

# EASY SUSTAINABILITY BLUEPRINT FOR FANTASTIC RESULTS



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### INTRODUCTION

Meeting corporate KPIs (Key Performance Indicators) and sustainability goals for energy savings and personnel safety can seem like a daunting task for any plant or facility manager. It's not always easy to fit research and a cost benefit analysis on new technologies into the day to day operations of a plant.

This is why we wrote this E-Book, which is based upon our many years of experience working with manufacturers around the world. We wanted to share what we've learned to break down your search for sustainability into easy steps - a Sustainability Blueprint - give you tips to get the technology manufacturers to do the heavy lifting for you, and show you how to incorporate your whole facility - manufacturing and, the sometimes under appreciated, building envelope into your plan for energy savings and asset protection.



New technologies are often not as new as you think. Many have a track record of a decade or more, giving you years worth of field data upon which to base a decision. We've brought you the most innovative and impactful on the market to make the evaluation process easier for you.

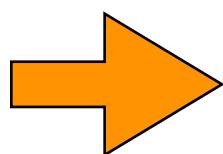
Bold Decisions. Bold Results.

### BEGINNING THE STEPS TO WHOLE FACILITY EVALUATION

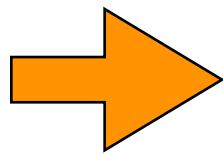
There is a famous quote by the inventor Nikola Tesla, “If you want to find the secrets of the universe, think in terms of energy, frequency, and vibration.” The first of these, energy, is something that is on the minds of many plant and facility managers often. The energy used in manufacturing impacts price and profit directly for nearly all companies, and thus reducing energy consumption is a main goal of manufacturers around the world, not only for reduction of carbon emissions for a healthier planet, but also for immediate monetary savings.

Most industrial manufacturers will look for savings in their process energy use, reduction of steam consumption, improved output per BTU or Kilowatt, for example. By thinking beyond equipment only, and expanding energy saving programs to the buildings that house manufacturing processes and office staff, managers can further reduce energy costs. Additionally, by researching new energy saving technologies, such as insulating coatings, they can further reduce costs and increase payback.

You Can Save Energy Here  
(heat process equipment)



And Also Here  
(building envelope)



### TAKING THE STEPS TO SUSTAINABILITY ACCELERATED™

New nanotechnology based coatings, like those that Synavax™ provides, offer not only an advancement in thermal insulation and surface protection, but they also consolidate the whole process, meaning that companies can use the same technology to insulate anywhere, from walls and roofs to steam pipes and tanks. And the longevity of this technology, which is typically 5-10 years or more, further reduces replacement and maintenance cost over time.

This greatly decreases the research time if you can use the same product line to insulate steam pipes (Synavax™ Heat Shield™ EPX-H2O) as you can to insulate your skylights and walls (Synavax™ Energy Protect™)

Further, a spray-on insulation and asset protection coating makes it easy to implement with your own personnel or painting contractor. This also means you can schedule installation with minimal to zero downtime, and move project to project according to your timeframe.

There are a few key steps for a whole facility - equipment and buildings - energy efficiency evaluation. By identifying your key energy consumption areas and mapping them out in a Sustainability Blueprint you can ensure a successful and thorough planning and implementation process.



## STEP 1: LIST OUT THE AREAS YOU'RE CONSUMING ENERGY

**List out the highest energy consumption areas in your company, and separate these into equipment and buildings.**

Below is an example of how this step might look in your evaluation notebook:

- a. Heating and Cooling consumption for buildings  
(List cost of annual energy consumption)  
Specific areas of building envelope:
  1. Roof over main building (1500m<sup>2</sup>)
  2. Perimeter walls (4500m<sup>2</sup>)
- b. Energy used for lighting  
(List cost of annual energy consumption)
- c. Steam Pipes at 170C (Cost of annual energy consumption)  
Specific areas:
  1. Boiler Room Steam Pipes (20cm diameter x 50 meter length)
  2. Manufacturing Area Pipes (30cm diameter x 85 meter length)
- d. Heated Storage Tanks at 90C (Cost of annual energy consumption)  
Specific areas:
  1. Fuel Storage Tanks (6 meter diameter x 8 meter height)

.....and continued for each of the areas where your company would like to reduce energy costs or improve sustainability by lowering surfaces to safe touch or preventing corrosion.

### GET THE TECHNOLOGY MANUFACTURER TO DO THE ANALYSIS FOR YOU

With a few key data points, most good technology manufacturers should be able to:

1. Make a recommendation as to which product of theirs to use.
2. Recommend a coverage level (number of coats, for example).
3. Provide you with a full cost/benefit analysis estimate.

At Synavax™ our complimentary specification includes, the calculated coverage area of your project, our recommended coating and coverage to meet your goals, a cost/benefit analysis for payback and ongoing return on investment, and several case studies that illustrate the benefits others have experienced.

We try to make it quick and painless for you. The information typically needed from you is just:

- 1) The surface and area type (steam pipes, skylight, etc..);
- 2) The dimensions of the equipment or area to be insulated;
- 3) If equipment: The maximum operating surface temperature;
- 4) Your goals for the application (safe touch, energy savings of a certain level, corrosion prevention, etc..)

Any good manufacturer of sustainable technology should be able to give you this type of specification report needed for your evaluation in a format that you can use to show others on your team in order to make an informed decision, and then use as a blueprint for your energy saving project implementation.



## Easy Sustainability Blueprint for Fantastic Results

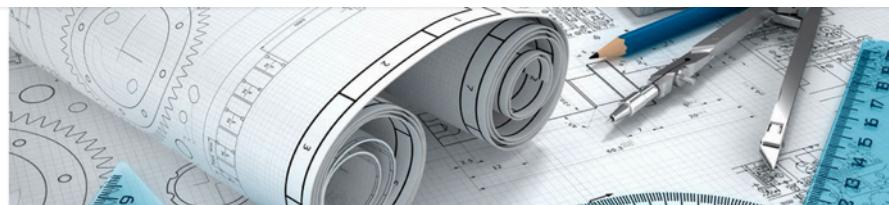
A representative from Synavax™ explains,

“We often have companies that look to us to provide them with assistance in their evaluation of energy saving technologies for both steam process equipment and for building heating and cooling. Some customers come back to us for building energy efficiency recommendations after they've seen how well our coatings work on their equipment.

We only need a few pieces of key information on their facility to provide a complimentary detailed energy savings assessment with projected project payback.”

At Synavax™ We work to make it simple and fast to request a free specification with cost/benefit analysis.

Just fill out our Request Form at: <http://www.synavax.com/request-a-specification>



### Request a Specification

Our Technical Team is pleased to assist you with a project specification and estimate to make your job simpler. Our specifications include recommendations for which product(s) to use, the thickness (number of coats) we recommend to meet your goals, application details, pertinent product data sheets and case studies. If we have all of the necessary information, we can include a payback estimate too.

Let's get started! You can call us 24/7 at 800-858-3176 or email us at [contact@synavax.com](mailto:contact@synavax.com) and let us know exactly what you would like us to do for you. Or you can use the form below to help us create your specification. Just fill in the pertinent details, required fields are noted with \*.

First Name

Last Name

Email

Company Name

Phone

Your Equipment or Area(s) for Specification (check all that apply)  Steam Pipes  Tank  Oven  Hot Water Pipes  Chilled Pipes  Dyeing Machine  
 Other Heat Process Equipment  Walls or Roof  Skylights or Windows  Other (not listed)

Maximum Surface Temperature of Equipment

Needs for the Application (check all that apply)  Insulation/Energy Savings  Insulation/Safe Touch  Corrosion/CUI Prevention  Insulation/Cold Equipment  Chemical Resistance  UV Resistance  Mold/Mildew Resistance  Condensation Control  Lead Abatement  Other (Describe Below)

Description of the Application (please include the dimensions or coverage area of the surface to be coated)

Estimated Project Timeframe  1-2 Months  3-6 Months  6-12 Months  Unsure

How did you hear about us?

Include me in company and product news updates.

### STEP 2: IDENTIFY TECHNOLOGY TO MEET YOUR NEEDS

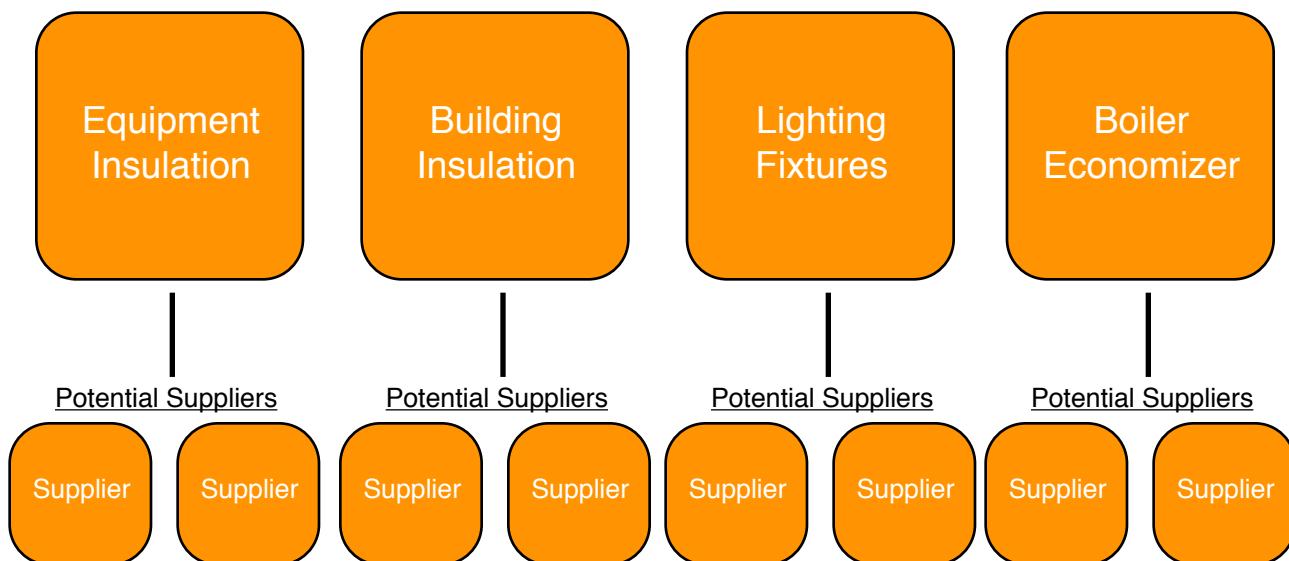
#### Identify Technology that May Help You Meet Your Needs

You will want to separate areas where insulation would save energy from areas where new equipment, such as lighting, would save energy, this will help you identify the correct companies to contact.

For example, for your insulation needs a company like Synavax™ could offer a recommendation for any insulation on both buildings or equipment, however we do not handle lighting. So for things such as lighting or boiler economizer equipment, you would want to contact the proper manufacturer that could assist you with a cost/payback analysis and recommendation.

Once you've separated the potential product needs in your Sustainability Blueprint, you can then begin contacting companies that provide these types of products, send them your needs, and request their input.

#### Separate your needs into different solutions



## STEP 3: EVALUATION OF RECOMMENDATIONS

### Evaluation of Recommendations

Once you've received the recommendations and cost/payback analysis from the vendor companies, you then have the data you need to make the best decision for starting your energy efficiency program. By having this detailed blueprint ahead of time, with matching vendor proposals, you and your colleagues can decide some key points, such as:

1. What areas to implement first.
2. The timing for implementing projects in each area.
3. How the estimated cost and payback will benefit your company.

Other considerations to ask manufacturers when you request detailed cost/payback analysis and recommendations are:

- 1) Whether the technology can be installed by your maintenance crew (and if so, what type of training and equipment is needed) or whether you have to hire an outside contractor for installation;
- 2) What the regular upkeep or maintenance needs for the technology would be and any costs involved with that;
- 3) Both the warranty period and the projected lifespan (typically the projected lifespan is longer than the warranty period);
- 4) Information on repair should damage occur.



Heat Shield™ EPX-H2O coating (in grey) insulating steam pipes.

## NEW TECHNOLOGIES TO CONSIDER

### New Technologies to Consider for Your Sustainability Blueprint

You may be tempted to simply contact vendors that you have been using for years when looking to increase your energy efficiency and facility sustainability, but don't neglect researching new innovative technologies. Improvements to technology are being made all the time, especially in the area of insulation and thermal barrier coatings, so you can be pleasantly surprised by options you now have available for energy savings and safe touch that may not have been available 15 years ago.

Two of these include:

#### - Synavax™ Thermal Insulating Coatings

Many factories are still using fiberglass or mineral wool insulation with aluminum cladding that was invented almost a century ago, simply because they aren't aware of the new nanotechnology based insulation coatings that are now available.



The Synavax™ line of patented thermal insulation and protective coatings have been in use for over 12 years and represent the next generation of insulation and surface protection for both equipment and buildings. The coatings use a patented nanomaterial in an environmentally friendly water-based coating that reduces heat conduction and at the same time prevents corrosion due to its water-repellent nature. Besides eliminating the corrosion under insulation (CUI) issues that many manufacturers face, this technology also is resistant to moisture and dirt infiltration, which can degrade fibrous insulations, and thus not only lasts longer in factory, outdoor, and extreme environments, but also maintains insulating level over their 5 to 10 year lifespan.

Industrial equipment applications customers report 10% to 25% or more in energy savings with a payback in the 6 to 18 months range. For building envelope applications, customers report energy savings on heating/cooling costs of 20% to 40% with payback in the 3 to 5 year range.

### CASE STUDY

One company that benefitted from upgrading their insulation to Synavax™ insulation coatings is Sinopec, China's state-owned oil and gas company. Sinopec did a comparison study of the Synavax™ High Heat insulating coating over the cold winter months, October 2012 through March 2013. The application was 12-coats (each coat applied at 100 microns in thickness) on the exterior of a fuel oil storage tank which was located on an offshore oil platform in the East China Sea.



Their goal was to keep the tank contents at between 68C to 72C and stop the corrosion that was happening with the rock wool and cladding that they had been using for years and needed to replace annually. They found that not only did the nanotechnology coating insulate just as well (within 3 degrees Celsius) as 8cm of rock wool with cladding, but that it also held up extremely well in the harsh marine environment without degrading, and stopped the costly corrosion issue.

**This is an example of how research into new technologies helped a company find a better and more cost effective way to save energy and reduce maintenance costs.**

This same technology can also be used on buildings, simply by painting it on walls (interior or exterior) or roofs, making it very cost effective to install and a way to easily increase building energy efficiency without construction.

When the Suvarnabhumi International Airport in Bangkok, Thailand was built, they sought out sustainable new technologies to use, and the Synavax™ coating technology was implemented on the airlink bridges of the airport to provide energy savings and surface protection.



### - Lighting with LEDs (light emitting diodes)

LED lighting is a technology that was first invented in the 20th century, but it has only been recently that companies have begun to implement this widely throughout their facilities as a replacement for the screw-based socket bulbs and fluorescent ceiling tubes that have been around for ages.

In the United States, lighting consumes more than 20 percent of electric power generated each year; the U.S. Energy Department says LEDs can cut consumption by up to 80 percent.



Advancements that make LEDs easier to use are also being made, such as one by Philips, which is a bulb called Hue that fits into the old sockets and can dim and brighten or change color. Prices for LEDs have also come down over the years, giving them a shorter payback period.

### CONCLUSION

In conclusion, creating your own Easy Sustainability Blueprint and identifying and implementing programs can be easier than you realize. By simply mapping out energy intensive areas - both equipment and buildings and letting the vendors do the work to provide you with recommendations and cost/payback analysis, you could begin saving energy dollars in just a few weeks, and significantly impact your next quarter's sustainability and energy saving goals.

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Learn more about Synavax™ Sustainability Accelerated™ Solutions at:

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