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# Overview of the Industrial Assessment Center

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## What is IAC?

IAC stands for Industrial Assessment Center.

There are **28** such Centers in the country, all funded by the **Department of Energy (DOE)** to provide **no-cost** energy surveys for qualified plants such as yours. All are located within **Universities**, and directed by highly qualified and trained Professors.

The Centers are guided by a Technical Field Manager (currently Rutgers University) working under policy guidelines established by DOE. Rutgers assists DOE in monitoring and managing the program nationally.

# What are DOE's mission and goals for the program?



DOE funds these projects to make the US economy globally more competitive, improve energy efficiency, bring cutting-edge technologies to the end-users, train students, and provide value to the tax payers.

## The IAC:

- Serves manufacturing plants promoting efficiency, waste reduction, and productivity
- Links academia with industry (~150 students trained by SDSU)
- Develops better research strategies and incentive policies
- Promotes new technologies



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## What is an industrial assessment?

In addition to energy related projects, the Centers, at one time, also conducted waste minimization and productivity improvement – hence “assessment”. However, the Centers are funded by DOE, and their primary expertise is the energy survey.



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# How do we qualify end users?

Based on:

- Number of employees
- Gross annual sale
- Annual utility bill
- No in-house expertise

Or

Decision of IAC Director and DOE based on demonstrated need and furtherance of IAC program goals



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## Is the audit confidential?

All the data we collect and the reports we produce are confidential, and this is based on our contractual agreement with DOE. But DOE may chose to review the reports for audit or quality assurance purposes. No one else sees the data or the report, except the clients.



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## Why use universities to perform audit?

The Universities are probably best suited to offer unbiased recommendations, and may be familiar with the most recent technologies. DOE also places a heavy emphasis on student training.



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## What experience does SDSU/IAC have?

We have an extensive background in energy efficiency and renewable energy. For more details, please see the Directors home page:

<http://beyene.sdsu.edu/>.



# Who is the lead individual behind the SDSU/IAC?

- Prof Beyene is the Director of the Center, and the lead person at SDSU
- Rudy Marloth, P.E., and Prof. Joaquin Camacho are the Assistant Directors.
- Prof Beyene's expertise is in the general areas of energy, renewable energy, and energy efficiency  
<http://beyene.sdsu.edu>.



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## Are there added benefits to having the IAC perform the survey?

You get the free service of nationally acclaimed scholars who have visited and audited hundreds of sites, about 540 in SDSU's case. Of course it is not literally free, DOE funds these projects.



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## How large is the IAC database?

We have access to the entire national IAC database. We also have our own. More at:

<http://iac.rutgers.edu/database/centers.php>

## Are IACs as good as a private firm?

IACs do not compete or compare themselves with private companies.

They represent different purposes and strategies.

IACs are best equipped to address complex topics requiring unique research expertise.



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## Why SDSU IAC?

All IACs are excellent resources with national reputations. If you are in Southern California, we happen to be the closest to you, i.e., you are probably under our service territory.



## How old is SDSU IAC?

The Center was established in 1991.



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## What is our protocol?

In brief - upon arrival, we make a brief introduction of our Center, complete the site information form, ask plant managers to give us a brief description of the site, make a site tour, **collect data**, and then provide an exit interview.



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## What don't we cover as IAC?

Once on site, we cover most or all energy related issues worthy of our time. We do not cover legal and regulatory matters, or market mechanisms; we do not perform design; and we are not involved in the implementation phase.





Are end users obligated to implement all IAC recommendations?

No! However, it pleases us to see all our ideas implemented.



## What is SDSU/IAC success rate?

Based on follow-up interviews we conduct, we have about 65% implementation rate. This varies based on the energy market and incentive levels.



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## What is the basis for IAC type recommendations?

### **Mainly the payback period:**

For our Center, the average payback period, calculated as the total implementation cost / total annual savings, is about 1.5 years.



## What are the most common recommendations, based on \$avings

| <b>Recommendations</b> | <b>Total recommendations,<br/>%</b> | <b>Total savings,<br/>%</b> |
|------------------------|-------------------------------------|-----------------------------|
| CHP                    | 10                                  | 56                          |
| Alternate fuel         | 3                                   | 25                          |
| Power factor           | 12                                  | 4                           |
| Insulation             | 9                                   | 4                           |
| Lighting               | 30                                  | 4                           |
| Air Leaks              | 14                                  | 3                           |
| Heating and cooling    | 3                                   | < 1                         |
| Others                 | 19                                  | 3                           |
| <b>Total</b>           | <b>100</b>                          | <b>100</b>                  |



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# Will IAC recommendations compromise plant operation, or performance requirements, at the expense of saving energy?

The IACs have no reason to exaggerate results - nothing to commercially promote or sell. The funds we receive from DOE are not contingent on the level of savings we calculate, and more importantly, we guard our good names. Besides, we will share all the ideas with you, and you can comment on them or have someone else review them.



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## Does the IAC report include only recommendations?

No! The first section of the report you receive will usually have a fairly extensive background with pie-graphs of your monthly utility profile. Sometimes these can be broken down by buildings, and quite easily if the buildings have separate meters.



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## What does SDSU/IAC provide that private companies don't?

Not much more. We come with a wholesome understanding of site energy use. The audit is free of charge, and the recommendations are unbiased. These may or may not be different from what private companies offer.

# Does IAC audit cover Screening, Preliminary Audit & LEED-EB Site Visit, and Investment Grade Audit?

These phases actually follow IAC type audits. But we often merge Phases 2 and 3 because we can learn a lot from the utility data and pre-audit forms which we collect before coming to the site. Most of our suggestions are at Level 3. Our goal doesn't target certification. We recommend the most optimum and energy efficient systems that often satisfy LEED or could go far beyond.





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## How long does it take for each phase?

This depends on the site. We can save time if we get utility bills and pre-audit forms in advance. We would guess about 70% of our site time is spent on Phases 2/3.

The bottom-line: we will get all the data we need for our calculations even if it takes a bit longer.



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## What is the final deliverable?

You will receive a report with anticipated cost savings, energy savings, implementation cost, and payback period. Each recommendation is written independently.

Typically, we send out the report in < 6 weeks.

# Are new technologies included in the recommendations?



Yes, there are no restrictions to our recommendation if it makes engineering and economic sense. Our recommendations are two types: (i) full recommendations – typically for mature technologies with short payback, or (ii) additional measures for technologies that may not yet be very mature but are promising, or, are mature but may be expensive for now.

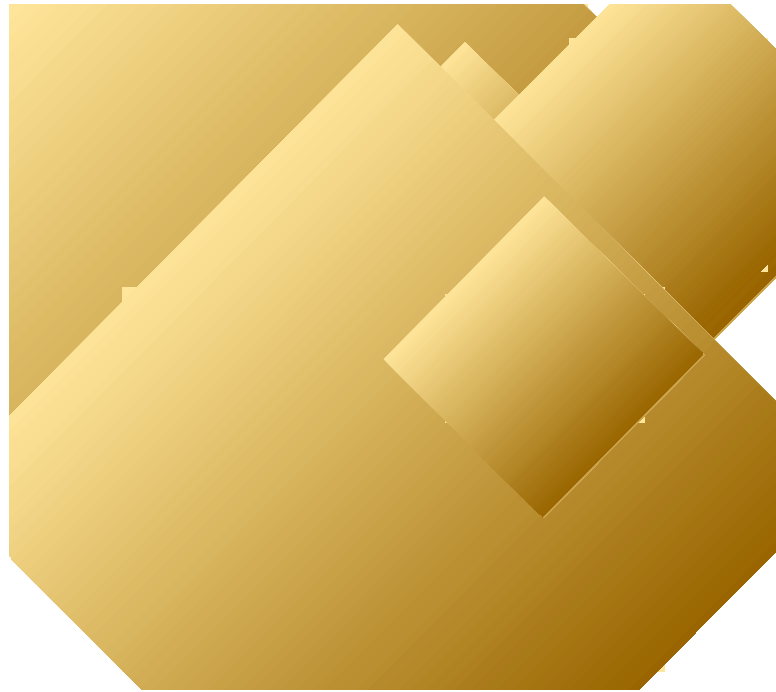
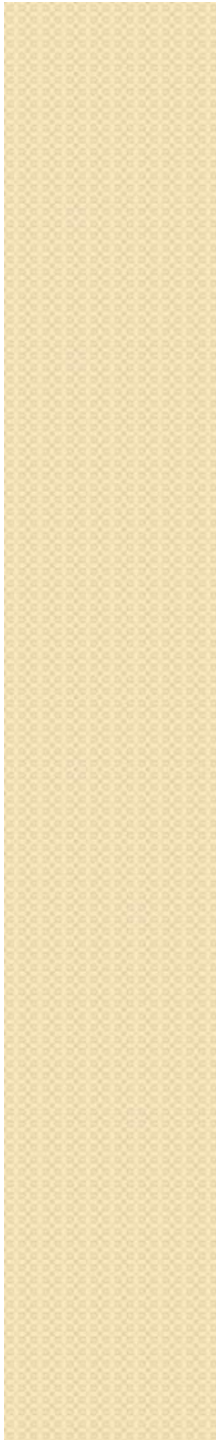
We also include ideas that end users want us to consider.

## Can IAC report be used as a basis for carbon footprint base line analysis as it relates to, for example, California's AB-32?

Generally, we do not address regulatory matters. However in some cases, we can check and provide a lead. We also know that utilities do honor our calculations and may offer incentives for many of our recommendations. Such recommendations will be identified in the report so that you can contact your utility liaison.

## What value has SDSU/IAC provided in the past?

We have surveyed over 570 sites mostly in Southern California. We have developed our own software tools. We have experienced staff on board – PEs and DOE's Qualified Experts. Faculty have extensive publications, the IAC Director has generated >\$9 million in research funding and graduated and trained >150 students, etc.



Questions ?

Contact IAC SDSU