

# Finding Methods to Estimate Social Benefits of Low-Income Energy Efficiency Programs

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A search was made to find methods to quantify the social benefits of low-income energy efficiency programs. There were six primary hypothesized social benefits of these programs that were focused upon. These were: (1) reduced arrearages, uncollectible, termination and reconnection costs; (2) reduced public transfer payments; (3) reduced foreclosures and evictions, and delaying elders movement out of own homes; (4) increased health and safety; (5) increased housing stock value and neighborhood preservation; and (6) impact on the local economy. A literature search and snowball survey technique of experts was conducted to find what methodologies had been used in the past (if any), or what methods might prove fruitful, to quantify and monetize these benefits. The greatest inventory of previous work in these areas was found in the reduced arrearages and the economic impacts areas. Citing these works, an overview of the various methods used and their short-comings or difficulties that should be guarded against was made. Several of the other focus areas proved less likely to have viable methods that could be applied at a utility level. An examination of possible methodologies from work in the appropriate field was used to provide recommendations as to what areas had methods which could be applied at the utility level, or should be developed at the regional level, or should be studied at a national level.

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## Introduction

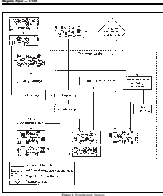
The study on which this paper is based was one of four studies being led by the New York State Low-Income Evaluation Task Force. This task force is comprised of representatives from the nine electric and gas utilities in New York State conducting pilot low-income efficiency programs. This study contained a scoping study of previous work as a search for possible methodologies appropriate to quantify and where possible, monetize the hard to quantify benefits in six areas identified by the New York State Department of Public Service. Then the study examined possible methods of incorporating this information into the benefit/cost analyses. The causal chain for hypothesized impacts being examined is given in Figure 1.

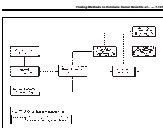
The scoping study used a literature search and review, and a snowball telephone survey technique (Rubin 1983) of leading experts in the field. This paper highlights the key findings of the methodology search component of the study .

## Reduced Arrearages, Uncollectible, Termination and Reconnection Costs

Energy savings leads to lower customer bills. For low-income households previously incapable of paying their energy bills, energy efficiency programs may allow more customers the ability to reduce their arrearages. This can reduce the utility's costs for write-offs on uncollectible and lower the number of terminations and reconnection that are made to this group of customers.

The reduced arrearage is clearly also a benefit to the participant. However, if the amount of arrearage reduction is from measure installation, this dollar value is already captured in the participant benefit/cost test within the bill savings. Monetary participant benefits could include reduced termination and reconnection fees. The participant also benefits by being psychologically relieved if arrearages are reduced. This latter benefit, however, is a qualitative one that can not be easily added into a benefit/cost test.





The diagram illustrates a control system with a feedback loop. The reference input  $r(t)$  is compared with the system output  $y(t)$  at a summing junction. The resulting error signal  $e(t)$  is processed by a controller  $K(s)$ , whose output drives the plant  $G(s)$ . The plant's output  $y(t)$  is then fed back to the summing junction. Additional signals  $u(t)$  and  $v(t)$  are shown as inputs to the system.

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**Table 1.1**

Year	Population (millions)	GDP (billions of dollars)
1950	2.5	1.0
1960	3.0	2.0
1970	4.0	5.0
1980	5.0	15.0
1990	6.0	35.0
2000	7.0	70.0
2010	8.0	150.0
2020	9.0	300.0



**Table 1**

Table 1. The table shows the results of the analysis of variance for the dependent variable of the study. The table is divided into two main sections: the first section shows the results for the dependent variable of the study, and the second section shows the results for the independent variables. The table is organized into columns for the dependent variable, the independent variables, and the results of the analysis of variance. The results of the analysis of variance are presented in the form of a table with columns for the dependent variable, the independent variables, and the results of the analysis of variance. The results of the analysis of variance are presented in the form of a table with columns for the dependent variable, the independent variables, and the results of the analysis of variance.





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**1. Introduction**

The purpose of this document is to provide a comprehensive overview of the project's goals, objectives, and scope. It serves as a guide for all stakeholders involved in the project, ensuring that everyone is aligned and working towards the same vision.

The project is organized into several key sections, each addressing a specific aspect of the overall strategy. This document is intended to be read in conjunction with the other project materials to gain a full understanding of the project's direction and execution plan.

The following sections will detail the project's background, the specific tasks to be undertaken, the resources required, and the timeline for completion. By the end of this document, you should have a clear understanding of the project's purpose and how your role contributes to its success.

**2. Project Objectives**

The primary objectives of this project are to:

- Improve operational efficiency by streamlining processes and reducing waste.
- Enhance customer satisfaction through improved service quality and faster response times.
- Reduce operational costs by optimizing resource allocation and minimizing unnecessary expenses.
- Strengthen internal communication and collaboration among team members.

These objectives are designed to drive the project forward and ensure that it meets the needs of all stakeholders.

**3. Project Scope**

The project scope is defined by the following key areas of focus:

- Process Improvement: Identifying and implementing changes to current workflows to increase efficiency.
- Customer Service: Enhancing the customer experience through better training and support.
- Cost Management: Analyzing current expenses and finding ways to reduce them without compromising quality.
- Team Development: Providing training and resources to ensure the team is equipped to handle the project's challenges.

It is important to note that the project will not include any changes to the core business strategy or the overall organizational structure.

**4. Project Organization**

The project is managed by a dedicated team led by the Project Manager. The team consists of members from various departments, each bringing their expertise to the project. The Project Manager is responsible for overall coordination, communication, and reporting.

The team structure is as follows:

- Project Manager:** Oversees the entire project and ensures it stays on track.
- Team Lead:** Manages the day-to-day operations and reports to the Project Manager.
- Team Members:** Execute the project tasks and provide regular updates.

**5. Project Timeline**

The project is scheduled to begin on [start date] and is expected to be completed by [end date]. The timeline is divided into several phases, each with specific milestones and deliverables. Regular progress reports will be provided to keep all stakeholders informed of the project's status.

**6. Conclusion**

This document outlines the project's vision and provides a clear path forward. By following the outlined objectives and scope, the project team is confident that it will achieve its goals and deliver a successful outcome for the organization.

Thank you for your attention and support. We look forward to your feedback and collaboration throughout the project.

