



The ICORE Project

A Model Technical Assistance Program for Underserved Regions

By Dan Marsch and Mike Springman

Abstract

The Illinois Conservation of Resources and Energy (ICORE) project strives to achieve measurable energy and water conservation improvements among Illinois' small, rural communities and businesses, focusing primarily on the manufacturing sector. Through the project, the Illinois Sustainable Technology Center (ISTC) provides technical on-site assistance to water and wastewater treatment facilities and industrial facilities to improve efficiency in: (1) water consumption; (2) wastewater generation; (3) energy consumption; and (4) carbon emissions.

ICORE Project Overview

ISTC provides on-site technical assistance in underserved regions of Illinois. In order to accomplish its objectives, ISTC works with local governmental officials, water and wastewater treatment authorities, and local industry managers to identify energy and water conservation opportunities. Additionally, ISTC assists participants in identifying and implementing practices and technologies that reduce non-hazardous wastes, hazardous materials/wastes and greenhouse gas (GHG) emissions.

Once identified, ISTC's technical assistance program (TAP) staff works directly with participants to provide the necessary information to overcome impediments and implement change. ISTC uses a holistic approach to identify facility-wide opportunities in pollution prevention, (P²), energy efficiency (E²), including source reduction, resource utilization, waste minimization, and process optimization.

Figure 1 is an overview of the ICORE Project model. Subsequent sections describe process steps in detail.

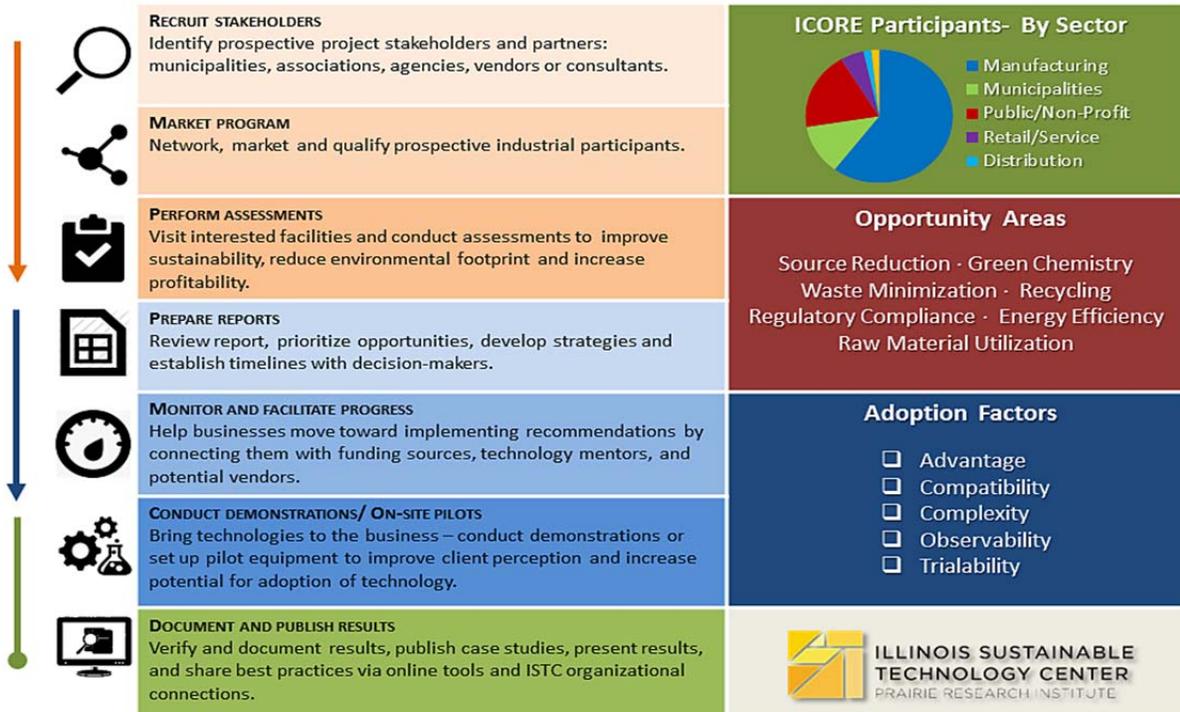


Figure 1: The ICORE Project Model

The ICORE Model: Methodology

Step 1: Identify and recruit prospective project stakeholders and municipal partners.

- The size and location of ICORE communities are what makes the program unique. The project targets small, rural communities located in regions of the state which, in some cases, are economically challenged or have not had good access to environmental assistance programs. These communities have explicitly expressed interest in: (1) supporting its manufacturing base, (2) the sustainable use of resources, and (3) commitment to ICORE objectives.
- The success of ICORE is made possible due to the enlistment of project stakeholders, including the municipalities which play an integral role in ICORE and private vendors of products, services and consulting. Some stakeholders provide networking opportunities within their association's membership, while others provide technical expertise and services at no cost to either the facility or ISTC.

- Vendor-stakeholders are committed to supporting the project objectives. ISTC works to assure that multiple vendors are involved and that the program is not a vendor marketing campaign. In some cases the relationship is reciprocal. Vendor-stakeholders refer their clients to ISTC for assistance in those areas outside of their own core expertise.

Step 2: Network, market and qualify prospective industrial participants.

- ISTC utilizes focused networking and cold-calling strategies to market and recruit potential candidates and stakeholders. In some cases, participants provide peer-contacts within local businesses or nearby communities which facilitates positive rapport and initial acceptance.
- ISTC engages potential ICORE participants through both individual and group meetings. Key decision-maker(s) are targeted to ensure the highest level of participation and sustained commitment to the project objectives. The potential economic and environmental benefits are stressed in order to attract and retain a high degree of interest in the project.
- In the initial stages, ISTC qualifies potential participants by understanding their immediate needs, organizational structure and culture, financial standing and resources.

Figure 2 represents the composition of participants. Though primarily manufacturing-focused, a variety of business sectors are served.

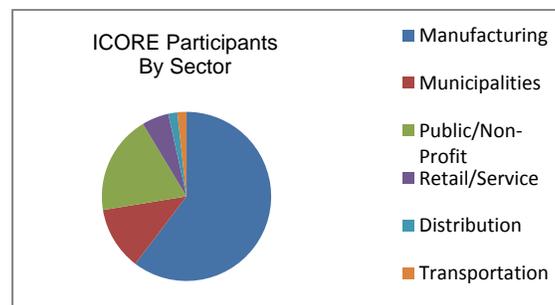


Figure 2: Breakdown of participants by sector

Step 3: Perform a comprehensive on-site assessment.

- ISTC TAP staff performs detailed P² and E² assessments at water/wastewater treatment facilities, municipal facilities and manufacturing facilities to identify opportunities for energy and natural resource conservation. ISTC establishes a baseline of energy and natural resources used in processes and facility infrastructure based on the information gathered and observations made during the assessment. Utility bills permit the staff to assist the facility with calculating its cost of electricity, natural gas, and water. Invoices, manifests, and other relevant documents are reviewed to calculate the volume of hazardous and non-hazardous wastes generated and to determine which materials are recycled or disposed of.

- Multi-media Focus: TAP staff utilizes the Waste Management Hierarchy model (Figure 3). During assessments, higher preference and attention is devoted to source reduction, conservation, green chemistry, and in-line recycling opportunities with less attention to end-of-pipe treatment or disposal.

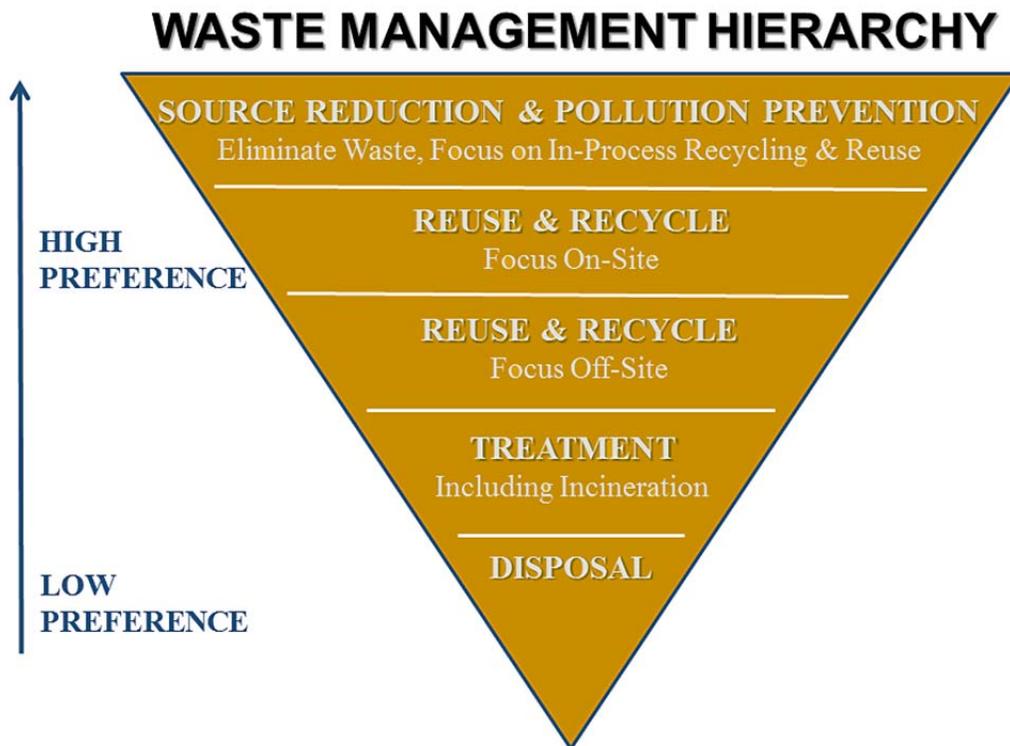


Figure 3: Waste Management Hierarchy

- Metrics associated with waste streams and process improvements are obtained from company records or estimated using fair and reasonable engineering standards. Greenhouse gas emissions (MTCO₂e) and annual monetary savings are quantified using the most recent versions of the United States Environmental Protection Agency's Green House Gas Conversion Tool and Pollution Prevention Cost Calculator.

Step 4: Prepare a written assessment report and present to the facility's decision-makers.

- ISTC uses information gathered during the site assessment to prepare a written report that identifies the opportunities and expected reductions in water, energy, non-hazardous and hazardous wastes. ISTC also identifies costs for the implementation of the changes and an estimated return on investment. The report is presented to the facility's key decision-maker(s) providing them the opportunity to review the report in detail, ask questions and gather additional information and insights in order to assist them with selecting projects that will be implemented in the near and long term.

Step 5: Establish a prioritized list of opportunities and develop implementation strategies and goals.

- ISTC works with the facility representatives to prioritize the opportunities based on their management plan and environmental stewardship objectives. Execution strategies are identified, timetables agreed-upon and action plans are developed to initiate investigation, adoption and implementation of opportunities.

Step 6: Monitor, mentor and facilitate progress toward meeting goals.

- TAP staff conduct regular status meetings (via phone, emails and on-site) with clients to facilitate forward-progress in meeting deadlines, commitments and objectives. With permission, TAP staff may also discuss technical details with vendors, contractor and consultants on behalf of the client.
- Developing a relationship and establishing trust with individuals have proven to be key factors in successful project implementation. Once TAP staff earns the participant's trust and has established a healthy working relationship, implementation of opportunities is more likely. Conversely, in other cases where ISTC is unable to establish rapport, either the participant recruitment is unsuccessful or implementation of opportunities is less likely.
- ISTC utilizes technology-mentors to assist in advancing the ICORE program. These mentor companies demonstrate specific P² and E² technologies. Following a successful technology pilot, other ICORE participants are provided opportunities to visit the technology-mentor to witness details of project concepts, implementation, and applicability.
 - These mentors are chosen based on their status as perceived leaders in industry or the community at large and their relative visibility to peer organizations.
 - Incentives for project participation include access to highly trained technical experts and consultants, as well as tailored solutions to problems identified by the participants.
 - Incentives also include potential improvements in water and energy use efficiency and decreased operating costs.
- Progress towards achieving the expected environmental outcomes and project outputs are tracked using a proprietary technical assistance data collection system and a project spreadsheet that identifies the recommendations for each participant. Throughout the project, data is entered into the spreadsheet to document, track and report environmental outcomes and project outputs.

Step 7: Enlist ICORE vendor-stakeholders for their expertise.

- Vendor-stakeholders are able to go beyond the services and capabilities offered by ISTC staff by working directly with the facility in providing assistance with project design and specifications, material/equipment costs, installation costs, savings, and return on investment (ROI).
- They are a critical component in the process by transforming the ICORE P² and E² recommendations into actual implementation which result in financial savings and a reduced environmental footprint.
- The vendor-stakeholders also work with ISTC TAP staff in identifying and securing eligible energy efficiency incentives from Illinois utilities (Ameren, ComEd) or the Illinois Department of Economic Opportunity (DCEO) for public facilities. These programs offer financial incentives that facilitate many of the improvements, energy reductions and savings.

Step 8: Provide on-site technology demonstrations and/or pilot equipment when necessary.

- ISTC has a variety of demonstration technology equipment available for observation and pilot equipment on-hand for short term, on-site trial and evaluation. ISTC staff also will assist industrial facilities with locating contractors and suppliers of the identified technology to schedule vendor pilots and technology demonstrations at the facility.
- Placing technologies within the facilities to allow personnel to operate the equipment and become familiar with it is a key element. Having the equipment on-site allows management and production operators to apply the five characteristics that affect technology diffusion. These characteristics are:
 - Relative Advantage—How is this equipment better than existing equipment?
 - Compatibility—How is the new equipment compatible with existing equipment?
 - Complexity—Are my employees capable of operating the equipment?
 - Observability—Will this technology perform as promised?
 - Testability—Will this innovation work in my plant?

Step 9: Conduct exit-interviews to verify and document results.

- Data is collected throughout the project. Typically, TAP staff meets with facility representatives a minimum of three visits.
 - The first visit is to perform the site assessment.
 - The second visit is to present the written report, discuss the recommendations with management and prioritize technology demonstrations and pilot equipment projects.
 - This may then be followed with subsequent visits to the facility to provide the required hands-on technical assistance.

- A final meeting is conducted to verify and document the recommendations implemented and the reductions in energy, natural resources, GHG emissions, and wastes.
- Information is then recorded and compared to the established baselines and estimations for each recommendation as well as implementation date, cost savings, resources savings, waste reductions, and greenhouse gas emissions.
- Results are compiled and progress reports are prepared which describe the completed activities, the environmental outcomes, project outputs and project's overall effectiveness.

Step 10: Prepare case studies to communicate to larger audiences.

- ISTC Fact Sheets are created by TAP staff to document various unique activities or pilot evaluations. They are published on ISTC's web site and promoted through ISTC's social media channels and the P²Rx network and are available to technical assistance providers who are encouraged to distribute them to their constituents and encourage those who express interest to contact ISTC.
- The Fact Sheets detail the results of the pilots: the P² and E² opportunities implemented; applications in which innovative and/or transformative technology can be used; resources saved; and the anticipated economic benefits.

A Summary of the Critical Elements of ICORE

- **Qualify** participants...understanding their immediate needs, organizational structure and culture, financial standing and resources.
- Enlist **decision-makers**...those individuals at the top of the organization or those who have authority or influence.
- Develop a relationship...**Trust!**
- **Persistence**...timing is everything.
- **A persistent, trusting relationship with the decision-maker is *critical* to the process.**

Transferability

ICORE is a proven program model and may be easily applicable and transferrable to other communities and/or states. It is entirely portable and is not uniquely suited to Illinois alone. The ICORE program will continue to be presented to regional and national audiences as opportunities arise via NPPR, GLRPPR and the P²Rx network.

For More Information

Additional ISTC fact sheets covering energy efficiency, water conservation, pollution prevention, and sustainability are available at www.istc.illinois.edu. You may also contact:

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