Fort Collins Utilities Integrated Design Assistance Program (IDAP) Participant Manual

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Section 1 Introduction

1.1 PROGRAM OVERVIEW

Fort Collins Utilities' (Utilities) Integrated Design Assistance Program (IDAP) provides technical assistance and financial incentives to help architects, engineering professionals, and building owners optimize energy and demand savings and reduce operating costs in eligible new construction and existing building major renovation projects.

IDAP employs a whole building performance-based strategy that fosters an integrated design approach with the project's design team starting during the conceptual phase. Through this process, the design team (typically the owner, architect, mechanical and electrical engineers, and general contractor) are presented with multiple high efficiency design strategies and their associated economic impacts at key milestones throughout the design process. Early involvement combined with the comprehensive interaction of key project stakeholders affords the opportunity to cost-effectively evaluate and incorporate efficiency strategies while design components are still fluid. The program is designed to be scalable for projects of varying size and flexible to grow with customer needs.

IDAP energy reduction targets are modeled after the Challenge 2030® [1] initiative. IDAP has adopted the following Challenge 2030 elements into the program:

- All new buildings and existing building major renovation projects shall be designed and built to meet an energy consumption performance standard of 60% below the regional average EUI (Energy Use Intensity, defined as kBtu/SF/year) for that building type. The regional average EUI is based on 2003 building survey data, (i.e. data is based on older, less efficient buildings as compared to present day buildings) contributing to the achievability of Architectural 2030 targets. This standard for all new buildings and major renovations will be increased to:
    - 70% in 2015
    - 80% in 2020
    - 90% in 2025
    - Carbon-neutral in 2030 (using no fossil fuel GHG emitting energy to operate)
- Savings targets may be accomplished by implementing innovative sustainable design strategies and generating on-site renewable power (20% maximum contribution towards goal).

  Performance and design incentives are available for qualifying projects that meet or exceed IDAP energy consumption performance standards for both electricity and natural gas. Final performance incentives are based on actual building performance resulting from energy efficient design and control strategies, human behavior, etc.

- Includes existing building and major renovation projects. See 2.2-5.

- IDAP has specific deliverables aligned with traditional architectural milestones allowing for a highly integrated, user-friendly and timely design assistance process.

[1] *Challenge 2030 ® is a federally registered trademark solely owned by Architecture 2030 / 2030, Inc. For additional information, visit architecture2030.org*

- IDAP is intended for projects with intentional stretch goals and committed design teams using an integrated design process early in the project.

- For buildings achieving the target goal, Utilities will provide the owner with a plaque signifying they have met a special City of Fort Collins designation for building energy performance.

For new construction and existing building major renovation projects that do not lend themselves to a comprehensive whole building approach, Fort Collins Utilities and Platte River Power Authority offer the Efficiency Works program, providing prescriptive and custom incentives for qualified customers. Prescriptive incentives are available for high efficiency HVAC equipment, lighting, motors, refrigeration and compressed air measures that meet or exceed minimum eligibility requirements. Custom incentives are available for systems that exceed code requirements or standard industry practice. Once a project has been selected for IDAP, incentives cannot be obtained from or combined with other programs offered by City of Fort Collins Utilities or Platte River Power Authority for the same measures.

1.2 CONTACT INFORMATION

Questions about the program can be directed to the Program Administrator via:

- Web:
  - http://www.fcgov.com/IDAP
- Customer informational hotline
  - (970) 221 6700
- Fax
  - (970) 221 6619
- Email
  - utilities@fcgov.com
- Mail
  - Integrated Design Assistance Program
    Fort Collins Utilities
    P.O. Box 580
    Fort Collins, Colorado 80522

1.3 MANUAL USE AND ORGANIZATION

This Participant Manual is designed for use by customers, contractors, architecture and engineering firms, energy services companies and equipment manufacturers and outlines the rules and requirements of IDAP. There are two manuals for IDAP, the Participant Manual and Consultant Manual. Both should be reviewed by all parties. This Participant Manual is organized as follows:

- Section 2 – Addresses customer, facility, and measure eligibility requirements
- Section 3 – Discusses incentive information
- Section 4 – Outlines the program meetings & process

Sample program submittal forms, frequently asked questions, and other general program support information are contained in appendices at the end of this manual.

Section 2 Program Requirements

2.1 CUSTOMER ELIGIBILITY

For the purposes of Fort Collins Utilities energy efficiency programs, a customer is defined as a company or organization that receives electric service from under an approved Utilities price plan. A customer is a holder of a single account, multiple accounts in aggregate or corporate accounts. Multiple accounts or corporate accounts with a single Utilities customer identification number will be considered a single customer. An organization of this type can participate in multiple efficiency programs, but will be subject to any applicable customer incentive caps. Customers with questions regarding their account should contact their Utilities Account Manager.

2.2 FACILITY ELIGIBILITY

Facilities that fit the following requirements are eligible to participate in the program:

1) Projects in the earliest stages of programming or schematic design. A high degree of flexibility must still be available regarding choices for building design, envelope, HVAC and electrical systems. Early involvement in the design process by the Utilities design assistance team ensures that all energy-saving options can be considered.
2) The proposed project has a goal of designing to an energy target based on 2030 Challenge goals;
3) Utilities staff and IDAP program consultants will be invited to attend design meetings for the project related to energy considerations and will be kept apprised of project progress and major energy-related decisions;
4) Available IDAP design team and performance incentives increase with building size (See Section 3 for details). For smaller buildings (typically less than 10,000 square feet), it is highly recommended that the owner and design team consider the cost-effectiveness of participating in the IDAP program. A cost-effectiveness assessment should include comparing energy modeling and design team costs to IDAP program benefits (potential design team and performance incentives, long-term energy savings and life cycle costs). The minimum facility size for IDAP is 5,000 square feet.
5) Projects involving commercial or high-rise residential buildings (as defined by ASHRAE 90.1) planned for new construction or existing building major renovation projects. A major renovation is defined as any renovation of a building where (a) the total cost of the renovation related to the building envelope or the mechanical/electrical building systems is higher than 25 % of the value of the building, excluding the value of the land upon which the building is situated, or (b) more than 25 % of the surface of the building envelope undergoes renovation.
6) Utilities retains the right to make final determination of facility eligibility.

2.3 ENERGY USE INTENSITY TARGET (EUI)

Performance incentive levels are determined by comparing the EUI (Energy Use Intensity, defined as kBtu/sf/year) of the new building performance to the IDAP EUI performance target approved for the project. In order for projects to be eligible for performance incentives, the 2013-2014 IDAP program requires new buildings and major renovations to be designed to meet a site EUI of 60% below the regional average for the project building type (as defined by ENERGY STAR® Target Finder or other approved method). Buildings that encompass multiple end-use types will be weighted on a square footage basis. In special cases, process loads may be exempted from the performance target EUI and sub-metering of those loads and other requirements may exist to remain eligible for performance incentives. Please consult with the IDAP Program Manager regarding space types not covered by Target Finder and finalizing the performance target EUI. EUI reduction standard for all new buildings and major renovations will be increased to:

- 70% in 2015
- 80% in 2020
- 90% in 2025
- Carbon-neutral in 2030 (using no fossil fuel GHG emitting energy to operate)

The performance incentive target will be set based on the year the design is complete (100% CD). If the construction is not complete within 2 years after completion of design, the incentive will be reduced according to the 2030 Challenge target at the time. For example, a building with a completed design in June, 2013, with construction complete before June of 2015 will be required to meet a 60% EUI reduction to qualify for the incentive. For this example, if the design is complete in 2015 or construction takes longer than two years and finishes in 2015, then the incentive will be reduced by the difference between a 60% and 70% goal (unless the 70% goal is obtained). See Section 3.2 for incentive calculation details.

2.4 IDAP WHOLE BUILDING STRATEGY

IDAP is structured to promote whole building energy efficient design through an integrated systems approach to the design of a building to achieve a target energy reduction goal. Therefore, program design assistance concentrates on system interaction throughout the whole building to achieve energy efficiency as opposed to focusing on individual components in isolation. The integrated, whole-building approach provides significant benefit over evaluating each measure individually. The goal is to treat the building as a functionally integrated structure rather than a base building with "add-on" efficient systems. By combining the strategies into a design package, the influence of trade-offs and interactions between systems can be appropriately evaluated. IDAP is designed to encourage integrated high performance building design through:

- Building shape and orientation
- Building envelope thermal design and efficiency
- Daylighting and electric lighting design and controls
- HVAC mechanical systems & duct/pipe design
- Fenestration optimization
- Enhanced control automation
- On-site, integrated renewable systems

Examples of specific measures to be included in integrated design strategies are listed in Table 2-1. This list is not exhaustive and program participants are encouraged to incorporate other strategies not included in the table.

Table 2-1: Examples of New Construction/Major Renovation Energy Efficiency Measures

Category	Measure	
Envelope	Continuous air barrier Improved wall insulation High efficiency glazing	Improved roof insulation Cool roof
Lighting	High efficiency fixtures (Interior) Lower ambient lighting levels Highly reflective ceiling	Occupancy sensors Efficient exterior lighting fixtures
Daylighting	Light conveyors Interior/exterior light shelves Sloped ceiling Reflective ceiling	Stepped daylighting controls Dimming daylighting controls Skylights/roof monitors Tuned glazing
HVAC Systems	High efficiency chiller High efficiency boiler Water side economizer Ground-source heat pump Water-source heat pump Variable refrigerant flow heat pumps Building thermal mass Point-of-use domestic hot-water heaters	Evaporative cooling technologies VFDs on pumps and cooling tower fans Infrared heating Displacement ventilation Radiant heating/cooling Natural ventilation Chilled beams High efficiency refrigeration equipment
On-site renewable systems	Onsite micro-wind Photovoltaic solar	Solar water heating
Passive design strategies	External overhangs Building orientation Low pressure drop duct & piping design	Optimizing window to wall ratio Trees for shading and wind protection

Section 3 Incentive Information

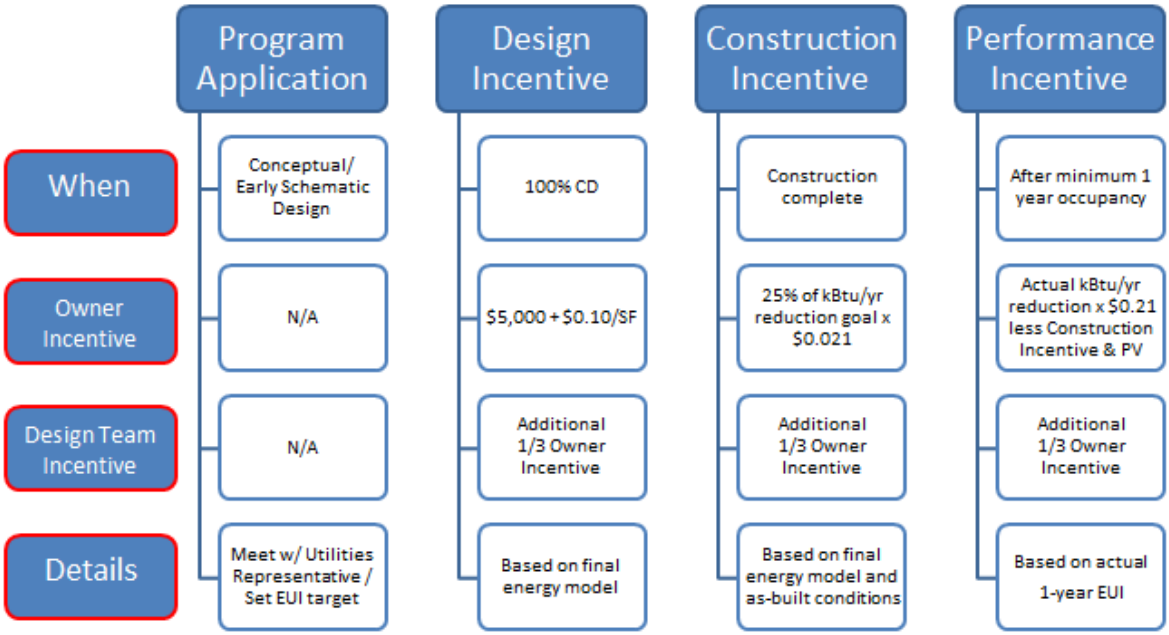
3.1 INCENTIVES

IDAP provides the following incentive types to encourage the implementation of whole-building, energy reduction strategies in new construction and existing building major renovation projects. All incentive types are paid to both the owner and the design team:

1. Design incentives
2. Construction incentives
3. Performance incentives

See Figure 3-1for a graphical depiction of the IDAP process and milestones.

Figure 3-1: IDAP Process and Milestones



3.1.1 DESIGN INCENTIVE

IDAP provides design incentives to both the owner and design team for projects achieving IDAP performance targets. The design team can consist of the energy modeling consultant, architect, engineers, general contractor, and others for a project. Design team incentives offered by the Utilities' IDAP program can offset a portion of the expenses for the design team's participation in the project, recognizing that high performance building design takes more time and effort up front and may require specialized consultants (e.g., energy modeling, daylighting, and building envelope).

The Design Incentive is a fixed value based on the gross floor area of the project. Gross floor area is the total conditioned floor area, expressed in square feet (SF), measured from the principal exterior surfaces of the building, not including parking areas.

A summary of the incentive levels and calculations as a function of the project size is shown in Table 3-1.

Table 3-1: Design Team Incentive Schedule

Incentive receipient	Incentive
Owner	$5,000 + $0.10/SF
Design Team	($5,000 + $0.10/SF) * 33%

Design incentives paid to both the owner and design team will be made up of five elements, each counting toward 20% of the incentive. The elements are:

1) Hold a schematic design charrette,
2) Submit a Schematic Design Energy Report,
3) Hold a design development energy meeting,
4) Submit a Design Development Energy Report, and
5) Submit a Final Energy Report and Construction Documents at the end of design.

Completion of all five steps and achievement of the IDAP EUI performance target will qualify both the owner and design team for 100% of the Design Incentive. The incentive will be reduced accordingly for steps not completed (e.g., 80% of the incentive will be paid for four of these five items completed). Design incentives will be paid at the end of design after the Final Energy Report and drawings have been reviewed by the IDAP Program Manager (or representative) and the Design Incentive Request for Payment has been received. The incentive paid to the design team is provided to one entity (architect, engineer, energy modeling firm, etc.). It is the design team's responsibility to determine any disbursement of monies between the various parties. See Figure 3-1 for a graphical depiction of the IDAP incentive process.

3.1.2 CONSTRUCTION INCENTIVE

The Construction Incentive in essence is a pre-payment of a portion of the Performance Incentive (see below). This is paid when actual construction reflects the conditions in the Final Energy Report and commissioning activities demonstrate that energy systems are likely to operate as designed and intended. The Construction Incentive is 25% of the Performance Incentive based on the building meeting the Target EUI. For qualifying projects, the design team is eligible to receive a Construction Incentive that is one third of the incentive amount determined for the owner Construction Incentive. See Section 3.2 for incentive calculation equations.

3.1.3 PERFORMANCE INCENTIVE

The Performance Incentive will be paid when actual utility data for any 12 consecutive months within the first two years of occupancy is submitted showing that the building EUI is at or below the Target. Achievement of the IDAP Target EUI will qualify both the owner and design team for the Performance Incentive. The two year period will allow a buffer during early occupancy to get the building working optimally, if necessary. If the average occupancy during the period for which the 12 months of utility data is submitted is less than 80% and/or process loads are greater than 5%, adjustments will be made to the target EUI to account for those factors. If process loads are exempted from the target EUI, sub-metering of those loads will be required and efficiency requirements may apply to them. The final performance incentive will be specified in the approved, Final Energy Report. For qualifying projects, the design team is eligible to receive a Performance Incentive that is one third of the incentive amount determined for the owner Performance Incentive. See Section 3.2 for incentive calculation equations.

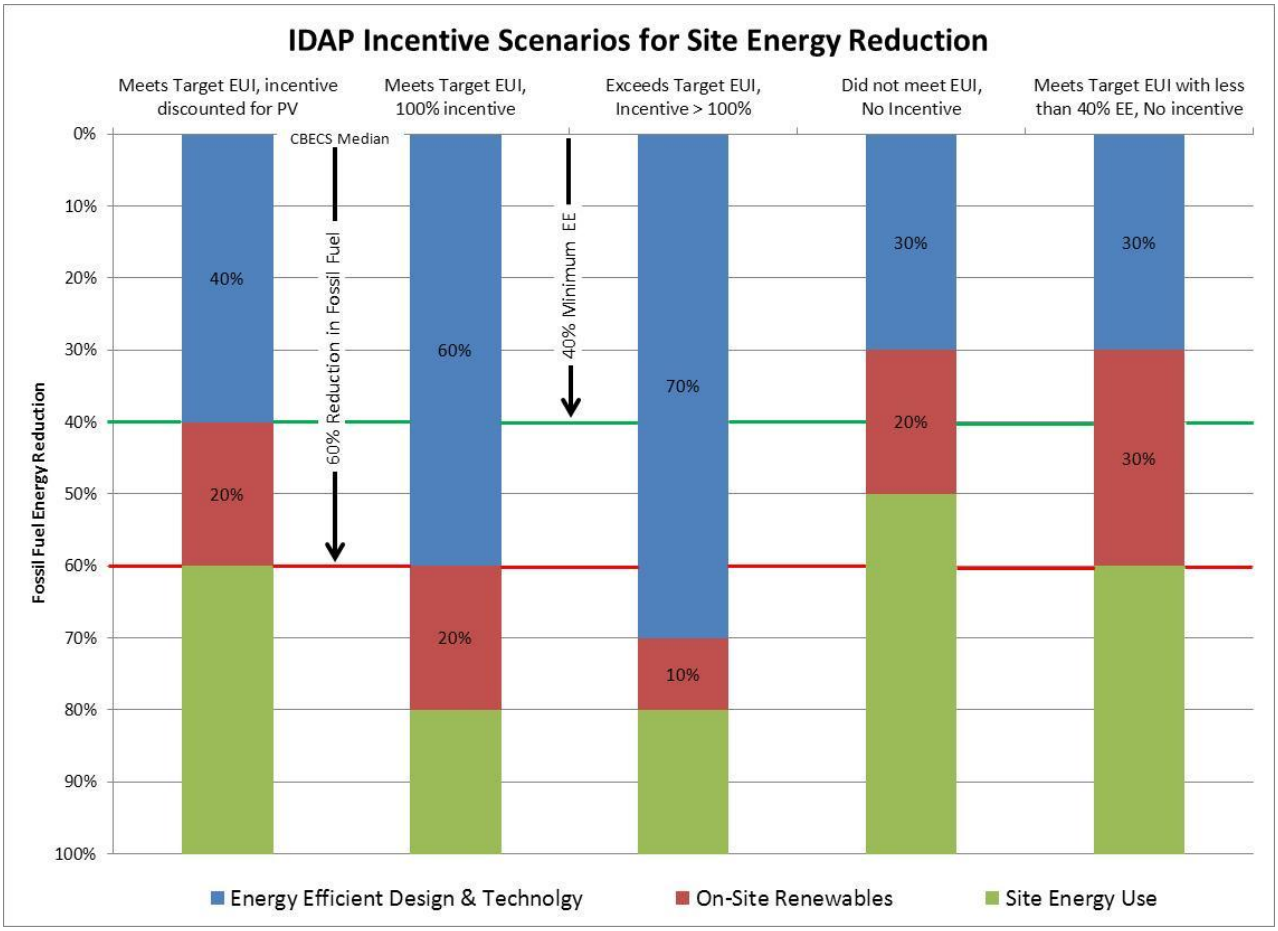
3.1.3.1 On-site renewable systems and performance incentives

Although on-site renewables can count toward up to 1/3 of the 60% energy reduction target, Construction and Performance Incentive dollars will not be available for them (since other Utilities incentive programs may apply for those systems). The percentage of the site energy reduction goal met by on-site renewables (e.g., PV), will be

subtracted from the EUI reduction used to calculate incentives. Purchase of renewable energy credits (RECs) will not count toward the 60% reduction. A minimum 40% (2/3 of the 60%) of the on-site energy reduction must come from design strategies and technology.

See Figure 3-2 for IDAP incentive example scenarios for integrating on-site renewables into the project to achieve a 60% reduction in site energy use. For instance, in the scenario of 40% of the reduction attributed to efficient design strategies, 20% of the reduction could come from on-site renewable strategies to achieve the 60% reduction target. Figure 3-2

Figure 3-2: Example incentive scenarios including on-site renewables



3.2 CONSTRUCTION AND PERFORMANCE INCENTIVE CALCULATIONS FOR NEW CONSTRUCTION

In most cases, the energy modeling consultant and the IDAP Program Manager will determine incentive estimates for the building owner and design team. The following section describes the process to determine the Construction Incentive and the Performance Incentive. The process described in this section is for new construction projects only. Incentive calculations for existing building major renovation projects are described in section 3.3.

3.2.1 CONSTRUCTION INCENTIVE

The formulas and variables used to determine the Construction Incentive (paid when construction and commissioning activities are complete) are provided in Table 3-2 below.

Table 3-2: Formulas and variables for Construction Incentives (new construction projects)

Owner Incentive Formula	**$(0.25)(A)(E_M – E_T)(I) = P_1$ = ($) Owner Construction Incentive**
Design Team (DT) Incentive Formula	**$[(0.25)(A)(E_M – E_T)(I)]/3$ = ($) DT Construction Incentive**
Variables used in formula	**A** = SF = Gross floor area of the project. Gross floor area is the total conditioned floor area, expressed in square feet (SF), measured from the principal exterior surfaces of the building, not including parking areas.
	E_M = EUI (kBtu/SF/year) = The regional average EUI for the project building type (as defined by ENERGY STAR Target Finder or other approved method)
	E_T = EUI (kBtu/SF/year) = IDAP EUI performance target approved for the project
	I = Incentive rate ($/kBtu/yr) = $0.021

3.2.2 PERFORMANCE INCENTIVE

The formulas and variables used to determine the Performance Incentives (paid after construction and utility data has been collected for 12 consecutive months) are provided in Table 3-3 below.

Table 3-3: Formulas and variables for Performance Incentives (new construction projects)

Owner Incentive Formula	**$(A)(E_M – E_A)(I) – P_1 – (R_{kW} \times R_{cf})$ = ($) Owner Performance Incentive**
Design Team (DT) Incentive Formula	**$[(A)(E_M – E_A)(I) – P_1 – (R_{kW} \times R_{cf})]/3$= ($) DT Performance Incentive**
Variables used in formula	**P_1** = ($) Performance incentive paid after construction (See Table 3-2 above)
	A = SF = Gross floor area of the project. Gross floor area is the total conditioned floor area, expressed in square feet (SF), measured from the principal exterior surfaces of the building, not including parking areas.
	E_M = EUI (kBtu/SF/year) = The regional median EUI for the project building type (as defined by ENERGY STAR Target Finder or other approved method)
	E_A = EUI (kBtu/SF/year) = Actual measured building EUI (typically from utility bills)
	I = Incentive rate ($/kBtu/yr) = $0.021
	R_{kW} = kW = Rated output of PV System after Inverter*
	R_{cf} = $/kW = Cost Factor = $150/kW*

***Note:** Please consult with program manager for renewable adjustment factors for renewable strategies that do not include Photovoltaic (PV) solar systems or for systems for which actual submetered production data are available. The impact of renewables does count towards determining the building's EUI. No more than 20% of the site energy reduction (1/3 of the 60% reduction) can be met by on-site renewables.

3.3 CONSTRUCTION AND PERFORMANCE INCENTIVE CALCULATIONS FOR EXISTING BUILDINGS

The process to determine construction and performance incentives for major renovation projects is similar to the process described for new construction projects in Section 3.1.1. The sections below describe how the formulas and variables described in Tables 3-2 and 3-3 will be modified for existing building projects.

For existing building projects involving only a portion of a building, the modified areas and the unchanged areas will be weighted on a square footage basis. Building area (E_A, as defined in Table 3-3) for existing projects containing unchanged areas will be determined on a case-by-case basis by the IDAP Program Manager.

3.3.1 EXISTING BUILDING PROJECTS – NO CHANGE OF USE

When the use of a building is not changing, the E_M variable in Tables 3-2 and 3-3 will be the regional average EUI (as defined by ENERGY STAR® Target Finder or other approved method) or the existing EUI, whichever is less.

3.3.2 EXISTING BUILDING PROJECTS – CHANGE OF USE

When the use of a building is changing (e.g. building is changing from office use to retail use), the E_M variable in Tables 3-2 and 3-3 will be the regional median EUI (as defined by ENERGY STAR Target Finder or other approved method).

3.3.3 COMPLEX PROJECTS

Complex projects which include existing building renovation coupled with new construction (e.g. addition) will be treated on an area weighted basis. The IDAP Program Manager will assist with calculations for these types of projects.

3.4 INCENTIVE CALCULATION EXAMPLE

The output screen for an example 20,000 SF building in EPA's ENERGY STAR Target Finder is provided in Figure 3-3, showing site EUI for the target and median buildings. For this example project, the Architecture 2030 Challenge goal of 60% is used (please see Section 4 of the Consultant Manual for input procedures for EPA's ENERGY STAR Target Finder)

Figure 3-3: Energy Star Target Finder Output screen

Metric	Property Estimate at Design	Design Target*	Median Property*
ENERGY STAR score (1-100)	84	97	50
Source EUI (kBtu/ft²)	136.8	86.9	217.3
Site EUI (kBtu/ft²)	55.5	35.3	88.2
Source Energy Use (kBtu)	13675042.6	8690000	21730000
Site Energy Use (kBtu)	5553198.3	3530000	8820000

3.4.1 CONSTRUCTION INCENTIVE EXAMPLE

Using the Target Finder example with the equation above, the Construction Incentive will be,

($) Owner Construction Incentive = P_1 $= (0.25)(A)(E_M - E_T)(I)$
$= (0.25)(20,000)(88.2\text{-}35.3)(0.021)$
=$5,555

($) DT Construction Incentive $= [(0.25)(A)(E_M - E_T)(I)]/3$
$= [(0.25)(20,000)(88.2\text{-}35.3)(0.021)]/3$
=$1,852

3.4.2 PERFORMANCE INCENTIVE EXAMPLE

In this example, assume that the actual building performance was measured to be 32.5 kBtu/SF/yr (E_A). This building would qualify for the Performance Incentive because actual EUI is less than the performance target of 35.3 kBtu/SF/yr (E_T). In addition, assume the sample building has a 20 kW photovoltaic solar panel system installed on the roof. Therefore, Performance Incentive would be,

($) Owner Performance Incentive $= (A)(E_M - E_A)(I) - P_1 - (R_{kW} \times R_{cf})$
$= (20,000)(88.2\text{-}32.5)(0.021) - \$5,555 - (20)(150)$
$=\$23,394 - \$5,555 - \$3,000$
$=$ **$14,840**

($) DT Construction Incentive $= [(A)(EM - EA)(I) - P_1 - (RkW \times Rcf)]/3$
$= [(20,000)(88.2\text{-}32.5)(0.021) - \$5,555 - (20)(150)]/3$
= $4,947

3.5 INCENTIVE CAPS

Participants will be subject to a maximum lifetime amount of $50,000 for the Design Incentive. The Performance Incentive is capped at $100,000 per year, per customer. Utilities will reserve the right to waive or adjust the incentive caps on a case by case basis and determine at their sole discretion the program year to which an incentive is attributed.

3.6 INCENTIVE AVAILABILITY

Customer applications to participate in IDAP will be reviewed on a first-come, first-served basis until all incentive funding has been committed. Customers seeking participation after reservation of available funding will be given the option to be placed on a waiting list in the order requests were received by Fort Collins Utilities. Current availability of incentive funds can be checked by contacting the IDAP Program Manager.

Section 4 IDAP Process

4.1 IDAP PROCESS OVERVIEW

Providing quality information in a timely fashion is critical to incorporating energy efficient design into buildings. The IDAP process commences with a design charrette, and completes with a review of the project construction documents to ensure that the final energy design strategy is included in the final design and Final Energy Report. The schedule and duration of time between each meeting can be varied to accommodate individual design team's needs. However, the key milestone meetings described below are required to ensure that progress towards energy efficient decisions are achieved.

An overview of the IDAP participation process is provided in Figure 4-1 on page 4-6.

4.2 DESIGN TEAM MEETINGS AND REPORTS

4.2.1 PROGRAM INTRODUCTION (OPTIONAL)

This optional (but highly recommended) meeting is an informal opportunity for Utilities staff or representative to learn more about the nature of the project and for the owner/design team to ask questions and learn about details of the IDAP program. Details about IDAP meetings, timeline, incentives, and questions that the design team has regarding the program manuals and eligibility will be discussed.

4.2.2 SCHEMATIC DESIGN CHARRETTE AND ENERGY REPORT (REQUIRED FOR DESIGN INCENTIVES)

An integrative design charrette is a collaborative design effort occurring early in the design process. Participants ideally include key project stakeholders the owner and representatives, design team members (building and landscape architects, engineers, energy consultant, daylighting consultant, etc.), contractor, building maintenance staff, building occupants and others. The duration of a charrette is typically anywhere from half a day to three or more days. The charrette format provides format for true integrative design to take place. Multiple solutions and perspectives can be considered and consented upon in a relatively short period of time leading to more robust design solutions. The process also helps build relationships with the design team and project stakeholders early on, leading to better design collaboration and project execution.

The IDAP Program Administrator and/or representative plays a role by participating in this charrette and contributing expertise related to high performance building strategies and lessons-learned from previous IDAP projects. The representative can also provide Utilities, Building Code and general City of Fort Collins perspective, when needed, to inform design decisions.

The Energy Consultant (EC) will attend the meeting and participate in technical discussions with the design team and building owner regarding high performance building design strategies and energy simulation modeling. By the end of the meeting, the EC will have direction from design team regarding the following:

- Three or more high performance building design strategies to be modeled. Strategies may represent "good", "better" and "best" design scenarios, based on life cycle costs and energy savings.
- Building characteristics to develop an energy simulation model and to refine target EUI (if necessary).
- Schedule for the design team to provide costs for each design strategy to the EC.
- Anticipated integrated design assistance schedule and future meeting dates.

The Energy Consultant will model these strategies, evaluating the capability of each strategy to obtain the Target EUI.

The schematic design charrette also provides an opportunity for the design team and owner to discuss the scope of IDAP. If the customer desires additional services from the EC, they may contract separately for those items (e.g. LEED certification). Table 4-1 below outlines schematic design meeting roles & responsibilities.

Table 4-1: Schematic Design Phase Charrette Roles & Responsibilities

IDAP Program Administrator	Energy Consultant (EC)	Design Team/Owner
Participate in the charrette process Facilitate questions or concerns with process. Review and comment on SD report.	In advance of meeting, prepare target EUI and prepare potential high performance building strategies.	Provide programming documents to EC.
	After meeting, develop energy simulation models utilizing input from the design team's programming documents.	Provide estimated measure costs for selected strategies.
	Model 3 or more high performance design strategies agreed upon in the meeting	Contract for additional services with EC (if applicable)
	Prepare Schematic Design Energy Report and submit the report and model for QC review at the end of SD.	Design team to review design strategies and assumptions prior to finalizing deliverables.

4.2.3 DESIGN DEVELOPMENT ENERGY MEETING AND ENERGY REPORT (REQUIRED FOR DESIGN INCENTIVES)

The purpose of the Design Development (DD) Energy Meeting is to choose a specific direction for energy related building design strategies and further refine them. The IDAP Program Administrator or a representative will attend this meeting to provide support.

The EC will facilitate a discussion of the Schematic Design Energy Report containing energy simulation results, incentives and life cycle costs for each of the high performance building design strategies discussed during the schematic meeting and the ability of each to meet the Target EUI.

The design team is challenged to weigh the value of each whole building design strategy and select a single high performance design strategy meeting the Target EUI and design team savings and economic targets. The solution could be a hybrid of proposed strategies that could require further analysis. Once a single high performance design strategy is selected, the EC will develop and refine the model and costs for the selected design package based upon input from design team.

By the end of the DD phase, the EC will develop a Design Development Energy Report containing refined model results, incentives and costs of the selected design package. A template for the DD Energy Report can be found on the IDAP web site. The approved report will be used as a resource by the design team and owner to incorporate the selected high performance design package into the construction documents.

Table 4-2 below outlines design development meeting roles & responsibilities.

Table 4-2: Design Development Meeting Roles & Responsibilities

Program Administrator	Energy Consultant (EC)	Design Team/Owner
Participate in DD Energy Meeting Maintain contact with design team. Facilitate questions or concerns with process.	Refine target EUI (if necessary) Develop and refine model for selected high performance design package based upon input from design team.	Provide refined design features and costs for selected high performance design strategy, if necessary.
Review and comment on DD Energy report.	Prepare Design Development Energy Report (DDER) for single design package for the as-built facility and submit the report and model for QC review. Incorporate QC comments into the DDER and submit report to owner and design team.	Design team to review design strategies and assumptions prior to finalizing deliverables.

4.3 FINAL ENERGY REPORT AND CONSTRUCTION DOCUMENT REVIEW

The purpose of the Final Energy Report (FER) is to document the designed and budgeted energy strategies of the 100% CD package, results of the energy model demonstrating that the Target EUI will be achieved, as well as inputs and assumptions used for the energy model.

After the high performance design package has been selected and incorporated into the CDs, the EC will review the documents and specifications to ensure the selected design alternatives are included and identified as intended. If some measures of the final design selection have been excluded, efforts will be made to encourage the design team to incorporate them at this point. The energy model will be adjusted to reflect any changes from the Design Development model. This could potentially affect the level of the expected Performance Incentive.

Following the CD review process, the EC will develop a Final Energy Report (FER) containing refined model results, incentives and costs based on the complete 100% CD package. The report will then be sent to the design team , owner and IDAP Program Manager for review. Both the Design Incentive (paid after acceptance of the FER) and Construction Incentive (paid at the end of construction) will be based on the results of the FER. The Final Energy Report Approval form (found in the back of the report template) must be signed by the customer and submitted back to Utilities before any incentives can be paid.

Table 4-3 below outlines Final Energy Report Phase and CD review roles & responsibilities.

Table 4-3: Final Energy Report and Construction Document Review Roles & Responsibilities

Program Administrator	Energy Consultant (EC)	Design Team/Owner
Maintain contact with design team. Facilitate questions or concerns with process. Review CDs and Final Energy Report Pay Design Incentives after satisfactory review of CDs and FER Review Design Incentive Application	Review construction documents for inclusion of selected measures. Modify energy model to reflect changes since DD Write and submit Final Energy Report	Correct omissions in construction documents. Communicate changes to EC. Design team to review design strategies and assumptions prior to finalizing deliverables. Owner to review and sign Final Energy Report. Submit Design Team Incentive Application.

4.4 POST-CONSTRUCTION ACTIVITIES

4.4.1 COMMISSIONING & BUILDING AIR TIGHTNESS

Commissioning is a City of Fort Collins building code requirement for all project buildings 15,000 SF and larger. Building air tightness testing is a City code requirement for all new construction buildings and additions. However, these requirements apply to all new construction, additions *and* existing building projects under IDAP, even if they are not under the jurisdiction of City of Fort Collins building code. Note, if air tightness testing feasibility issues exist for existing building projects, City of Fort Collins Utilities may waive the air tightness testing requirement, on a case-by-case basis.

For the purposes of this program, air tightness includes the measurement and verification of the building's air barrier system to achieve a total building leakage of less than or equal to 0.25 cfm per square foot of envelope area at 75 Pascal positive and negative pressures, per the City of Fort Collins Building Air Leakage Test Protocol. For existing buildings, air tightness testing requirements will be defined by Utilities for each project, based on the project design and building characteristics.

Commissioning & air tightness testing is the responsibility of the building owner. The building owner is required to submit electronic copies of the commissioning report and air tightness test results to the IDAP Program Manager in order to remain eligible for the IDAP Performance Incentive.

4.4.2 FINAL INSPECTION

Upon review of the customer's Commissioning Report, Utilities will evaluate any variations found for each strategy as compared to its expected functionality, characteristics, and scope of installation. If variations are found for specific strategies, the energy simulation model is refined to match the functionality, characteristics and/or scope of the verified strategies to determine if the Target EUI is still obtainable. If the as-built model shows the Target EUI is obtainable, then the Construction Incentive payment will be calculated using the Target EUI. If the as-built model shows a higher EUI than the target, the owner has the choice to rectify issues such that construction is in the Target EUI range.

4.4.3 BUILDING OCCUPANCY PHASE

The Performance Incentive will be paid when actual utility data for any 12 consecutive months within the first two years of occupancy is submitted. The two year period will allow a buffer during early occupancy to get the building working optimally, if necessary. If the average occupancy during the period for which the 12 months of utility data is submitted is less than 80% and/or process loads are greater than 5%, adjustments will be made to the target EUI to account for those factors. If process loads are exempted from the Target EUI, sub-metering of those loads will be required and efficiency requirements may apply to them.

During the 12 month utility data collection period, the IDAP Program Manager can assist the building owner to monitor project building energy use (using utility bill data) to ensure the building is on track for meeting the target EUI and provide support for evaluating and tuning the building if energy use is not aligned with the Target EUI and performance goals.

4.5 RECOMMENDATIONS FOR COORDINATION & COMMUNICATION

It is recommended that a formal plan be established to communicate official project information, deadlines and contact persons for the various tasks to all stakeholders. Drawing and modeling files, including specific software viewers, can be accessed by multiple parties via an FTP site. Also, the design team should consider including IDAP project deliverables in their project tracking software.

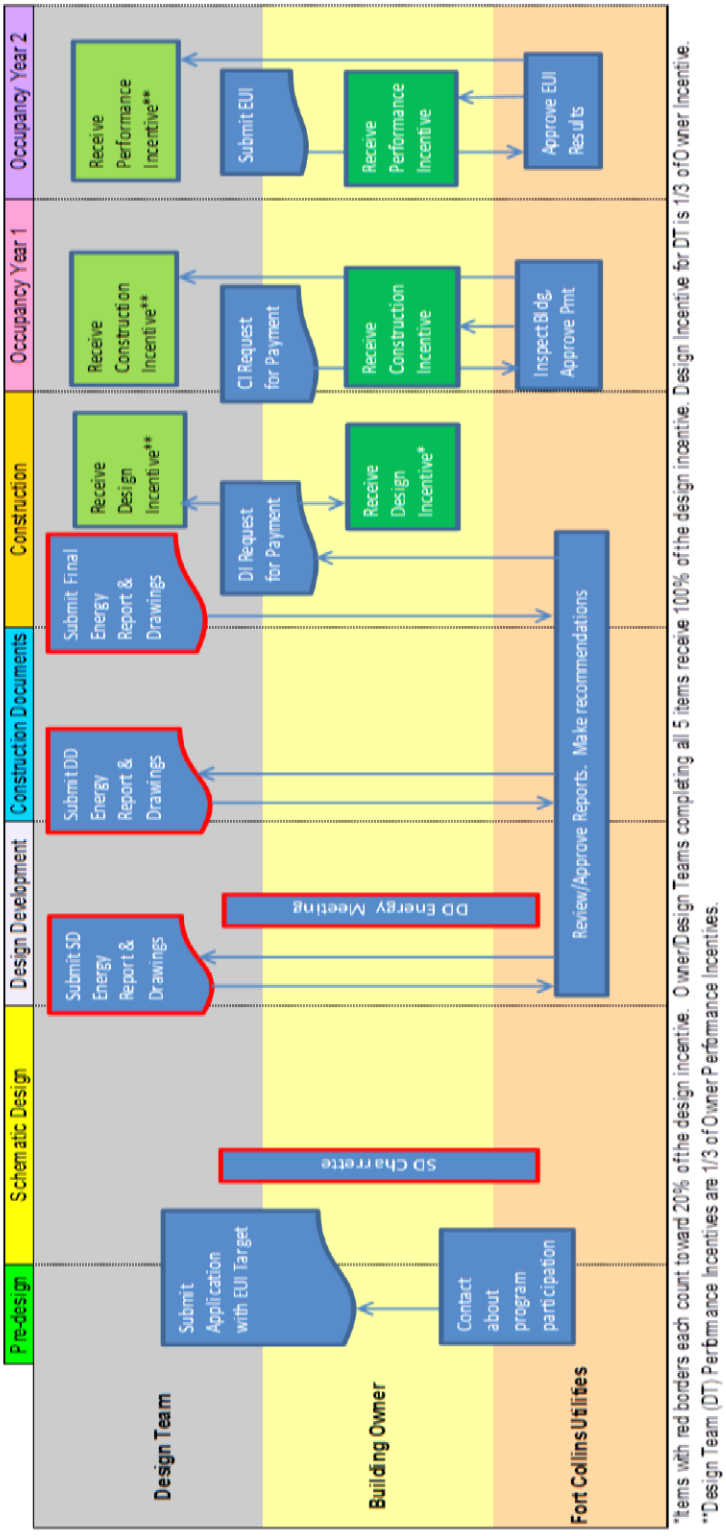


Figure 4-1: IDAP Process

Appendix A Sample Project Applications

Pending

Appendix B City of Fort Collins Utilities' Energy Efficiency

In collaboration with Platte River Power Authority, City of Fort Collins Utilities offers a range of energy efficiency opportunities to help commercial customers save energy and money. Reduced energy costs, technical assistance, and/or incentives are available for qualifying customers. A summary of other available commercial energy and water efficiency incentive opportunities is provided below. Additional information regarding eligibility requirements, incentives, and participation processes is available at www.fcgove.com or by contacting the Program Administrator.

Education & Tools:

- Biz Ed: free educational series for business customers
- ClimateWise: voluntary greenhouse gas reduction and recognition program
- Efficiency Challenge: guidance and tools designed to support and inspire energy- and water-efficient behavior changes
- ElectriConnect (MV-Web): free online access to your electric meter data
- Facility Assessment: free energy and water assessment of your facility
- Keep Current: e-newsletter, on-line library and ask-an-expert service
- Load Management: reduce your energy demand and lower your bill
- Sprinkler Audit: free sprinkler system assessment for HOAs

Rebates and Incentives:

- Building Tune-up: retro-commissioning incentives to improve the efficiency of your existing building
- Electric Efficiency: cash incentives for upgrades that reduce water and electric usage and electric demand
- Water Efficiency: rebates for water-efficient improvements

Renewables:

- Green Energy: choose clean, renewable energy
- Parallel Generation: generate onsite electricity
- Solar Rebates: cash for installing solar electric or thermal systems

Appendix C Resources

A brief listing of energy efficiency resources available on the Web is provided below.

- AHRI Online Directory of Certified Equipment. The Air Conditioning, Heating and Refrigeration Institute (AHRI) is a national trade association of HVAC equipment manufacturers. A publicly available online directory lists detailed equipment information for all certified equipment. (www.ahridirectory.org)
- Air Conditioning Contractors of America (ACCA). The ACCA is a non-profit organization representing HVAC contractors in the U.S. Current industry information and resources are available from their web site. (www.acca.org)
- American National Standards Institute (ANSI) - Whole Systems Integrated Process Guide for Sustainable Buildings & Communities. (www.ansi.org)
- Consortium for Energy Efficiency (CEE). CEE is a non-profit organization that develops national initiatives to promote the manufacture and purchase of energy-efficient products and services. (www.cee1.org)
- Department of Energy – Energy Efficiency and Renewable Energy (EERE). EERE provides information for consumers on a wide range of energy efficiency topics. (www.eere.energy.gov)
- ENERGY STAR®. ENERGY STAR is a government-backed program designed to help consumers increase their energy efficiency. (www.energystar.gov)
- Electrical Apparatus Service Association, Inc. (EASA). EASA provides it members with current information on materials, equipment, and technological advances in the electromechanical industry. (www.easa.com)
- Motor Decisions Matter. Motor Decisions Matter is a nation program encouraging proper motor selection and management. The program is supported by a number of industry trade groups and orchestrated by the Department of Energy's Office of Industrial Technologies. (www.motorsmatter.org)
- National Electrical Manufacturers Association (NEMA). The Motor and Generator section of NEMA has developed an industry standard for premium efficiency motors. (www.nema.org)
- Rocky Mountain Institute (RMI) – "Tunneling Through the Cost Barrier". (www.rmi.org)
- US Green Building Council (USGBC). USGBC is composed of more than 13,500 organizations from across the building industry that are working to advance structures that are environmentally responsible, profitable, and healthy places to live and work. (www.usgbc.org)

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