serious energy investments? This is the audit for you. An engineer will perform a rigorous analysis of high-cost energy efficiency upgrades, focusing on your return on investment (ROI). We're talking vendor quotes, detailed cost projections, and a thorough ROI analysis. It's perfect for businesses ready to make significant changes.

ITAC Audits

ITAC audits are similar to an ASHRAE Level II audit, but they are run through the Industrial Training Assessment Center (ITAC) program developed by the Department of Energy (DOE). This program provides energy assessments to small and medium-sized manufacturers, including cold storage facilities and water/wastewater treatment facilities that meet the following criteria:

1. Less than 500 employees
2. Gross annual sales below $100 million
3. Annual energy bills between $100,000 - $3.5 million

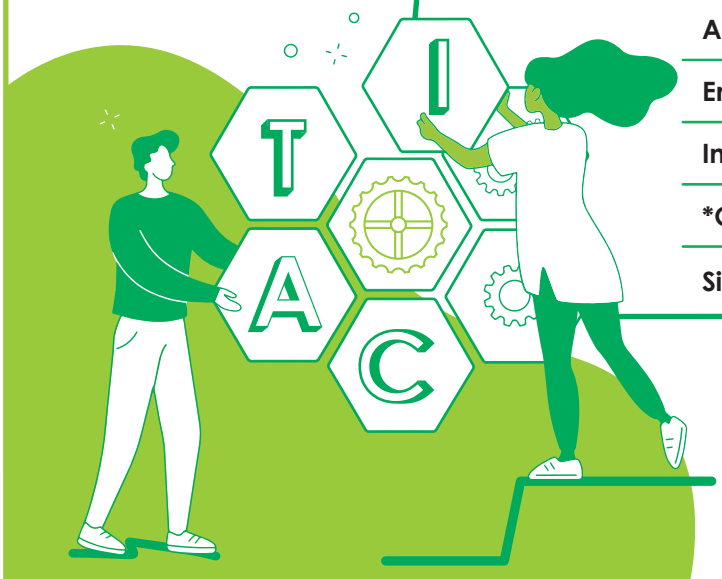
Here's the cool part: once an approved assessor (like Michaels Energy) performs the audit, you can apply for grants of up to **$300,000 per recommendation*** to implement the changes. How's that for a helping hand? For more on how Michaels Energy can assist with getting you started **click here** or visit MichaelsEnergy.com/ITAC.

Sample Recommendations From an ITAC Audit

ECO #5 Savings Summary

Install Variable Frequency Drives to Control Exhaust Fans

Electric Savings	370,000 kWh/yr
Annual Demand Savings	80 kW
Energy Cost Savings	$42,000/yr
Implementation Cost	$130,000
***Grant Funding**	$65,000
Simple Payback	1.5 years



**Grants up to $300,000 are available at a 50% cost share. Visit Energy.Gov for more information.*

Tax Exemption Studies
or Predominant Use

Did you know that in many states, you might not have to pay tax on some of the energy you use to make things? It's true! For example, the gas used to run a grain dryer for a particular manufacturer might be completely tax-free. To qualify, you need an energy audit to check how much of your energy is used in the production process. This is called a predominant use study; more casually referred to as a tax exemption study.

As of March 2025, **30 states and Washington DC** offer this tax exemption. Some states even offer a refund of taxes you've already paid. Pretty cool, right? While the rules vary by state and industry, all 30 states currently provide this exemption for manufacturers. Just remember, the exemption doesn't cover energy for things like lighting, cooling, or office equipment.

During a recent tax exemption audit completed for a client in Iowa, ***we found that 96% of their electric and 99% of their natural gas usage is tax exempt!***

Virtual Audits

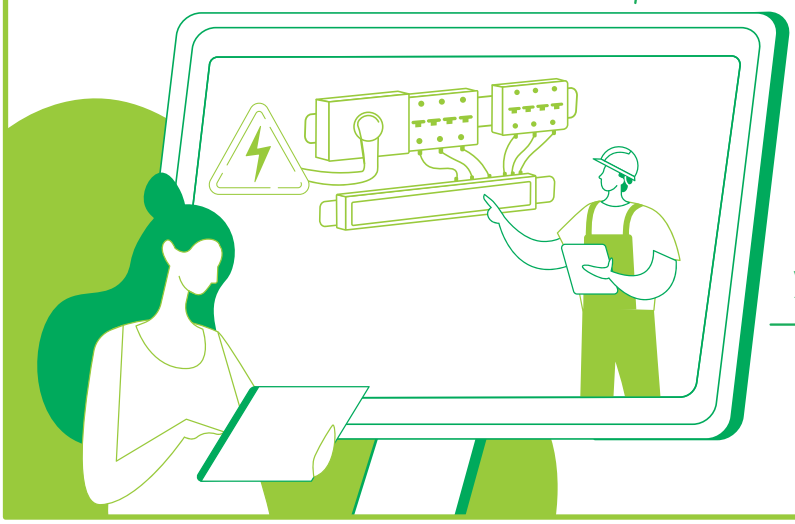
Virtual audits are a viable option for businesses that are unable to accommodate in-person visits. These audits are conducted remotely using video conferencing and detailed customer-provided data. Here's how the virtual audits work:

1 The engineer conducting your audit will work with you to gather utility information and usage history, equipment data, building blueprints, and/or operational data (as needed - they'll let you know exactly what they need).

2 Using video conferencing software (like Microsoft Teams or even FaceTime), you'll walk the engineer through the building so they can observe the building and major equipment while asking questions in real-time. Part of the video call may also include screen-sharing of building automation systems or energy management systems to review the system controls, set points, and schedules.

3 After analyzing all the information, the engineer will develop and deliver a report that provides cost-effective recommendations to optimize energy performance and improve system efficiencies.

Keep in mind that you'll need good internet connection and will need to be an active participant in the audit process.



If your facility has strict security needs, virtual audits may be a good fit for you. To reduce project costs, we may also include estimates of rebate amounts that you qualify for, based on the recommendations in your audit.

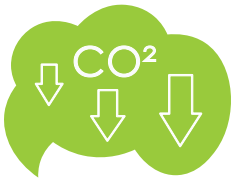
Decarbonization Audit

Decarbonization audits help organizations of all sizes identify and prioritize actions that reduce their energy use and carbon emissions. These audits typically build on ASHRAE Level II Audits, but with a specific focus on carbon reduction goals. They are particularly valuable for companies that have carbon reduction regulatory requirements or internal sustainability initiatives.

These audits can differ depending on the organization providing the service, but they typically start by determining the organization's baseline carbon footprint. An engineer will work with the organization to define their scope: in other words, they will determine if they only want to include their direct emissions or if they want to expand their scope to include indirect emissions from purchased electricity or emissions further down the value chain. Then, they'll collect data, convert the data to emissions, and calculate the organization's carbon footprint.

From there, the engineer will analyze current energy use and look for efficiency improvements, electrification alternatives, assess opportunities for renewable energy sources, and work with the organization to develop a comprehensive plan with recommended projects, estimated costs, and expected emission reductions.

One of Michaels' higher education clients was able to reduce their overall energy usage by 50% and carbon emissions by 72%!



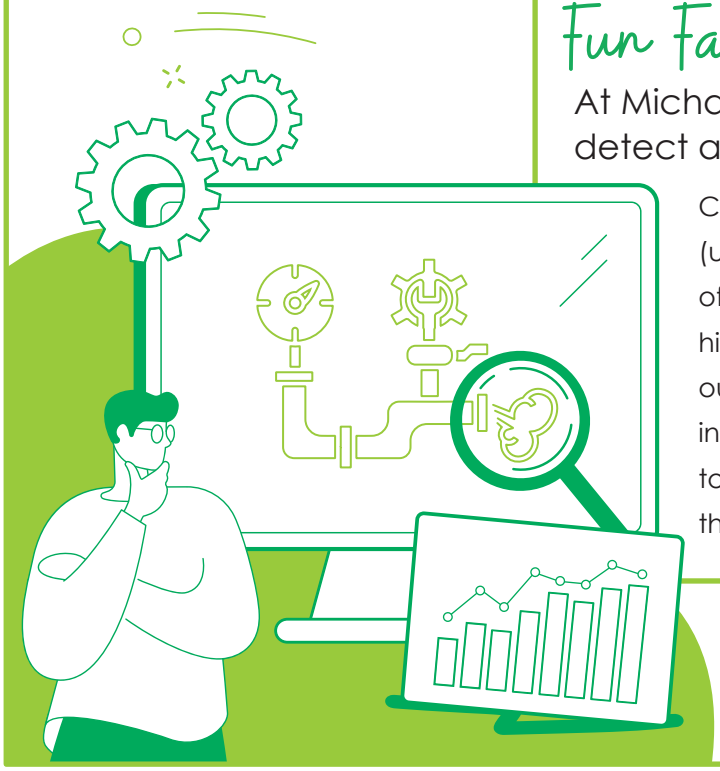
What's the secret to big carbon reduction?

Start by finding the big energy waste streams - the low hanging fruit that you can fix quickly - and use the money you saved to implement more efficiency and carbon reduction projects. Rinse and repeat!

Compressed Air Studies

Okay, so a compressed air study isn't exactly an energy audit, but boy, does it impact energy use! Compressed air systems can use up a lot of energy in industrial facilities. Compressed air studies offer an in-depth analysis of a facility's compressed air system to identify inefficiencies, reduce energy consumption, and improve overall system performance. Studies typically include easy (and low cost) fixes like repairing a leak, as well as bigger investments like replacing air compressors.

These studies are a low-cost way for factories to save BIG on energy.



Fun Fact:

At Michaels Energy, we use ultrasonic meters to detect air leaks.

Compressed air leaks create high-frequency sounds (ultrasonic noise) that are often beyond the range of human hearing. Ultrasonic meters convert these high-frequency sounds into audible signals that our engineers can hear through headphones. The intensity of the signal increases as we move closer to the source of the leak, making it easy to pinpoint the exact location!

Audit Process Overview

While each audit type will have a specific process, there are typically five general steps that an engineer follows when conducting an energy audit.

1. Gather the Data

An engineer will ask for at least a year's worth of your energy bills as well as your building plans, equipment lists, and any quotes you might have for project upgrades. It's like gathering the pieces of a puzzle before trying to put it together.

2. Do Some Homework

The engineer then reviews all the information to get a good idea of how your building is currently using energy. This will help them spot potential areas for improvement before they even set foot in your facility.

3. Visit the Site

When the data review is complete, an engineer will come to your building to do a detailed review. They'll take measurements, see how energy is being used, and look for additional ways to save.

4. Crunch the Numbers

After the visit, they'll put all their findings into a digestible report. This will outline suggested improvements, cost estimates, and expected savings.

5. Present the Findings

Your engineer will then sit down with you to walk you through the report. They'll explain all the Energy Conservation Measures (ECMs) they've suggested and show you how much you could save.

Selecting an Auditor

Thinking about getting an energy audit? Great choice! Here are some key questions you should ask when searching for the right auditor for your business:

1. Have you conducted audits for businesses similar to mine?
2. What specific systems will you look at for energy savings?
3. What qualifications do your engineers have?
4. Are there utility-funded programs or grants available to help pay for this?
5. Can I see an example of one of your audit reports?

Who Should Get an Audit?

Energy audits are especially useful for businesses with high energy use intensity. Hospitals, universities, and hotels are typically great candidates for energy audits. Buildings that don't use as much energy might not see as much savings, so an audit may not be as helpful. Not sure where you stand? Let's take a look at EUI.

Energy Use Intensity (EUI): This fancy term shows how much energy a building uses compared to its size. It's like a miles-per-gallon rating, but for buildings! To calculate it, simply divide the total energy the building uses in a year by its total floor area. Simple, right? To see how EUI varies across different market sectors, visit **EnergyStar.Gov.**

What Happens Post-Audit?

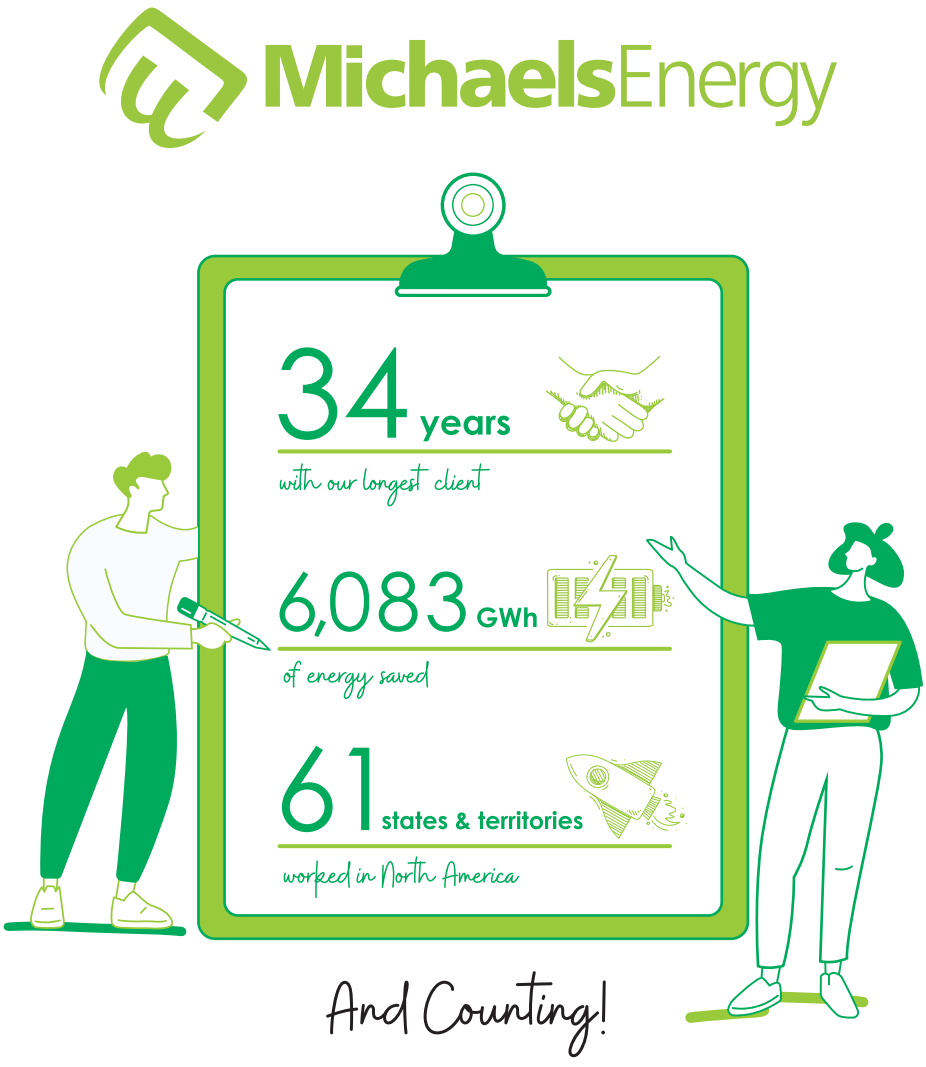
Once an energy audit wraps up, businesses face a crucial crossroads. They've got a wealth of information at their fingertips, but what's next? Well, it's time to roll up those sleeves and explore funding options to bring those energy-saving measures to life.

Here's a pro tip: Don't be shy about asking your auditing firm if they offer implementation services for the changes they've recommended. It's like having a trusted guide who's already familiar with your energy landscape. And while you're at it, pick their brains about any post-audit services they provide. It's better to know upfront what kind of support you can expect down the road.

The Real Power of Energy Audits

Let's be honest - energy audits aren't just another task to check off your list. They're like a golden ticket for businesses looking to boost their energy game, trim those painfully-increasing energy bills, and stay on the right side of the rules. But here's the thing: it's not about picking just any audit or auditor. The magic happens when you find the perfect match.

When you get the right audit-auditor combo, you're not just getting a snapshot of your energy use. You're unlocking a treasure chest of insights that can shape your energy strategy for years to come. It's like having a road map to a leaner, greener future - and who wouldn't want that?



All-things-energy: That's our jam!

Energy audits are powerful tools for organizations aiming to reduce their energy bills and carbon footprint. At Michaels Energy, our engineers collaborate with clients to tailor solutions covering all aspects of emissions. We go beyond number crunching, delving into energy usage patterns to boost efficiency and develop customized plans. With four decades of experience, we've honed our skills in minimizing waste and maximizing value, guiding you through the ever-evolving world of energy management.

Here are a few of the other services we provide:

Retro-Commissioning (RCx)

RCx is like giving your building a tune-up. We optimize your existing systems to improve energy efficiency and occupant comfort. Our team thoroughly examines your HVAC, lighting, and control systems, fixing any issues we find. It's an effective way to breathe new life into your building without major capital investments.

Strategic Energy Management (SEM)

Think of SEM as your long-term energy fitness plan. We help you set goals, track progress, and achieve lasting energy savings. It's all about getting everyone in your organization pumped up about energy awareness. Before you know it, you'll have a whole team of energy-saving fanatics!

Thermal Energy Storage (TES) for Frozen/Refrigerated Storage

For businesses with significant cold storage needs, TES offers a clever solution to manage energy costs. We use special materials to store cold energy when electricity is cheap, then release it when rates are high. This keeps those pesky demand charges in check, reduces your energy bills, and even gives the power grid a helping hand. It's like a win-win-win situation.

Utility Energy and Load Management Programs

We partner with utility companies and government agencies to develop effective energy-saving programs for businesses. Our services range from demand response strategies to support for new construction projects and promotion of cleaner energy use. We offer a comprehensive toolkit to help you save energy and reduce costs.

Research and Evaluation

We're not just about creating energy efficiency programs - we're passionate about making sure they deliver real results! That's why we offer evaluation services that go beyond the surface. Our team loves diving into the details, conducting thorough evaluations that shape how programs are designed and implemented. We're like energy detectives, always excited to uncover new insights about market trends, program impacts, and cutting-edge technologies.

Find us at: **MichaelsEnergy.com**

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