Incremental Cost and Savings

SIR for New Construction and Redevelopment Projects

A deep dive into the Texas PACE Technical Standards Manual

PACE Financial / Technical Requirements

Each project is required to have an energy and/or water analysis conforming to KPT Technical Standards

- The analysis is performed by the Engineer / Contractor

- It has 2 Components:
    - Baseline Analysis
    - Projected Case Analysis

- It must be reviewed by an Independent Third Party Reviewer (ITPR)

- There should be an "Arms Length" relationship between the two parties

- The Technical Standards Manual developed by Keeping PACE in Texas is the governing policy and procedures document
    - https://www.keepingpaceintexas.org/library/document-library/

Contractor / Engineer　　　　　　　　　　**ITPR**

| **Energy/Water Savings Analysis** | → | **Savings Review and Confirmation** |

Savings to Investment Ratio (SIR) Recap

Savings – Total financial savings resulting from the project over the term of the assessment

Investment – Total amount of assessment (principal + interest)

SIR = Savings / Investment

- *Example:* HVAC and Light improvements

  Project Investment - $1,000,000 (including financing costs)

  Project Savings - $1,500,000 over 20-year period

Key Takeaway:
Each Project should target to have an SIR of 1 or greater

Savings to $1,500,000
Investment Ratio $1,000,000   =   SIR 1.5

Calculating Savings: Baseline Methodology Recap

To calculate the Savings, subtract the projected costs from the baseline costs

Baseline Use ("Before" projects)	**-**	Projected Use ("After" Project)	**=**	Savings

To be included as Savings, the item must have a cash benefit. Examples of eligible savings items include:

- Reduction in energy/water consumption
- Value of produced energy
- Tax savings (if tax liability)
- Rebates
- Operational / O&M savings
- Avoided cost of capital (limited to 50% of the total savings)

Calculating the Baseline for Redevelopment Projects

- Complete redevelopment projects include expansion of existing buildings, tear town/rebuild, or new development on a previously developed parcel.

- The baseline for redevelopment projects is established using the current Texas state energy code, which at the time of printing is 2015 IEECC/ASHRAE 90.1-2013, OR the local governing energy/water code, whichever is more stringent.

- The redevelopment must achieve at minimum 5% energy/water performance above baseline, measured in energy use per square foot. This information will be used to determine the savings calculations including avoided annual electricity costs and annual demand charge reduction.

- SIR will be calculated as discussed above: SIR = Savings / Investment

- The incremental costs (code compliant to above code) versus incremental savings (savings of more efficient equipment compared to code) should be included in the engineering analysis.

Example Code Baseline Submission

Table of Model Assumptions:

	Baseline	As-Designed
Building Envelope		
Assembly U Value		
· Roof	0.039	0.0388
· Walls	0.064	0.059
· Windows	0.46	0.41
Window Solar Heat Gain Coefficient (SHGC)	0.25	0.25
Window to Wall Ratio	40%	44
Lighting		
Avg Lighting Power Density		
· Hotel	0.87 W/sf	1.0 W/sf
· Garage	0.21 W/sf	0.125 W/sf
· Space Type 3		
· Space Type 4		
Exterior Lighting Power (kW)	15.56	16.91
Lighting Controls	Per code	Additional savings from garage lighting controls.
Plumbing / Domestic Hot Water		
Domestic Hot Water		
· Source	Gas / 80%	Gas / 96%
· Type	Storage tank	Storage tank
· Pumps		

Example from ITPR Sheet

- The ITPR Workbook is provided to help you calculate SIR. Input the values for each measure and the sheet will calculate SIR.
- Be sure to select "Incremental to Code" option

PROJECT OVERVIEW					
Project Name	KPT Incremental Cost Example Projec	Project Address	333 KPT Boulevard, PACE, Tx	PACE Region	Travis County
Project Number	2024-KPT-001	Interest Rate	8.49%	Submission date	8/1/24
Loan to Property Ratio (LTV) (%)	15.5%	Tax Rate	37%	Term (years)	25
Property Value	$ 4,500,000	Project ITPR:		Project Calculations Performed by:	
PACE Financed Amount ($)	$ 697,355	Name	ITPR Name	Name	Engineer Name
Savings to Investment Ratio (SIR)	1.00	Title	Director of Engineering	Title	VP of Engineering
ITPR Fee	$ 5,750.00	Organization	ITPRS 'r' Us	Organization	Engineers Unlimited
SIR Calculation Method	Incremental to Code (New Construction Only)	Phone #	512-555-5555	Phone #	Phone #
Notes:		Email	itpr@itprs.com	Email	engineer@engineers.com

Example from ITPR Sheet

- Input the cost for each measure vs. what the code compliant measure would cost.

Measure #	Eligible Measures	Description	Measure Cost ($)	Incremental Measure Cost vs. Code ($)
1	04.0 Building Envelope	Roofs, Walls, Windows, Exterior framing, drywall and insulation.	$438,092	$438,092
2	03.0 Electrical	C-PACE eligible Electric Work to HVAC, Plumbing and Lighting.	$94,264	$94,264
3	01.0 Lighting	LED interior and exterior Lighting	$11,008	$10,000
4	02.0 HVAC	Furnaces with High Efficiency outdoor condensers	$75,913	$5,000
5	05.0 Water Efficiency	Low flow devices such as the showerhead, toilets and faucets	$124,274	$50,000
Subtotal			$743,551	$597,355
Owner Contribution				
Transaction Costs			$100,000	$100,000
Total Financing Amount			$843,551	$697,355

Savings to Investment Ratio (SIR) Example Calculation

Savings – Same as in regular method: Total financial savings resulting from the project over the term of the assessment

Investment – Financing costs *as if* the incremental amount had been financed using PACE (principal + interest); Be sure to include transaction costs

SIR = Savings / Investment

- *Example:* Envelope, Electrical, Lighting, HVAC, Water Efficiency

Incremental Investment - $697,355 Principal (incremental project cost + transaction costs) amortized for 25 years @ 8.49%, for a total Investment of $1,702,077

Savings - $2,000,000 over 25-year period

Savings to Investment Ratio $\frac{\$2,000,000}{\$1,702,077}$ = SIR 1.18

Takeaways

- Public Policy benefit: Local governments adopt the PACE program in part with a goal of reducing their local energy and water demands. Using the incremental approach to SIR is a way of encouraging developers to build more efficiently than code requires while recognizing the benefits that will be achieved (savings) versus the extra cost to go above code.

- Remember to include all transaction costs that are unique to PACE (ITPR cost, energy audit, admin fees, lender fees, etc)

- For help or unique situations, please reach out to discuss

Questions?

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