PACE PROGRAM GUIDELINES

TEXAS PACE AUTHORITY
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OVERVIEW

In 2013, Texas passed legislation giving property owners access to a new form of financing for building energy and water upgrades. Commercial Property Assessed Clean Energy (C-PACE) is a new public/private partnership program that allows Texas building owners to finance energy and water efficiency upgrades.

C-PACE allows property owners to access financing to undertake qualifying energy and water efficiency and clean energy improvements on their buildings and repay the investment through an assessment on their property. Similar to a sidewalk or sewer assessment, capital provided under C-PACE financing is secured by a lien on the owner’s property and paid back over time.

Like other special assessments, C-PACE is a non-accelerating senior lien secured by the property. The repayment obligation transfers automatically to the next owner if the property is sold and in the event of default, only the payments in arrears come due. This arrangement spreads the cost of water efficiency and clean energy improvements – such as energy efficient boilers, upgraded insulation, new windows, or solar installations – over the expected life of the measure. Because the payment is tied to the property, C-PACE projects are seen as less risky than typical loans, and low interest capital can be raised from the private sector with no government financing required.

Special assessments are a familiar tool that municipalities levy on real estate parcels to finance projects including street paving, water and sewer systems, and street lighting. C-PACE builds on a long history of using special assessments and serves a public purpose through reducing energy costs, stimulating the economy, improving property valuation, reducing greenhouse gas emissions and creating jobs.

C-PACE is a proven and effective tool to attract private capital into the clean energy and energy/water efficiency market. It is available to commercial, industrial, and nonprofit properties, and to multifamily properties with five or more units.

The following pages outline the Texas PACE Authority (TPA) Program Guidelines that govern all program participants. This guide is a comprehensive overview of how to put together a PACE project under programs administered by the TPA. The TPA operates using an open-market model under the framework of the PACE in a Box program design. Please direct any questions or comments to admin@texaspaceauthority.org.
STATUTORY AND PROGRAMMATIC REQUIREMENTS

There are four major features of the C-PACE legislation that govern the program.

1. Mortgage Lender Consent
Texas’ C-PACE program requires that the property owner receive the written consent of the mortgage holder before the property is eligible for PACE financing. There are many benefits for a mortgage holder that consents to a C-PACE assessment with a senior position to its mortgage. The TPA or the PACE capital provider can help with obtaining consent.

2. Building Eligibility
In order to be eligible for C-PACE financing, the property seeking financing must meet the following requirements:

- A property must be located within the boundaries of a county or municipality that has adopted a resolution establishing the C-PACE program.
- The applicant must provide evidence that it is the legal owner of the property, and all the legal owners of such property agree to participate.
- The property must be a nonresidential property. Multifamily properties containing five dwelling units or more are eligible.
- The property must have a property tax identification number. Non-profit buildings with a property tax ID number are eligible.
- The property owner must provide evidence that the mortgage holder (or holders) on the property consents to the C-PACE assessment.

3. Project Eligibility
C-PACE transactions eligible for financing must meet the following requirements:

- An energy audit or feasibility study must be completed.
- Upgrades must lower the energy or water consumption or demand of the property or be on-site generation behind the customer meter.
• Upgrades must be “permanently affixed” to the property. The measures proposed for the project must be permanently fixed to the property (i.e. the C-PACE improvements cannot be removed from the property in the event of a change of ownership). The term of the C-PACE assessment must not exceed the weighted average expected useful life (“EUL”) of the measures. EUL is determined through the energy audit and approved by an independent third party reviewer (ITPR) and the Texas PACE Authority in its sole discretion. All energy and water measures together generally must meet a savings to investment ratio (SIR) of greater than 1, meaning that projected savings from the energy measures must exceed the total investment, inclusive of financing costs over the full term of the C-PACE assessment. Such savings must be validated (but not guaranteed) by the ITPR. All C-PACE transactions require the approval of Texas PACE Authority as the administrator of the C-PACE Program.

4. State Enabled Legislation – Local Governments Voluntarily Create Program

C-PACE must be created at the local level. Counties and municipalities interested in extending this type of financing to their property owners must adopt a C-PACE program before it is available to local property owners. The TPA is committed to encouraging every Texas county to establish a uniform PACE in a Box PACE program.
PACE PROJECT PROCESS

Below are the detailed steps involved in putting together a PACE project. The PACE capital provider will assist or complete many of these steps.

Determine Project Eligibility
First, one should determine if the proposed project is an eligible project. The TPA maintains an Eligibility Assessment tool on its website, www.TexasPACEAuthority.org, to assist in determining whether a project is likely to be eligible. The eligibility criteria are as follows:

Eligible Properties
- Commercial real property – including non-profit real property such as private schools, medical facilities, churches, etc.
- Industrial real property – including privately owned agricultural real property
- Residential real property with five or more dwelling units.

FAQ: Can a Nonprofit use PACE, even though it doesn’t pay property taxes?
Yes. Nonprofit properties, such as charter schools, private hospitals, and houses of worship, are eligible to use PACE financing. Even though they may not pay property taxes, the property itself has a property Tax identification number.

Ineligible Properties
The most notable ineligible properties are:
- Residential property (i.e., single family homes, as opposed to multifamily with five or more units)
- Government owned property (including public Universities and school districts)
- New construction (i.e. greenfield)

FAQ: Can PACE be used on new construction?
No. PACE is not available for use on undeveloped lots (greenfield sites that have not received a Certificate of Occupancy). A site must already be developed or a building must have a Certificate of Occupancy to be eligible for PACE. See the next section for more information.

Redevelopment Eligibility
Under the Texas PACE Statute, “undeveloped lots” are ineligible for PACE. A developed lot eligible for PACE financing includes commercial, industrial or multifamily real property –

1) On which –
   a) Exists a facility intended to be affected by:
   i) a retrofit that includes qualified improvements;
ii) an addition to/expansion of the facility with qualified improvements; or
iii) the construction of an additional facility on the same developed lot with qualified improvements; or

b) A previous commercial, industrial or multifamily structure has been demolished to make way for a new commercial industrial or multifamily structure intended to include qualified improvements; and

2) Categorized as improved property by in the County Appraisal District (CAD) records.

Eligible Projects
The PACE Act authorizes PACE financing for the installation of Qualified Improvements. Qualified improvements must:

- Be permanently fixed to the real property;
- Have a demonstrated capacity to decrease –
  - Water consumption or demand; and/or
  - Energy consumption or demand (includes renewables and distributed generation products or devices on the customer’s side of the meter that use energy technology to generate electricity, provide thermal energy, or regulate temperature); and
- Have a useful life that exceeds the term of the PACE financing agreement.

The following list of predominant, long-standing, proven energy efficiency technologies is intended as a reference list for C-PACE applicants. Even if not included on this list, Texas PACE Authority will review proposed technologies and accept them if they meet statutory requirements.

- High efficiency lighting
- Heating, ventilation and air conditioning (HVAC) upgrades
- New automated building and HVAC controls
- Variable speed drives (VSDs) on motors fans and pumps
- High efficiency chillers
- High efficiency boilers and furnaces
- High efficiency hot water heating systems
- Combustion and burner upgrades
- Fuel switching
- Water conservation measures
- Low flow water fixtures
- Irrigation improvements that decrease water consumption
- Heat recovery and steam traps
- Building enclosure/envelope improvements
- Building automation (energy management) systems
• Renewable energy systems (e.g., solar, fuel cells, geothermal)
• Combined heat and power systems (CHP)
• Microgrids

The following end use savings technologies are generally more applicable to industrial facilities:

• New automated process controls
• Heat recovery from process air and water
• Cogeneration
• Process equipment upgrades

Determine Project Scope
Before investing effort in a PACE project, one should first determine if the project is likely to have an SIR greater than one. This requires a rough draft calculation (normally a desktop audit) of proposed technologies and what savings are likely to result. The best PACE projects encompass multiple measures in a holistic look at a building retrofit. The TPA encourages looking across silos at a suite of technologies and upgrade the entire building all at once. The TPA or a PACE developer can help determine what those most promising technologies are likely to be.

Determine PACE Contractor and Other Service Providers
The TPA has partnered with the US Green Building Council’s Texas Green Building Marketplace for providing a directory of PACE service providers. After attending a training workshop, a firm can receive a listing. The directory can be found at: http://texasgreenbuildingmarketplace.org/listing/guide/pace-related

Determine PACE Capital Provider
C-PACE in Texas is an open-market model, and consequently a wide range of parties can provide C-PACE financing. Ultimately the property owner selects the capital provider. However, there is great benefit in choosing a capital provider with C-PACE experience. In many cases, capital providers will manage the various tasks associated with a project and ensure that the process is smooth and efficient.

The TPA maintains a list of qualified capital providers on its website. Although the TPA does not endorse any of these parties, they are all familiar with C-PACE and ready to provide financing on CPACE projects. This list can be found at:

http://www.texaspaceauthority.org/home/capital-provider-list/
Prepare Application and Gather Required Documents

A PACE project requires the submission of an application to the TPA. In addition, the TPA will verify potential projects to make sure they meet all statutory requirements. **In most cases, the application to the TPA will be submitted by the PACE capital provider, as most if not all of what the TPA requires will also be required by the capital provider.** See Appendix B for a list of what documents will need to be submitted to complete an application review.

FAQ: How long does PACE financing take?

Generally, most capital providers are able to underwrite projects in 30-60 days. If the written consent of a mortgagee is needed, stakeholders are encouraged to address this requirement early, as this is the most likely cause of delay from a C-PACE perspective.

Obtain Mortgagee Consent

If a property has an existing mortgage, the holder of the mortgage must consent in writing to a PACE assessment being placed on the property. While this requirement may at first seem daunting, the reality is that a majority of commercial PACE projects involve consent, and this consent can be obtained when a thorough business case is made for it. A PACE Capital Provider can and should help property owners get consent. There are many good business reasons that mortgagees grant consent, and to date over 100 mortgage lenders have found that approving PACE funded projects makes sense.

- PACE assessments do not accelerate upon default. This means that only the current or past due portion of a PACE financing is senior to a mortgage lender’s claim. The increase in property value resulting from PACE project savings will more than offset this fractional amount of the total project cost.
- Relationships matter. Every PACE project involves a lender’s customer who wants or needs to complete an energy or water related project, such as the installation of solar panels that will reduce or eliminate the cost of purchased electricity or the purchase of a more efficient heating and cooling system to replace an obsolete or failing system. PACE funded projects make good business sense for the building owner, and therefore, the building’s mortgage lender.
- Lenders already factor property taxes and assessments into their underwriting models. Some lenders begin their PACE analysis by seeing how the incremental PACE assessment would effect a lending decision. If adding the PACE assessment wouldn’t cause the building to exceed established parameters for lending, there should be no reason to object to the use of PACE funding for a project that makes sense.
- PACE projects can increase the debt coverage ratio for mortgage lenders. PACE projects directly reduce a building’s operating costs. Coupled with long-term PACE funding, PACE
projects result in energy or water cost savings that exceed the amount of the annual PACE assessment, increasing cash flow and a corresponding increase in the debt coverage ratio.

- Because real estate value is based on net operating income, the increased cash flow from a PACE project actually increases a building’s collateral value to the mortgage lender.

### Engage a Third Party Reviewer

All PACE projects must be reviewed by an independent third party to validate projected savings. The TPA or your PACE capital provider can help connect users with an appropriate reviewer. The review component will consist of 2 parts:

- “Before” analysis – the ITPR will review the project, assumptions, and projected savings
- “After” verification – the ITPR will verify that the project was completed and is operating as intended

To see the forms that must be submitted with the ITPR’s report, see Appendix B.

**FAQ: Who chooses the third party reviewer?**

The ITPR works for both the property owner and the PACE capital provider. Hence, the ITPR must have an arms-length relationship with the engineer of record who performs the energy analysis. The specific ITPR will be selected by the property owner and capital provider.

### Validate Project Savings

The ITPR will execute a review of the project savings and determine if the projected savings are reasonable.

**FAQ: Does using PACE require a performance contract or savings guarantee?**

No. PACE projects do not require a savings guarantee or performance contract (although a property owner can contract with the contractor for a guarantee of PACE project savings if that is what the property owner prefers). The TPA does not take responsibility for project performance.

### Close on PACE Financing

PACE requires a set of contracts be put in place, wherein the property owner voluntarily agrees to the assessment on the property secured with a senior lien and wherein the local government assigns the proceeds of the assessment to the PACE capital provider. The TPA will put these contracts together and executes them at the closing. After the financing closes, the TPA will then record the notice of the PACE the PACE assessment lien on the property with the county clerk. The PACE
project legal documents are the:

- Owner and Local Government Contract
- Capital Provider and Local Government Contract
- Assessment Lien
- Mortgagee Consent (If Applicable)

**Construct/install project**

Texas’ PACE program is designed to be flexible and can include pre-construction financing (similar to a construction loan) along with the long-term PACE financing after the project is complete. Typically, the pre-construction financing will include a draw schedule with milestone payments.

**Verify installation**

After project completion, the ITPR will visit the site one final time to verify that the improvements were properly installed and that the project is operating as intended. Note that long-term Measurement and Verification as traditionally defined is *recommended, but not required*, in Texas.

FAQ: How do you ensure that this certificate is obtained?

If the PACE financing is funded prior to construction of the project, there will be a reasonable draw schedule that is put in place appropriate for the particular project. In addition, the final draw in that schedule must be equal to at least 10% of the project cost or as agreed between The TPA and the PACE Capital Provider. This final draw will not be released until the TPA receives the final certificate verifying project completion.

**Savings Tracking**

Although the TPA does not require traditionally defined M&V, Texas PACE Authority will be tracking project performance for reporting purposes. The mechanism for tracking projects will be determined by the TPA and the property owner.
HOW PACE PROJECTS ARE REVIEWED

The primary activity of the Texas PACE Authority is the review and approval of applications for PACE assessments. The application review process is based on the PACE in a Box model which was developed by stakeholder groups following the passage of the PACE statute.

Review Process
A detailed application process explanation included in this guide lists the steps and relevant personnel reviewing a project application. The general process of applying for PACE financing is shown below. The application process consists broadly of a technical review component and an underwriting review component.

Technical Review
The technical methodology incorporated into the review process relies primarily upon the Investor Confidence Project (ICP) - Energy Performance Protocols (EPP) for Standard and Large Commercial Facilities. The ICP EPP contain processes that form a framework for bringing together all aspects of project implementation from establishing a baseline and audit, through M&V. The protocols were created by a large stakeholder community of industry experts and are continuously reviewed and improved. The TPA relies on the EPP because they are the result of a nationwide effort to standardize the technical review of energy efficiency projects to bring uniformity and reliability on a national scale. The EPP help ensure that conservation measures are evaluated consistently throughout the state and create a national standard for lender review of PACE projects. More information can be found in the Technical Standards Manual, also included in this guide.

Protocol
All projects must first determine what category of technical review they fall under. All projects will involve either a Fast Track review or Full Assessment protocol. Technical reviews are based on the ICP standards. The Full Assessment Protocol divides an energy/water conservation project into three basic tasks:

1. Establish energy and water baseline conditions
2. Create an Energy/Water Assessment Report
3. Implement the Project

The Fast Track uses a simpler analysis, and is suitable for three types of projects:

- **Like-for-Like Replacement** - involves like-for-like replacement of energy/water inefficient equipment with more energy/water efficient equipment
- **Single-Measure Efficiency Projects** – installation of single efficiency measures such as window film, additional insulation, or reflective roof coating.
• **Distributed Renewable Generation** - installation of an industry accepted renewable energy system such as solar photovoltaic (PV).

**Independent Third Party Reviewer**
To successfully complete a PACE application, all projects must be accompanied by a review from an Independent Third Party Reviewer (ITPR). To be of value, the ITPR must be both professionally qualified and without conflict or relationship to the project the ITPR is reviewing. An ITPR must be a licensed Professional Engineer with energy/water efficiency experience. The Professional Engineer should have one of the following certifications:

- American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE)
  - Building Energy Assessment Professional (BEAP)
  - Building Energy Modeling Professional
- Association of Energy Engineers (AEE)
  - Certified Energy Manager (CEM)
  - Certified Measurement and Verification Professional (CMVP)
  - Certified Energy Auditor (CEA)
- Building Commissioning Association
  - Certified Commissioning Professional
- Investor Confidence Project
  - Credentialed Quality Assurance Provider
- AABC Commissioning Group
  - Certified Commissioning Authority

Ideally, the same ITPR should follow a project from initial review to project completion. The TPA maintains a list of ITPRs who are qualified and familiar with PACE projects and encourages applicants to use an established ITPR. The ITPR must conduct a site visit both before and after the project is installed.

**Underwriting Review**
Every project will also undergo a financial and underwriting review of the applicant’s solvency and ability to repay the PACE assessment. The TPA will require a list of documents to be submitted, as well as require information from the capital provider verifying the applicant’s credit worthiness. These documents can be found in Appendix B.

**Qualified Capital Providers**
PACE lending in Texas is open-market; the property owner can choose their own capital provider. Eligible third-party Capital Providers may include:
• Any federally insured depository institution such as a bank, savings bank, savings and loan association and federal or state credit union;
• Any insurance company authorized to conduct business in one or more states;
• Any registered investment company, registered business development company, or a Small Business Administration small business investment company;
• Any publicly traded entity; or
• Any private entity that:
  o Has a minimum net worth of $5 million;
  o Has at least three years’ experience in business or industrial lending or commercial real estate lending (including multifamily lending), or has a lending officer that has at least three years’ experience in business or industrial lending or commercial real estate lending; and
  o Can provide independent certification as to availability of funds.
• All lenders must have the ability to carry out, either directly or through a servicer, the bookkeeping and customer service work necessary to manage the assessment accounts.

The TPA encourages applicants to choose a provider familiar with PACE. The TPA maintains a list of capital providers who meet these qualifications and are familiar with PACE projects. This capital provider list can be found at: www.texaspaceauthority.org/capital-provider-list.

**Underwriting Metrics**
The table below summarizes the metrics that a project must meet in order to qualify for PACE financing.

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<th>Underwriting Criteria</th>
<th>Guideline</th>
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<tr>
<td>Assessment to Assessed Value Ratio</td>
<td>≤20% of the assessed property value. Requests for a variance are evaluated on a case-by-case basis.</td>
</tr>
<tr>
<td>Savings to Investment Ratio (SIR)</td>
<td>≥1.0. Requests for a variance are evaluated on a case-by-case basis.</td>
</tr>
<tr>
<td>Mortgage Holder Consent</td>
<td>Written consent required from existing mortgage holders.</td>
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**Savings to Investment Ratio (SIR)**
Savings to investment ratio (SIR) refers to the ratio of overall project savings to overall project costs. An SIR greater than one indicates a project whose savings are greater than the costs. Although the
SIR can help property owners evaluate the value of a PACE project. SIR is important for financial underwriting because Capital Providers want to ensure that borrowers will be able to repay their loans.

There are examples of projects that would be good candidates for PACE financing although their SIR is less than one. For example, a project that would include improving the health, safety, or occupancy of the building would generate revenue or produce benefits to the owner that are not included in the savings calculation. SIR for the project may be less than one, but the improvements may allow for increased cash flow to the owner and thus still preserve or even improve the owner’s ability to pay for the loan. Any request for a variance of the SIR rule must be made using the waiver form supplied in Appendix B and must be accompanied by documentation substantiating the need for the variance.

The key metric in evaluating a PACE project is the Savings to Investment Ratio (SIR). In Texas, PACE projects generally must show an SIR>1 in order to be approved. This means that over the life of the assessment, the savings from the project are likely to be greater than the cost of the assessment (including financing). This logically requires that all projects must have a robust savings projection, which must be validated by a third party reviewer.

Determine “Savings” as follows:
1. Add:
   • Avoided annual electricity costs, assuming an appropriate annual escalation of utility electric prices (in most cases, not to exceed 3%);
   • Annual demand charge reduction (if claimed, include the specific model demonstrating how this reduction will be achieved);
   • Annual revenue from excess electricity sales back to the grid at the wholesale rate, if applicable;
   • Any other system-related project revenues; and
1. If the property owner has the ability to monetize the federal Investment Tax Credit, MACRS depreciation benefits, and/or other depreciation or tax benefits, include the value of those tax savings for each year in which they will be applied. Under C-PACE, the system owner (either the property owner or a third-party owner) is entitled to all tax benefits associated with the system. These tax benefits can be incorporated into the SIR calculation as savings if the property owner has demonstrated the ability to monetize those tax benefits.

2. Model annual cash flows from the system over length of the assessment.

Determine “Investment” as follows:
1. Calculate total projected debt service due in respect of the C-PACE financing – including all principal, interest, and any fees over the term of the financing – as well as fixed or variable costs
associated with the maintenance or performance of the UCRMs over their EUL.
- Preventative maintenance costs, extended warranties, or pre-paid service contracts necessary to maintain system operation at optimum performance can be capitalized into initial financing.

FAQ: Can I include operational savings as part of the savings calculation?

Operational and maintenance savings are often hard to quantify compared to energy savings and are therefore discouraged from being included in SIR calculations. If you feel that operational savings are justified in a particular project, note that the guiding principle is that the savings you are claiming will need to be validated by a third party engineer reviewer. It is ultimately up to the ITPR and program administrator whether and to what extent operational savings will be allowed. However, the general rule to follow is that any savings claimed from O&M activities must result in a real decrease in expenditures. O&M budget baselines cannot be based on what the property owner should be spending for proper O&M; baseline expenditures must be based on what the property owner is spending. The owner’s O&M expenditures after implementation need to decrease for savings to be considered real. “Savings” due to redirected labor or O&M efforts that do not reduce real expenses cannot be claimed as savings.

SIR = Savings / Investment

Example: HVAC and Light improvements
Project Cost - $1,000,000 (including financing costs)
Project Savings - $1,500,000 over 20 year period

Savings to $1,500,000
Investment Ratio $1,000,000

= SIR 1.5

Note that the TPA does not guarantee savings, and there is no recourse on the administrator or the local government if savings do not materialize. The issue of long-term project performance is best dealt with between the owner, contractor, and Capital Provider.

SIR For Redevelopment Projects

For complete redevelopment projects (i.e. teardown/rebuild, expansion of existing buildings, or new development on an already developed lot), the baseline is established using current building codes. Because most of Texas currently uses 2015 IECC Energy Codes for new construction, establishing a baseline for a redevelopment is based on the Texas state energy code – the 2015 IECC/ASHRAE 90.1-2013. The following paragraphs provide guidance on establishing a baseline, calculating projected savings, and calculating the SIR for developed lots undergoing redevelopment.
Calculate a whole building number measured in energy use for both –
(1) IECC 2015 minimum equipment (baseline scenario) and;
(2) Energy use of the proposed “above-code” equipment (scenario as proposed to be constructed).

This information will be used to determine avoided annual electricity costs and annual demand charge reduction in the savings calculations.

Calculate SIR using current technical guidance (i.e. sum of savings over the life of assessment versus sum of investment over the life of assessment). An SIR of 1 or greater is expected, or the project will need to request a waiver (discussed below). Additionally, an owner may choose to buy down (contribute cash) towards the project to increase the SIR. A SIR buy down should not exceed 50% of the total investment. At least 50% of the calculated savings should be energy or water related.

Other Considerations

**Efficiency Floor:** The new building must achieve at least a 5% energy performance above baseline, measured in energy use per square foot.

**Secondary Analysis**

The analysis should also include an incremental cost versus incremental savings analysis, i.e.
1. What are the incremental costs of the project to go from code compliant equipment to the proposed equipment?
2. What are the incremental savings of the project due to the more efficient equipment compared to code?

**Useful Life**

The term of the PACE assessment is limited by the projected useful life of the improvements, or in the case of multiple improvements, the weighted average useful life. This is calculated on a cost basis.

**Example:** HVAC and Light improvements

HVAC - $500,000 and useful life 20 years
Lights - $100,000 and useful life 10 years

Weighted Average: \[\frac{($500,000)(20 \text{ yrs}) + ($100,000)(10 \text{ yrs})}{1,000,000 \text{ yrs}}\] = 10,000,000 $/yr + 1,000,000 $/yr

Projected Life: \[\frac{($500,000+$100,000)}{\text{ $600,000}}}\] = 18.3 years
Lien to Value Ratio

PACE financings are generally required to be no more than 20% of the assessed value of the property as defined by the local appraisal district. If a project would like to exceed that ratio, a variance can be requested. Included in Appendix B is the variance form. If a variance is requested, this form must be submitted, along with documentation justifying the request.
ADMINISTRATION PROGRAM

Administrative Fees
The goal of TPA is to have a well-funded, efficient, and financially healthy organization, while keeping costs to a minimum and operating in a lean fashion. To that end, TPA charges two types of fees as part of administration, an application fee and an ongoing interest rate residual. These fees cover the basic administrative service to complete a PACE project as well as the ongoing oversight and program reporting to local governments that enact a PACE region.

Application Fee is the greater of:
- $2,000; or
- Amounting to
  - 1% of total project cost of first $5 million;
  - 0.5% of marginal amount above $5 million; and
  - 0.25% of marginal amount above $20 million.
Initial $500 to be paid with application. Balance to be at closing.

Ongoing Residual Fee amounting to 8 basis points annually on the loan, resulting in a declining payment based on the outstanding principal balance to be paid as part of annual assessment. Note: This fee can be capitalized and paid in full at closing.

To meet its commitment to lower rates as TPA becomes self-sufficient, the TPA board voted to lower rates in June 2017 and again in September 2019.

Schedule of Administrative Services
The following are included as part of the administrative fee:

- Application intake and review for administrative/statutory completeness
- ITPR support, before and after construction (Owner funded)
- Pre-Qualification Letter to Property Owner
- Underwriting review of submitted documents
- Technical review of submitted documents
- Preparation of Mortgagee Consent Letter
- Preparation of Owner Contract and Capital Provider Contract
- Participation in closing
- Filing of Assessment Lien
- Engagement of ongoing annual reporting plan

FAQ: How long does administrative review and approval take?

Once all documents and required materials have been submitted, please allow 10 business days for
What Can be Included in a PACE Assessment

The goal of PACE financing is that no out of pocket costs are required by the owner. To that end, the final PACE assessment can include:

- The cost of materials and labor necessary for the installation of a qualified improvement;
- Permit fees;
- Inspection fees;
- Capital Provider’s fees;
- Program application and administrative fees;
- Project development and engineering fees;
- ITPR fees, including verification fees;
- Legal, consulting and other fees on an actual cost basis; and
- Any other fees or costs that may be incurred by the property owner incident to the installation, modification, or improvement on a specific or pro rata basis (limited to no more than 20% of the total assessment)

FAQ: Can PACE finance projects that have already been completed or are under construction?

Generally, no. Only expenditures approved before incurring cost or starting construction can be financed. The PACE in a Box model does not allow “lookbacks.” Property owners contemplating using PACE financing for projects should notify the Texas PACE Authority and get pre-approval.

PACE financing can be used for work that has already been completed, but only if that work received prior approval.

Servicing of Assessments

Unlike many other states, in Texas local governments have elected to delegate the collection of their PACE assessment payments to the capital providers directly (or a servicer of their choosing). If requested, a property owner may elect to receive a notice of the upcoming annual assessment payment from the local government included with the annual property tax bill. In order to receive a notice for the coming year’s assessment payment in the same envelope as the real estate tax bill from the local government, PACE projects must close by September 1st of the current year (Example: To receive a notice for the 2017 assessment payment from the local government, the project must close by September 1st, 2016).

FAQ: How often are PACE assessments paid?

This is negotiable with the PACE capital provider. However, most assessment payment schedules
will match the property tax payment schedule. In Texas, this means most PACE assessments are paid annually.

**Collection of Delinquent Payments**
The local government is responsible for collecting delinquent payments. By statute, the assessment will be “enforced by the local government in the same manner that a property tax lien against real property may be enforced by the local government.” Under no circumstances can the PACE capital provider accelerate the PACE loan, and in the case of default, the only payment collected will be assessments in arrears.

**RESOURCES**
Below we have included a number of relevant links to resources that you may find useful.

- Texas PACE Authority - http://www.texaspaceauthority.org/
  - http://www.texaspaceauthority.org/for-your-business/
  - http://www.texaspaceauthority.org/for-contractors/
  - http://www.texaspaceauthority.org/for-lenders/
- Resources – Case Studies, Flyers, etc:
  - http://www.texaspaceauthority.org/key-documents/
- PACE Media Page:
  - https://www.youtube.com/channel/UCP8VPS7ud4VYwUlQG6CZ7yA
- Expansion and Keeping PACE in Texas:
  - http://www.keepingpaceintexas.org/links-and-resources/
- Texas Green Building Marketplace:
  - http://texasgreenbuildingmarketplace.org/listing/guide/pace-related
- Questions
  - admin@texaspaceauthority.org
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OVERVIEW

For any PACE program to succeed, its property owners, lenders, and community leaders must be able to confidently and objectively evaluate projected energy and water utility savings. The purpose of this technical standards manual is to outline the technical requirements necessary to qualify a project for the PACE in a Box program.

Once a project satisfies all underwriting requirements of PACE in a Box, it must meet three technical requirements outlined in this manual. First, the property’s current water and energy use is measured so that a baseline for comparison is established. Second, each potential energy or water conserving measure is evaluated to determine projected savings compared to the baseline in a technically sound, consistent and transparent manner. Findings from these two steps together are compiled in a document referred to as an energy/water assessment report. PACE law requires that each report is evaluated by an independent third party reviewer (ITPR). Third, after the project retrofit activities are completed, the project must be reviewed by the ITPR to ensure that the project meets the intent of the energy/water assessment report, is properly completed, and is operating as intended.

On their own initiative, property owners are encouraged to maintain the retrofits to ensure they receive the ongoing and full benefit of the improvements over time. Best practices are discussed further in the PACE Technical Standards Best Practices Guide for Property Owners.

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1 See PACE in a Box Section 6.
2 See PACE in a Box Section 8
Reference Materials

Accepted methods for data collection, measurement, and savings calculations should be used on proposed projects. This manual references several technical documents which will assist in determining pre-retrofit energy and water consumption, predicting retrofit energy and water savings, and verifying whether an installed measure or group of measures is performing as intended.

The technical methodology incorporated into the review process relies primarily upon the PACE in a Box (Section 6 – Guide to PACE Project Underwriting and Technical Standards) guidelines and the Investor Confidence Project (ICP) - Energy Performance Protocols (EPP) for Standard and Large Commercial Facilities. Should there be a condition where the guidelines and the protocols are in conflict, the guidelines should be followed.

The ICP EPP contain processes that form a framework for bringing together all aspects of project implementation from establishing a baseline and audit, through M&V. They have been created by a large stakeholder community of industry experts and are continuously reviewed and improved. PACE in a Box relies on the EPP because they are the result of a nationwide effort to standardize the technical review of energy efficiency projects to bring uniformity and reliability on a national scale. The EPP help ensure that conservation measures are evaluated consistently throughout the state and create a national standard for lender review of PACE projects.

The EPP technical processes are based on nationally accepted standards. The technical standards in EPP relating to baseline determination/calculation, performing energy assessments, and guidelines for performance measurement and verification of energy and water conservation measures respectively are:

- American Society for Testing and Materials (ASTM) E2797-11, Building Energy Performance Assessment (BEPA) Standard (data collection and baseline calculations for the energy audit, building asset data);
- International Performance Measurement and Verification Protocol (IPMVP) (latest edition);
- American National Standards Institute/Building Owners and Managers Association (ANSI/BOMA) Z65.3-2009 (gross floor area measurement);
- ASHRAE Guideline 14-2002 (measurement of energy and demand savings);
- ASHRAE Procedures for Commercial Building Energy Audits (latest edition);
- National Institute of Standards and Technology (NIST) Life-Cycle Costing Manual, NIST Handbook 135 (latest edition);
- ASHRAE Standard 202, Commissioning Process for Buildings and Systems (latest edition);
- ASHRAE Guideline 4, Preparation of Operating and Maintenance Documentation for Building Systems (latest edition);
- ASHRAE Guideline 1.4, The Systems Manual for Facilities; (latest edition);
- ASHRAE Handbook-2011, Fundamentals, Chapter 39 (Codes and Standards); and

http://www.eeperformance.org

Other acknowledged resources that may be considered are:

➢ The Alliance for Water Efficiency (AWE) Conservation Tracking Tool; and
➢ EPA WaterSense Product Guide.
INDEPENDENT THIRD PARTY MONITORING

The Texas PACE law requires an independent third party review the water or energy baseline conditions and the projected water or energy savings for each proposed qualified project. It is the responsibility of the Independent Third Party Reviewer (ITPR) to validate projected future energy or water savings. Additionally, after a qualified project is completed, the ITPR must verify that the qualified project was properly completed and is operating as intended. This requirement provides assurances to the PACE in a Box program, the property owner, and the lender that due diligence has been executed, that a standard of consistency has been applied throughout the PACE process, and that a professional licensed engineer has validated the expected energy and water savings from the proposed project.

Third Party Review Process

Site Visit 1 / Reviewer’s Certification
Once an engineer, contractor or installer has prepared an energy/water assessment report, a qualified ITPR selected by the property owner makes a site visit and reviews the energy/water assessment report using the EPP to determine if the report complies with PACE in a Box guidelines. When the project is deemed compliant with EPP/Pace in a Box guidelines, the ITPR prepares a Reviewer’s Certification to the PACE program.

The Reviewer’s Certification shall include:

- A statement that the ITPR has no financial interest in the project.
- A letter stating the savings (energy, demand, water, and cost) expected project life, and cost are reasonable, are in compliance with PACE in a Box program guidelines, and follow the EPP protocols.
- A Texas Professional Engineer signature and engineering seal.

An application for PACE financing will not be considered complete until Reviewer’s Certification is submitted.

Site Visit 2 / Statement of Compliance
Once the project retrofit activities have been completed, the ITPR must revisit the site to confirm that the improvements were properly installed, meet EPP guidelines, and are operating as intended. The reviewer must submit a Statement of Compliance to the PACE program indicating that the project was properly completed and is operating in accordance with the PACE in a Box guidelines.

The Statement of Compliance shall include:

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4 Texas Local Government Code Chapter 399.011
A statement that the ITPR has no financial interest in the project;
A project documentation review letter that covers the PACE Project Report, detailed engineering drawings, designs, and specifications, copies of mechanical, electrical, plumbing, and building permits, and copies of equipment test and balance commissioning reports as well as any change orders; and
A Texas Professional Engineer signature and engineering seal.

Retainage funding for the qualified project will not be provided for progress beyond the construction phase, if applicable, until the Statement of Compliance is received by the PACE program.

The process described above is required by **PACE in a Box**. The PACE program does not guarantee projected savings, and it is the responsibility of the property owner to exercise best practices to protect his interests through a contract with the engineer, contractor or installer responsible for the project’s success as recommended in the energy/water assessment report.\(^5\)

**Independent Third Party Reviewer Qualifications**
To be of value, the work of the ITPR must be both professionally qualified and without conflict or relationship to the project they are reviewing. An ITPR must be a licensed Professional Engineer with energy/water efficiency experience. Preferably, the Professional Engineer should have one of the following certifications:

- American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE)
  - Building Energy Assessment Professional (BEAP)
  - Building Energy Modeling Professional (BEMP)
- Association of Energy Engineers (AEE)
  - Certified Energy Manager (CEM)
  - Certified Measurement and Verification Professional (CMVP)
  - Certified Energy Auditor (CEA)
- Building Commissioning Association
  - Certified Commissioning Professional (CCP)

Ideally, the same ITPR should follow a project from initial review to project completion.

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\(^5\) See **PACE in a Box** Technical Best Practices Guide in Section 8
FULL ASSESSMENT PROTOCOL

A project satisfying the underwriting requirements in PACE in a Box must also satisfy the Technical Standards required in this manual. This section establishes the basic protocol for complying with PACE in a Box technical standards. A proposed project qualifying for a FAST TRACK Protocol established in Section IV, shall use the technical standards in that section.

The Full Assessment Protocol divides an energy/water conservation project into four basic tasks:

1. Establish a Baseline. Establish energy and water baseline conditions (collecting utility provider information, consumption and cost data);
2. Prepare an Energy and Water Assessment. Create an Energy/Water Assessment Report (projecting savings of proposed projects when measured against the baseline data);
3. Implement the Project (installation of energy conservation measures (ECM) and/or water conservation measures (WCM)); and
4. Verify Completion and Operation. Verification that the qualified project was properly completed and is operating as intended.

Projects can range from installation of a single ECM or WCM, such as a new high efficiency boiler, installation of low-flow toilets, or a renewable energy system, to a whole building energy and water upgrade involving multiple, interactive ECMs and WCMs. Many projects will also achieve both energy and water savings, such as an energy efficiency measure that reduces heat load, thereby also reducing cooling tower water use.

Establish a Baseline

A sound energy and water usage baseline consists of collecting the utility provider information and establishing the critical starting point for accurate projection of potential savings and measurement after implementing ECMs/WCMs. The baseline establishes how much fuel, electricity, and/or water a facility used over the previous 12-month period. It also factors in the impact of independent variables such as weather, occupancy, and operating hours on the property’s energy/water use.

For the majority of energy projects, the requirements for establishing a baseline are outlined in the ICP EPP. These protocols currently target energy measures in commercial facilities, but are readily adapted to other projects including applicable areas of industrial and agricultural energy as well as water conservation. The EPP provide a roadmap for key elements in performing a successful energy/water retrofit project.

For water conservation projects, the requirements for establishing a baseline are outlined in Federal Energy Management Program’s M&V Guidelines: Measurement and Verification for Federal Energy Projects, Version 2.2/3.0. The M&V Guidelines provide applied methodologies for baseline
accomplishment. At this time, these protocols do not provide a high level of detail for baselining water efficiency projects. As future nationally recognized protocols are developed, the PACE Technical Standards will be updated for water projects.

The following table outlines which protocols should be used for establishing a baseline based on facility, project type, and scope.

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Full Assessment Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Commercial / Multifamily</td>
<td>Energy: <a href="https://example.com">ICP EPP - Standard Commercial</a> (Baselining – Core Requirements, Rate Analysis, Demand, Load Profile, Interval Data)</td>
</tr>
<tr>
<td></td>
<td>Water: <a href="https://example.com">M&amp;V Guidelines v2.2</a> (Sec VII, p203)*</td>
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<tr>
<td>Large Commercial / Multifamily</td>
<td>Energy: <a href="https://example.com">ICP EPP - Large Commercial</a> (Baselining – Core Requirements, Rate Analysis, Demand, Load Profile, Interval Data)</td>
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<td></td>
<td>Water: <a href="https://example.com">M&amp;V Guidelines v2.2</a> (Sec VII, p203)*</td>
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<td>Industrial (Facility)</td>
<td>Energy: <a href="https://example.com">ICP EPP - Large Commercial</a> (Baselining – Core Requirements, Rate Analysis, Demand, Load Profile, Interval Data)</td>
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<tr>
<td></td>
<td>Water: <a href="https://example.com">ICP EPP - Large Commercial</a> (Baselining – Core Requirements, Rate Analysis, Demand, Load Profile, Interval Data)</td>
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<td>Agricultural (Facility)</td>
<td>Energy: <a href="https://example.com">ICP EPP - Standard Commercial, ICP EPP - Large Commercial</a> (Baselining – Core Requirements, Rate Analysis, Demand, Load Profile, Interval Data)</td>
</tr>
<tr>
<td></td>
<td>Water: <a href="https://example.com">ICP EPP - Standard Commercial, ICP EPP - Large Commercial</a> (Baselining – Core Requirements, Rate Analysis, Demand, Load Profile, Interval Data)</td>
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<td>Distributed Generation*</td>
<td>Energy: <a href="https://example.com">IPMVP Concepts and Practices for Determining Energy Savings in Renewable Energy Technologies Applications</a> (Pages 4-6)</td>
</tr>
<tr>
<td></td>
<td>Water: <a href="https://example.com">IPMVP Concepts and Options for Determining Energy and Water Savings, 2012</a> (Section 4)</td>
</tr>
</tbody>
</table>


The protocols listed above are intended as minimum requirements for an energy and water assessment report to be considered for funding.

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6 For purposes of the PACE in a Box Technical Standards, the Term “Distributed Generation” includes energy generation technologies such as CHP, co-generation, small wind, solar, and biomass systems that generate electricity on the customer’s side of the retail electric meter and technologies such as solar water heating and geothermal heat pumps that utilize renewable energy resources to reduce electricity consumption and demand.
Energy and Water Audit

The EPP rely upon industry accepted ASHRAE Procedures for Commercial Building Energy Assessment as a technical basis. These procedures define the level of effort for energy audits and provide best practices for auditors and associated project deliverables. ASHRAE also provides necessary sample audit forms and templates for data collection during the audit process.

The level of audit selected is contingent on the complexity of the facility and its installed systems and components, as well as the number and types of anticipated energy and/or water saving opportunities. Information collected during the energy/water audit is integral in determining the facility energy/water baseline conditions. The auditor will also identify energy and water savings opportunities which meet threshold investment requirements and provide verifiable energy and water savings while conducting the audit.

Industrial and Agricultural Projects
For industrial and agricultural projects, an ECM/WCM may affect the facility, a process or equipment used within the facility, or a distinct area outside the facility. Depending on the project, a different protocol shall be used. See Exhibit A for Industrial Protocols and Exhibit B for Agricultural Protocols.

Distributed Generation (DG)
DG projects have no pre-retrofit conditions as typically encountered in an energy conservation project. Since DG delivers energy rather than conserves or reduces energy, establishing a pre-retrofit baseline is not a strict project requirement. Metering of delivered energy without a baseline is often recommended in the M&V approach.

DG protocol requirements can be found in IPMVP Concepts and Practices for Determining Energy Savings in Renewable Energy Technologies Applications Volume III; August 2003. Other specific information relevant to DG measurement and verification can be found in IPMVP Concepts and Options for Determining Energy and Water Savings Volume I, January 2012.

Prior Audit
A prior ASHRAE Level II or Level III energy/water audit may be used provided that it was completed within the last three (3) years and that:

- Specific ECMs/WCMs were detailed in the audit and are still viable;
- Energy / water savings were projected for each proposed ECM/WCM;
- Any major facility renovations and/or building additions that occurred after the last audit do not negate relevant findings of the prior audit; and
- Changes in facility equipment and/or facility end-use do not negate findings of the prior audit.
The level of effort associated with updating the project baseline is dependent on the date of prior audit. If the audit is older than six months, additional energy/water use data will be available, and must be included in the updated audit.

In the case where a previous audit was completed in the last six months, savings calculations may be taken directly from the report if applicable. For older energy/water audits, still within the three year allowable time frame, the following items must be verified and accounted for in updated savings calculations:

- Any change in energy/water and/or demand rates or billing structure;
- Any change to existing facility, system, or project area that significantly affects savings; and
- Any change in building use and/or occupancy that significantly affects savings.

**Projected Savings**

EPP provide processes that should be used in projecting energy and water conservation savings. Models, spreadsheets, and similar tools must be based on “open book” methodology with sufficient explanation and documentation that savings calculations are transparent and results are readily verifiable. The use of “closed book” calculation methods or proprietary software is prohibited unless all methodologies associated with their use are well documented by transparent savings calculations and readily verifiable results.

The following table outlines the protocols that should be used to determine projected savings.

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Full Assessment Requirements</th>
</tr>
</thead>
</table>
| Standard Commercial / Multifamily| Energy: [ICP EPP - Standard Commercial](#) (Savings Calculation)  
Water: [M&V Guidelines v3.0](#) (Sec 11.6)*                                            |
| Large Commercial / Multifamily   | Energy: [ICP EPP - Large Commercial](#) (Savings Calculation)  
Water: [M&V Guidelines v3.0](#) (Sec 11.6)*                                                |
| Industrial (Facility)            | Energy: [ICP EPP - Large Commercial](#) (Savings Calculation)  
Water: [M&V Guidelines v3.0](#) (Sec 11.6)*                                                |
| Agricultural (Facility)          | Energy: [ICP EPP - Standard Commercial, ICP EPP - Large Commercial](#)  
Water: [M&V Guidelines v3.0](#) (Sec 11.6)*                                                |
Water: [IPMVP Concepts and Options for Determining Energy and Water Savings, 2012](#) (Section 4) |


The protocols listed above are intended as minimum requirements for an energy assessment report to
be considered for funding.

**Verifying Completion and Operation**
The Texas PACE law states, “After a qualified project is completed, the local government shall obtain verification that the qualified project was properly completed and is operating as intended.”

The following table outlines the protocols that should be used for verifying proper project completion and operation.

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Full Assessment Requirements</th>
</tr>
</thead>
</table>
| Standard Commercial / Multifamily | Energy: [ICP EPP - Standard Commercial](#) (Operations, Maintenance, and Monitoring, Measurement and Verification)  
Water: [M&V Guidelines v3.0](#) (Sec 11.6)* |
| Large Commercial / Multifamily  | Energy: [ICP EPP - Large Commercial](#) (Operations, Maintenance, and Monitoring, Measurement and Verification)  
Water: [M&V Guidelines v3.0](#) (Sec 11.6)* |
| Industrial (Facility)          | Energy: [ICP EPP - Large Commercial](#) (Operations, Maintenance, and Monitoring, Measurement and Verification)  
Water: [M&V Guidelines v3.0](#) (Sec 11.6)* |
| Agricultural (Facility)        | Energy: [ICP EPP - Standard Commercial](#) (pgs. 19-22), [ICP EPP - Large Commercial](#)  
Water: [M&V Guidelines v3.0](#) (Sec 11.6)* |
Water: IPMVP Concepts and Options for Determining Energy and Water Savings, 2012 (Section 4) |


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7 Texas Local Government Code chapter §399.011(b)
FAST TRACK APPROACH

The FAST TRACK approach allows for faster implementation of projects. These projects must meet specific eligibility criteria in order to utilize the FAST TRACK process. The FAST TRACK approach reduces project expenses associated with audit costs and, in some cases, the time required to review the proposed project. The property owner and contractor must decide whether the project qualifies for the FAST TRACK approach and whether this approach is applicable. For those projects that do not qualify under the FAST TRACK eligibility criteria, the FULL ASSESSMENT protocols are required. The qualifications for an ITPR under the FAST TRACK approach are the same as qualifications for a FULL ASSESSMENT.

The FAST TRACK approach is deemed relevant and appropriate for the three (3) project types specified below. The required procedures and documentation are unique to each project.

**Type 1 – Like-for-Like Replacement.** The FAST TRACK approach may be used for a project that involves like-for-like replacement of energy/water inefficient equipment with more energy/water efficient equipment. Examples may include a lighting retrofit or A/C unit upgrade.

**Type 2 – Single-Measure Efficiency Projects.** The FAST TRACK approach may be used for projects that install single efficiency measures such as window film, additional insulation, or reflective roof coating.

**Type 3 - Distributed Renewable Generation.** The FAST TRACK approach may be used for a project that involves only the installation of an industry accepted renewable energy system such as solar photovoltaic (PV).

Projects that fall within the above criteria do not qualify for the FAST TRACK approach if the project value to building appraisal ratio exceeds 0.10 (10%).

**Establishing a Baseline**

The following information is required to establish a baseline for a FAST TRACK approach project.

Site Visit

- Confirm building characteristics and major components
- Records collection (equipment, systems, utilities)
- Staff/occupant interviews
- Walk-through inspection (written and photo documentation)
- Verification of all collected information by a third party reviewer
Records/Data Collection

- Building construction data
- Equipment data – HVAC, etc.
- Building operating data
- Energy consumption data
- Water consumption data
- Weather data
- Previous audit reports

Note: Not all items listed will be applicable. Data collected is at the discretion of the professional performing the baseline work and subject to third party review.

Pertinent Interviews (optional)

- Concerning general building characteristics
- Operations of major building systems/components
- Past building operational history (service call logs)

Note: Verification of all collected information is required as part of the Site Visit to determine if there has been significant change; if verified, it is not necessary to conduct repeat interviews.

Review/Analysis of Collected Materials

- Data conversion and normalization
- Determine building energy and water consumption metrics
- Perform modeling and simulation as applicable
- Determine renewable energy system production as applicable

Preparation of Final Assessment Report

- Includes building energy/water cost and performance
- Energy and use by area (HVAC, lighting), fuel (gas, electric), indoor v. outdoor water usage

If a unit of energy or water using equipment is beyond its useful service life, the work associated with the baseline analysis can be considerably reduced. Document the building’s age, condition, operating parameters, and expected useful life based on manufacturer’s warranty data or ASHRAE guidelines. If the project is a distributed renewable generation project, collect and document information on building structure and orientation relevant to installation, production and maintenance. For WCMs not all baseline data collection and analysis apply.
Projected Savings
The requirements in this section are derived in part from the EPP for commercial facilities and are applicable to multifamily units. For single component/system ECMs or WCMs, the contractor should provide appropriate annotations to assist in determining whether a listed requirement is necessary.

The following are considered the minimum requirements in determining savings from energy and water conservation measures under a FAST TRACK approach:

- Use of “open book” methodology, spreadsheet or software used in savings calculations;
- Detailed outline for savings calculation methodology; should be transparent and easily replicated by independent third party reviewer;
- Reasonable comparison of energy/water pre-retrofit estimates to historical end use data (for single measure/single component retrofits, use only necessary data set for calibration);
- Consideration of interactive effects of related loads or systems and potential for additional ECMs/WCMs which would affect the appropriate capacity or cost-effectiveness of equipment being replaced;
- Validation of return on investment (ROI) figures based on previous audit or newly incorporated data sets;
- Validation of ECM/WCM implementation costs including labor and materials estimates; and
- Validation of savings.

The following items are the minimum that must be verified and accounted for in savings calculations for projects that propose the installation of an industry accepted renewable energy system, e.g., solar photovoltaic (PV), approved for interconnection by local utility:

- Current energy and demand rates;
- Applicability of incentives, rebates, and local utility requirements;
- Current distributed renewable generation component pricing, including design and installation of systems;
- Current electrical and/or building code requirements; and
- Current zoning and emissions requirements as they impact the project.

Verifying Completion and Operation
The Texas PACE law states, “After a qualified project is completed, the local government shall obtain verification that the qualified project was properly completed and is operating as intended.”

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8 Texas Local Government Code chapter §399.011(b)
The requirements in this section follow M&V as referenced in the EPP for standard and large commercial facilities in conjunction with *IPMVP Concepts and Options for Determining Energy and Water Savings Volume I, January 2012*. The requirements support projects with a single component replacement or multiple ECMs/WCMs or distributed renewable generation system, qualifying as a FAST TRACK project.

For single component/system conservation measures, the following are the **minimum requirements** in verifying completion and operation of installed measures under the FAST TRACK method:

- ITPR review of the installation of the required number and type of ECMs/WCMs as specified in the audit and project design/construction documents; and
- ITPR review of the proper installation and operation of all ECMs/WCMs as specified in the audit and project design/construction documents:
  - Ensure that operation and function meet design intent of the project;
  - Determine that installed ECMs/WCMs will provide savings as estimated in original audit findings and commensurate with baseline analysis; and
  - Determine that installed ECMs/WCMs will meet or exceed service life estimates based on observed operation.

For distributed renewable generation projects, the following are the **minimum requirements** in verifying completion and operation of installed measures under the FAST TRACK method:

- ITPR review of the installation of the required number and type of system components as specified in the audit and project design/construction documents; and
- ITPR review of the proper installation and operation of all components as specified in the audit and project design/construction documents:
  - Ensure that operation and function meet design intent of the project;
  - Determine that the installed system will provide savings as estimated in original audit findings and commensurate with baseline analysis; and
  - Determine that the installed system will meet or exceed service life estimates based on observed operation.

**REPORTING**

The property owner is required to provide a post-construction Annual Savings Reports to the PACE administrator to measure impact of the PACE program. This report shall be submitted during the term of the assessment or through a term negotiated between the PACE Program Administrator and the property owner. Information required within the post-construction Annual Savings Reports shall be determined between the PACE Program Administrator and the property owner. These Annual Savings Reports shall be submitted by the property owner. Section 5 of *PACE in a Box* outlines the reporting requirements of individual PACE projects.
EXHIBITS A & B

Exhibit A  INDUSTRIAL PROTOCOL

Industrial energy/water conservation projects can impact 1) the facility, 2) a process inside the facility, or 3) a combination of the facility and process inside the facility. It will be necessary to determine the affected area of the facility or the site before moving forward with the auditing and baseline determination process. This protocol serves as a general guideline for the facility owner.

**Industrial Energy/Water Protocol (Facility)**
For ECMs/WCMs considered to affect, conserve or reduce energy/water resources in the facility and are not directly linked to any process application, the EPP for Standard and Large Commercial will be followed as applicable. The sections below reference the appropriate EPP and indicate the minimum procedures and documentation required. Since all targeted measures or combination of measures are not known at this time, applicable portions of the EPP will be followed as necessary.

**Establishing a Baseline**

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**Verifying Completion and Operation**

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Industrial Energy/Water Protocol (Process)
For ECMs/WCMs considered to affect, conserve or reduce energy/water resources for a selected process in an industrial facility, it is expected that most measures will conform to appropriate IPMVP Concepts and Options for Determining Energy and Water Savings Volume I, January 2012. In particular, Option A – Retrofit Isolation: Key Parameter Measurement or Option B – Retrofit Isolation: All Parameter Measurement will provide the necessary requirements for savings verification, while other sections of the IPMVP document will be pertinent to establishing the baseline.

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© 42
Reporting
The property owner is required to provide a post-construction Annual Savings Reports to the PACE administrator to ensure the success of the PACE program. This report shall be submitted during the term of the assessment or through a negotiated duration between the PACE Program Administrator and the property owner. Information required within the post-construction Annual Savings Reports shall be determined between the PACE Program Administrator and the property owner. These Annual Savings Reports shall be submitted by the property owner. Section 5 of PACE in a Box outlines the reporting requirements of individual PACE projects.

Exhibit B     AGRICULTURAL PROTOCOL
For agricultural conservation projects, it is necessary to determine the affected area of the facility, site, or property. In general, a proposed project for agricultural energy/water conservation may affect 1) a facility related to agricultural operations, 2) an isolated equipment component or system (pumps, motors, etc.), or 3) a distinct water use area (i.e., irrigation). This protocol serves as a general guideline to direct the facility owner towards actions which have a basis in proven engineering concepts.

Agricultural activities outside the facility differ from those normally encountered in commercial and/or industrial areas in that water use and the energy associated with delivery of water may account for a larger percentage of costs relative to the overall energy/water budget. This may be especially true in the farming sector including greenhouse operations.

Agricultural Energy Protocol (Facility)
For ECMs/WCMs considered to affect, conserve or reduce energy/water resources in an agricultural facility and that are not directly linked to agricultural irrigation or any process application outside the facility, the EPP for Standard and Large Commercial should be followed as applicable. The sections below reference the appropriate EPP and indicate the minimum required items as listed in the document. Since all targeted measures or combination of measures are not known at this time, applicable portions of the EPP should be followed as necessary.

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Agricultural Energy Protocol (Equipment/Systems)
Implementing water-efficiency in the agricultural sector where the majority of water and energy are consumed in irrigation most often use IPMVP Option A (Retrofit Isolation: Key Parameter Measurement) although Option B (Retrofit Isolation: All Parameter Measurement) is also viable depending on the specific measure and the affected equipment or system. The sections below reference the appropriate IPMVP protocols and indicate the minimum required items as listed in the document. Since all targeted measures or combination of measures are not known at this time, applicable portions of the IPMVP should be followed as necessary.
Agricultural Water Protocol

Water conservation projects are intended to provide savings through reduced water consumption as a result of improved performance of water consuming equipment, fixtures, or controls. Savings can also result from reduced water supply charges, sewer charges, and/or energy costs depending on the conservation measure implemented. Energy savings are commonly achieved from reduced water heating, and additional savings may be realized for facilities that use pumps to boost water pressure or to irrigate with groundwater, or at facilities with on-site water treatment systems. The performance of many common water conservation projects can be accounted for through short-term measurements and usage factors can be estimated, water savings are most often verified using IPMVP Option A (Retrofit Isolation: Key Parameter Measurement).

Key issues related to water conservation projects which should be observed are:

- Determining equipment inventory for baseline and post-installation;
- Establishing existing equipment performance for each type of device/system;
- Determining usage characteristics of each type of device/system;
- Determining post-installation equipment performance for each type of device/system; and
- Accounting for any known or observed interactive effects.

The sections below reference the appropriate IPMVP protocols and indicate the minimum required items as listed in the document. Since all targeted measures or combination of measures are not known at this time, applicable portions of the IPMVP should be followed as necessary.

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**Reporting**

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PROPERTY ASSESSED CLEAN ENERGY PROGRAM

REQUIRED DOCUMENTS CHECKLIST

The following will be required as part of the PACE application review process:

- Signed Property Owner Certification
- Copy of the Property tax bill and/or Central Appraisal District Property ID number
- Tax Certificate from local Tax Assessor entity showing property taxes are current
- Certificate of Fact from the Texas Secretary of State’s Office showing entity in good standing
- Verification of Franchise Tax Account Status from the Texas Comptroller of Public Accounts

The following will be required prior to closing:

- Copy of feasibility study and/or energy audit
- List of all contractors and subcontractors and executed service contracts/agreements
- PACE Reporting Request Form
- Signed and Sealed ITPR Project Verification Certificate
- Property Title Report prepared by Title Insurance Company
- Certificate of Incumbency and Consents and Company Organizing Documents (Authorizing Signatory)
- Signed Lender Certification

The following may be required for final project approval prior to closing:

- Certificate of Occupancy
- Copies of Permits (if in Houston)
- Appraisal of Property (if required by Lender)
- Consent Letter to PACE from Mortgagee (if applicable)

The following will be required post-construction for final project completion:

- Signed and Sealed ITPR Statement of Compliance
- Receipts of Expenditures
- Property Owner Statement of Compliance (if Houston or Dallas)
PROPERTY ASSESSED CLEAN ENERGY PROGRAM

PROPERTY OWNER CERTIFICATION

I, the undersigned Property Owner, hereby certify the following facts with respect to the project described in the Project Application No. ______________ (the “Project”) under the ___________________ Property Assessed Clean Energy Program:

OWNER CERTIFIES:

• Owner is not subject to any outstanding, unsatisfied judgment.
• Owner has not had any property sold at foreclosure in the previous 5 years.
• Owner has not been the subject of bankruptcy proceedings in the previous 5 years.
• Owner is current with all ad valorem taxes & assessments on property and has been for 3 years.
• Owner is current on all debts secured by the property.
• Owner has clear title to the property with no encumbrances (other than a mortgage for which consent has been granted).
• The Property is not subject to any outstanding tax liens or notices of default.
• The Property has not and will never be used as the homestead of the Property Owner within the meaning of Section 50, Article XVI, Texas Constitution.

OWNER IS ABLE AND WILLING TO PROVIDE:

• Certificate of Status from the Secretary of State of Texas.
• Verification of Franchise Tax Account Status from the Texas Comptroller of Public Accounts.
• Current Title Report demonstrating property is free of all liens including mechanics liens.
• Written consent to PACE lien from property Mortgagee, if applicable.

I UNDERSTAND THAT: UNDER STATE LAW, THE PROGRAM ADMINISTRATOR IS REQUIRED TO VERIFY THAT OWNERS CAN DEMONSTRATE FINANCIAL STANDING. I CERTIFY THAT THE ABOVE RESPONSES ARE TRUE AND CORRECT AND THAT I WILL PROVIDE EVIDENCE OF SUCH TO THE PROGRAM ADMINISTRATOR.

_________________________________________  __________________________
Signature                                          Date

_________________________________________  __________________________
Title                                              Company/Firm

_________________________________________
Print Name
PROPERTY ASSESSED CLEAN ENERGY PROGRAM

PACE CAPITAL PROVIDER CERTIFICATION

I, the undersigned Capital Provider, hereby certify that the underwriting factors implemented with respect to the project described in the Project Application No. ____________________ (the “Project”) under the Property Assessed Clean Energy Program, require that the owner of the property on which the Project is to be located (“Property Owner”) verify to Capital Provider the following facts regarding Property Owner and the Project.

THE PROPERTY OWNER VERIFIED TO CAPITAL PROVIDER THAT:

- Property Owner is the legal owner of record of the benefitted property;
- Property Owner is current on all mortgage and property tax payments;
- Property Owner is not insolvent or in bankruptcy proceedings;
- Property Owner has the financial ability to fulfill the financial obligations to be repaid through contractual assessments and that the ratio of the assessment to the assessed value of the property is appropriate;
- Property Owner is not subject to any outstanding, unsatisfied final judgment;
- Property Owner has not had any property sold at foreclosure in the previous 12 months;
- Property Owner has provided a current title report to Lender and the property is not subject to any liens, including mechanics liens, and title to the property is not in dispute.

I UNDERSTAND THAT: UNDER STATE LAW, THE PROGRAM ADMINISTRATOR IS REQUIRED TO VERIFY THAT CERTAIN UNDERWRITING FACTORS ARE IMPLEMENTED TO VERIFY THAT OWNERS CAN DEMONSTRATE FINANCIAL STANDING. I CERTIFY THAT THE UNDERWRITING FACTORS IMPLEMENTED WITH RESPECT TO THE PROJECT REQUIRED PROPERTY OWNER TO VERIFY THE ABOVE-LISTED FACTS TO CAPITAL PROVIDER AND THAT I WILL PROVIDE EVIDENCE OF SUCH TO THE PROGRAM ADMINISTRATOR IF REQUESTED.

Signature

Date

Title

Company/Firm

Print Name
PROPERTY ASSESSED CLEAN ENERGY PROGRAM

OWNER AND CAPITAL PROVIDER REQUEST FOR VARIANCE OF LTV RECOMMENDATION

We, the undersigned Property Owner and Lender, hereby acknowledge the following facts with respect to the project described in the Project Application No. _____________________ (the “Project”) under the _____________________ Property Assessed Clean Energy Program:

The Variance: PACE Financing exceeds 20% of the assessed value of the property (as defined by local Appraisal District).

PACE Financing: ____________________
CAD Assessed Value: ____________________
Market Assessed Value: ____________________
Requested Loan to Value Ratio: ____________________

The undersigned certifies that:
I have read and clearly understand the waiver request, the information provided and the impact of this request on the property and the PACE assessment.

PACE Capital Provider Signature ____________________ Date ____________________
Title ____________________
Company/Firm ____________________ ____________________

Owner Signature ____________________ Date ____________________

REASONS FOR REQUESTING VARIANCE
Please address the following for the administrator to use in determining whether to grant the variance request:

1. What is the existing debt to assessed value of the property prior to closing the PACE loan?
2. What is the estimated fair market value of the property? How was the value determined (e.g., market appraisal, desktop appraisal, insurance valuation, etc.)?
3. What is the estimated post-renovation fair market value of the property (including an explanation on how this value was determined)?
PROPERTY ASSESSED CLEAN ENERGY PROGRAM

INDEPENDENT THIRD PARTY REVIEWER (ITPR)
PROJECT VERIFICATION CERTIFICATE

I, the undersigned Independent Third Party Reviewer (ITPR), hereby certify the following facts with respect to the project described in the PACE project assigned application No. _____________________ (the “Project”) under the __________________ Property Assessed Clean Energy Program:

1. I have the professional qualifications to be an ITPR specified by the PACE in a Box Technical Standards Manual, in that –

   I am a licensed Professional Engineer in the State of Texas, whose registration number and seal are shown below, and
   I have experience in energy or water efficiency, including one or more of the professional credentials listed below:
   - Building Energy Assessment Professional (BEAP) or Building Energy Modeling Professional by the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE);
   - Certified Energy Manager (CEM), Certified Measurement and Verification Professional (CMVP), or Certified Energy Auditor (CEA) by the Association of Energy Engineers;
   - Certified Commissioning Professional by the Building Commissioning Association;
   - Credentialed Quality Assurance Provider from the Investor Confidence Project;
   - Certified Commissioning Authority from the AABC Commissioning Group;
   - 5 Years relevant project experience in energy/water efficiency

2. I do not have any conflicting financial interest in the Project, in that –

   Neither I nor any member of my family nor any company that I own or have a financial interest in has any ownership or financial interest in the Project, the engineer/contractor, the real property, or its owner; and
   Neither I nor any member of my family nor any company that I own or have a financial interest in has provided or will provide any products or services for the Project other than independent third party review and/or commissioning for a green building rating system.

3. I or a colleague visited the site of the Project on _____________________ and I examined the energy/water assessment report compiling the baseline measurements of the property’s current energy or water consumption and the projected energy or water savings to result from the Project (summarized in the accompanying table). I evaluated the energy /water assessment report to determine its compliance with generally accepted methods for data collection, measurement, and
savings calculations, including as applicable the technical methodology described in the Investor Confidence Project (ICP) – Energy Performance Protocols (EPP) ([http://www.ecperformance.org](http://www.ecperformance.org)) and other widely used technical reference documents mentioned in the PACE in a Box Technical Standards Manual.

4. On the basis of the energy/water assessment report and my evaluation, and as long as the established baseline conditions remain materially the same, the projected reductions of water or energy consumption or demand to result from the Project are realistic and reasonable in accordance with generally accepted engineering practices to the best of my knowledge and that this knowledge is based on the on-site investigation of the facilities involved, and the period of the PACE contractual assessment does not exceed the useful life of the Project. The Project is a permanent improvement fixed to real property and intended to decrease water or energy consumption or demand, including a product, device, or interacting group of products or devices on the customer's side of the meter that uses energy technology to generate electricity, provide thermal energy, or regulate temperature, and hence is a qualified project under the PACE Act.

SIGNED: ____________, ______.

______________________________
ITPR Signature

______________________________
Company/Firm

______________________________
Address

______________________________
City, State, Zip Code
I, the undersigned Independent Third Party Reviewer (ITPR), hereby certify the following facts with respect to the project described in the PACE project assigned application No. _____________________ (the “Project”) under the __________________ Property Assessed Clean Energy Program:

5. I have the professional qualifications to be an ITPR specified by the PACE in a Box Technical Standards Manual, in that –

   I am a licensed Professional Engineer in the State of Texas, whose registration number and seal are shown below, and I have experience in energy or water efficiency, including one or more of the professional credentials listed below:

   [ ] Building Energy Assessment Professional (BEAP) or Building Energy Modeling Professional by the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE);
   [ ] Certified Energy Manager (CEM), Certified Measurement and Verification Professional (CMVP), or Certified Energy Auditor (CEA) by the Association of Energy Engineers;
   [ ] Certified Commissioning Professional by the Building Commissioning Association;
   [ ] Credentialed Quality Assurance Provider from the Investor Confidence Project;
   [ ] Certified Commissioning Authority from the AABC Commissioning Group
   [ ] 5 Years relevant project experience in energy/water efficiency

6. I do not have any conflicting financial interest in the Project, in that –

   Neither I nor any member of my family nor any company that I own or have a financial interest in has any ownership or financial interest in the Project, the engineer/contractor, the real property, or its owner; and
   Neither I nor any member of my family nor any company that I own or have a financial interest in has provided or will provide any products or services for the Project other than independent third party review and/or commissioning for a green building rating system.

7. I personally visited the site of the Project on _________________________ and observed, based on my inspection, review of construction and commissioning documents made available to me, and witnessing of operations, that the improvements from the Project have been completed and are
operating as intended.

8. The attached project documentation review letter provides details of my findings and conclusions.

SIGNED: __________________, ______.  _____________________

ITPR Signature

______________________________

Company/Firm

______________________________

Address

______________________________

Texas Professional Engineer Registration No.  _____________________

City, State, Zip Code