$PROJECT\_NAME$
$PROJECT\_LOCATION$

Xcel Energy’s Energy Design Assistance Program

$REPORT\_TYPE$

$DATE$

**Prepared for:**

$CLIENT\_NAME$

$CLIENT\_BUSINESS\_NAME$

$CLIENT\_ADDRESS$

$CLIENT\_PHONE$

$CLIENT\_EMAIL$

**Prepared by:**



Xcel Energy

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**Energy Consultant:**

$CONSULTANT\_NAME$

$CONSULTANT\_BUSINESS\_NAME$

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Energy Design Assistance Program Process & Timeline

Xcel Energy’s Energy Design Assistance (EDA) process is designed to assist the Owner and Design Team in making decisions concerning energy-efficiency measures for the project. The main steps are:

|  |  |  |
| --- | --- | --- |
| **Construction stage****(ESTIMATE)** | ENERGY DESIGN ASSISTANCE STATE | **DATE** |
| **aPPLICaTIon****Design phase** | Step 1: APPLICATIONComplete applicationXcel Energy accept/reject of application | **$APPROVAL\_DATE$** |
| **PRE/EARLY SCHEMATIC DESIGN PHASE** | Step 2: INTRODUCTIONIntroductory meeting* EDA Program overview
* Energy efficiency measure discussion

Begin collection of building and incremental cost dataEnergy Consultant (EC) submits introductory report | **$INTRO\_DATE$** |
| **Schematic Design phase** | Step 3: PRELIMINARY ENERGY ANALYSIS (PEA)Early massing, HVAC, daylighting (Enhanced Track only)Preliminary energy analysis meeting* Review of analysis results in PEA report
* Selection of measures to be included in final energy analysis

EC submits PEA report | **$ PEA\_DATE $** |
| SD completion |  |
| **Design Development phase** | Step 4: FINAL ENERGY ANALYSIS (FEA)Final energy analysis meeting* Review of updated whole building analysis in FEA report
* Review of program incentives
* Introduction to verification process

Customer selects an energy design alternative, showing an intent to move forward with selected measuresEC submits FEA report | **$BUNDLE\_DATE$** |
| DD completion |  |
| **Construction Document phase** | Step 5: CONSTRUCTION DOCUMENT (CD)Customer sends final design CDs to Measurement & Verification Company (MVC)**Measurement & Verification Company:*** Confirms measures included in final design documents.
* Sends to EC to update model

 **Energy Consultant:*** Submits CD report with updated model results and incentive
* EC complete green certification docs (Enhanced Track only)

Design team completes documentation for fee reimbursement | **$CD\_DATE$** |
| **CD Completion** |  |
| **Construction** | **Construction Occurs. Estimated construction completion date** |  |
| **Construction ends** |  |
| **Post-Occupancy** | MVC conducts on-site measurement and verification. Sends M&V results to EC to update modelEC submits M&V report with updated model results and incentiveEDA project complete. | **$MV\_DATE$** |
| **Incentive payment to customer is received approximately two months post-verification** |

Xcel Energy, through the EDA program, has qualified energy consultants to provide our customers with a service that includes an integrated design process. This integration includes using an energy model to compare building energy scenarios and estimate energy savings. The energy model itself is an instrument to project results and review different energy efficiency opportunities. The results of these models belong to Xcel Energy and their customers as participants through the EDA program.

Xcel Energy customers participating in the EDA program may distribute the results of their model to anyone they choose.  Xcel Energy will not release this information unless written permission from the customer has been obtained.  Xcel Energy also cautions the use of these reports; data is based on an analysis done for a specific time frame.  Buildings naturally adjust as occupancy reaches its full potential, causing variations from pre-construction data.

Project Summary

|  |  |
| --- | --- |
| **Project Name** | **$PIF\_PROJECT\_NAME$** |
| Xcel Energy Project # | $XPF\_XCEL\_PROJECT\_NUMBER$ |
| Location | $PROJECT\_LOCATION$ |
| Building Type | $PIF\_BUILDING\_TYPE$ |
| Conditioned Floor Area | $PIF\_FLOOR\_AREA\_CONDITIONED$ |
| Unconditioned Floor Area | $PIF\_FLOOR\_AREA\_UNCON$ |
| Above-Grade Stories | $PIF\_STORIES\_ABOVE\_GRADE$ |
| Below-Grade Stories | $PIF\_STORIES\_BELOW\_GRADE$ |
| Electricity Provided by Xcel | $APP\_BOOLEAN\_ELECTRICITY$ |
| Natural Gas Provided by Xcel | $APP\_BOOLEAN\_GAS$ |
| District Heating Gas Provided by Xcel | $APP\_BOOLEAN\_DH$ |
| District Cooling Electricity Provided by Xcel | $APP\_BOOLEAN\_DC$ |
| EDA Baseline | $RULE\_BASELINE$ |
| Track (Basic, Express or Enhanced) | $PIF\_TRACK$ |
| Certification (Enhanced Only) | $APP\_CERTIFICATION\_GOAL$  |
| Early Analysis (Enhanced Only) | $PIF\_EARLY\_ANALYSIS$ |
| Estimated Savings (vs. baseline) |  |
|  Demand (kW) | $ESTIMATED\_KW$ |
|  Energy (kWh) | $ESTIMATED\_KWH$ |
|  Gas (Dth) | $ESTIMATED\_DTH$ |
| Estimated Construction Completion Date | $PIF\_COMPLETION\_DATE\_ESTIMATE$ |
| Estimated 80% Occupancy Date | $PIF\_OCCUPANCY\_DATE\_ESTIMATE$ |
| Estimated Verification Date | $PIF\_VERIFICATION\_DATE\_ESTIMATE$ |

|  |
| --- |
| **Customer incentive calculations are based on the following dollar amounts** |
|  Demand ($/kW) | $ $RULE\_ELEC\_DEMAND\_INCENTIVE$ |
|  Energy ($/kWh) | $ $RULE\_ELEC\_ENERGY\_INCENTIVE$ |
|  Gas ($/Dth) | $ $RULE\_GAS\_ENERGY\_INCENTIVE$ |

Project Participants

Project participants include:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Company | Role | E-Mail | Phone | In Attendance |
| $CONTACT\_NAME$ | $CONTACT\_COMPANY$ | $CONTACT\_ROLE$ | $CONTACT\_EMAIL$ | $CONTACT\_PHONE$ |  |

CD Review Summary

Based on this review, the building is currently XX% better than the EDA Baseline. As shown in the table below, we have been able to find XX% of the measures in the selected design alternative.

The list below details those items that are different from the selected design alternative:

1. Description of discrepancies

2. Description of discrepancies

Changes to the Model from FEA Report

The following changes were made to the model since the FEA report:

* Description of change to the EDA Baseline Model and reason for change

# Measures Included in the Final Design

The selected design alternative includes the following measures:

|  |  |  |
| --- | --- | --- |
| Measure | Description | Comments |
| $MEASURE\_FEA\_0$ | $MEASURE\_FEA\_1$ | Comments |

# As-Designed Results

Table ‑ Summary of Financial Impact vs. Proposed Baseline

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Alternative | EnergyCost ($) | Energy CostSavings($)1 | Total % Energy Cost Savings(%)2 | Incremental CapitalCost ($)3 | EstimatedIncentive ($)4 | Simple Payback(years)5 |
| $S\_CB\_ID$ | $S\_CB\_NAME$ | $$S\_CB\_COST$ | $$S\_CB\_SVG$ | $S\_CB\_SVGP$ | $$S\_CB\_ICC$ | $$S\_CB\_INCENT$ | $S\_CB\_SP$ |

1. Energy Cost Savings = Energy CostProposed Baseline – Energy CostAlternative
2. Total % Energy Cost Savings = (Energy CostEDA Baseline – Energy CostAlternative)/Energy CostEDA Baseline
3. Incremental Capital Cost = Capital CostAlternative – Capital CostProposed Baseline
4. Incentive calculated using un-rounded energy modeling results.  Because of rounding error, hand-calculation may be off by up to $1.
5. Simple Payback = ((Capital CostAlternative – Capital CostProposed Baseline )-(IncentiveAlternative –IncentiveProposed Baseline))/(Energy CostProposed Baseline – Energy CostAlternative)

Table ‑ Summary of Savings vs. EDA Baseline

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Alternative | PeakDemand (kW) | Electric Consumption (kWh) | Natural Gas Consumption (Dth) | Peak Demand Savings (kW)1 | Electric Consumption Savings(kWh)1 | Natural Gas Savings (Dth)1 |
| $S\_EB\_ID$ | $S\_EB\_NAME$ | $S\_EB\_PD$ | $S\_EB\_EC$ | $S\_EB\_GC$ | $S\_EB\_PDS$ | $S\_EB\_ECS$ | $S\_EB\_GCS$ |

1. Savings relative to EDA Baseline

Table ‑ LEED Summary

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ID | Alternative | EnergyCost ($) | LEED EnergyCost Savings ($)1 | LEED Energy Cost Savings (%)1 | LEED Points2  |
| $S\_LB\_ID$ | $S\_LB\_NAME$ | $$S\_LB\_COST$ | $$S\_LB\_SVG$ | $S\_LB\_SVGP$ | $S\_LB\_LP$ |

1. Savings relative to LEED Baseline
2. Based on LEED Version $LEED\_VERSION$

# 3. Results by Individual Measure

Table 3‑ Results by Individual Measure - Annual Savings vs. Proposed Baseline

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ID | Measure | EnergyCost ($) | Energy CostSavings($)1 | Total % Energy Cost Savings(%)2 | Incremental CapitalCost ($)3 | Simple Payback(years)4 |
| $M\_ID$ | $M\_NAME$ | $$M\_COST$ | $$M\_SVG$ | $M\_SVGP$ | $$M\_ICC$ | $M\_SP$ |

# Verification of Measure Implementation

The verification for this project will be done by XXX. XXX will contact the owner to schedule M&V tasks about 2 months after occupancy, and will wait until the building is 80% occupied to carry out the verification process.

The objective of the final measurement and verification is to confirm the installation and proper functioning of the energy efficiency measures. Verification entails collection of contractor submittals and site inspections. The site inspection will occur two months after occupancy when possible. If monitoring or trending is required, it will generally be completed within two weeks of the site inspection. The remaining incentive payment will be paid within 3-4 months of occupancy.

The various efficiency measures require different verification methods. The verification method is dependent on whether the measure is “static” (Architectural Measures), or dependent on operation or schedules (HVAC, & Lighting). These measures will be verified as follows:

* Static measures
	+ Architectural measures, such as insulation and windows, will be verified from contractor submittals and site inspection.
* Measures dependent on operation or schedules
	+ Reduced lighting power density (LPD) will be verified with lighting fixture counts and selected field electric power measurements of representative lighting circuits.
	+ Lighting occupancy sensors are checked manually for operation including the time delay function.
	+ Daylighting control operation can be verified by trending lighting power for comparison with hourly reports from the energy model and from illumination spot measurements.
	+ Installation of high-efficiency HVAC equipment will be verified by recording nameplate data and reviewing contractor submittals.
	+ Advanced control features of HVAC systems require trending of performance parameters.

Short-term data-logging and monitoring will be completed for a two-week period. Long-Term data-logging and monitoring will be completed for a four-week period for measures predicted to save more than 1GWh or 20,000 Dth.

The implemented measures for this project and their planned verification approach are detailed below:

## CD Review Results, Verification Plan and Field Verified Results

Download the CD Reviewer Table after it has been completed and uploaded by the CD reviewer. Modify the model according to the CD review comments about what measures were/weren’t included in CDs. Upload the updated model results. Download this template, and copy-paste the completed CD Reviewer Table here.

## Verification of Hours Used Within the Model

The verification team will document the current hours of operation for each system affected by an energy efficiency measure. This will be accomplished with a combination of data-loggers, investigation of the building automation system (where applicable), and an interview with the building owner/operator. The actual hours of operation for each effected system will be compared to the originally assume schedules used in the energy model. If significant discrepancies exist from CD review modeling assumptions, Xcel will be notified to discuss potential adjustments.

## Final Savings Verification and Incentive Amounts

If any discrepancies from the CD review are found during verification, energy savings for the selected bundle of measures will be re-calculated by creating an as-verified model with as-verified conditions and schedules. Incentive amounts will be adjusted according to the as-verified energy savings calculations.

# Early Analysis

Describe the types of early analysis performed, the outcome of discussing these results with the design team and customer, and the modeling results as compared to an EDA baseline.

1. Modeling Inputs and Assumptions

Show summary info about models. Format is up to the Energy Consultant. Generally good practice to point out differences between the EDA Baseline, Proposed Baseline, and LEED Baseline.

* 1. Location and Climate Data

Summary Info

* 1. Utility Rates

Summary Info

* 1. Building Envelope Model Inputs

Summary Info

* 1. Lighting and Internal Load Inputs

Summary Info

* 1. HVAC & DHW Inputs

Summary Info

1. Modeling Results Summary
	1. Master Results Table – Design Alternatives and Individual Measures

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Measure | EnergyCost ($) | ElectricityCost($) | GasCost($) | DistrictHeatingCost($) | DistrictCoolingCost($) | OtherEnergyCost($) | ProposedBaselineEnergy Cost Savings($)1 | EDABaselineEnergy Cost Savings($)2 | LEED BaselineEnergy CostSavings($)3 | LEED Points4 | PeakDemand (kW) | Electric Consumption (kWh) | Natural Gas Consumption (Dth) | Peak Demand Savings(kW)5 | ElectricConsumption Savings(kWh)5 | Natural Gas Savings (Dth)5 | EUIReduction(kBtu/ft2-yr)5 | IncrementalCapitalCost ($)6 | Simple Payback(years)7 |
| $MR\_ID$ | $MR\_NAME$ | $$MR\_COST$ | $$MR\_ELEC\_COST$ | $$MR\_GAS\_COST$ | $$MR\_DH\_COST$ | $$MR\_DC\_COST$ | $$MR\_O\_COST$ | $$MR\_CB\_SVG$ | $$MR\_EB\_SVG$ | $$MR\_LB\_SVG$ | $MR\_LP$ | $MR\_PD$ | $MR\_EC$ | $MR\_GC$ | $MR\_PDS$ | $MR\_ECS$ | $MR\_GCS$ | $MR\_EUI\_R$ | $$MR\_ICC$ | $MR\_SP$ |

1. Proposed Baseline Energy Cost Savings = Energy CostProposed Baseline – Energy CostMeasure
2. EDA Energy Cost Savings = Energy CostEDA Baseline – Energy CostMeasure
3. LEED Energy Cost Savings = Energy CostLEED Baseline – Energy CostMeasure
4. Based on LEED Version XYZ
5. Energy, Demand, and EUI Savings relative to EDA Baseline
6. Incremental Capital Cost = Capital CostMeasure – Capital CostProposed Baseline
7. Simple Payback = (Capital CostMeasure – Capital CostProposed Baseline)/(Energy CostProposed Baseline – Energy CostMeasure)