ALBERTA ecotrust

Financial Tools and Incentives Supporting Deep Retrofits in Alberta

An Illustrative Building Case Study

Version 1
June 2026

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Disclaimer

The information provided in this presentation is for general informational purposes only and does not constitute technical, legal, financial or tax advice. Eligibility for financial tools and incentives may vary depending on the specific circumstances of each building owner and project. We strongly recommend that building owners seek appropriate professional advice before making any financial or other decisions based on the information presented here.

Executive Summary

Deep energy retrofits represent complex, high-capital projects where energy savings alone may not always justify the initial investment. This report focuses on various financial tools and incentives available in Alberta that strengthen the business case for such upgrades.

Using a methodology centred on a hypothetical 20,000 sq ft mixed-use building, we consider a suite of retrofit upgrades with a total incremental cost of $855,000 compared to a "business-as-usual" (BAU) scenario. The retrofits include a ground source heat pump (GSHP) system, rooftop solar photovoltaic (PV) system, and other efficiency measures.

The net present value of the projected utility savings associated with the upgrades over a 20-year period is estimated to be $398,051. These utility savings do not cover the full capital cost of the retrofits and this report explores financial tools and incentives that can help address this gap.

Our analysis evaluates the specific impacts of several programs available in Alberta on our sample building:

- ➔ Municipal Clean Energy Improvement Program (CEIP)
- ➔ Federal Accelerated Investment Incentive (AII)
- ➔ Federal Clean Technology Investment Tax Credit (CT ITC)
- ➔ Provincial Strategic Energy Management for Industry (SEMI) program

The study illustrates how each of these tools can individually improve project economics. It concludes by discussing the potential for combining these tools to further enhance project value.

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Introduction

Whole-building retrofits are complex and often expensive projects to undertake. While energy savings are often considered as a potential avenue to recover the initial capital investment for these building upgrades, this is not the whole picture. In this report, we explore a number of financial tools and incentives that can also support the business case for retrofit projects in Alberta. Using a hypothetical sample building undergoing a deep energy retrofit project, we illustrate how each of these tools and incentives works, and we compare their impacts on the retrofit business case.

Building Characteristics

This case study utilizes a representative sample building to illustrate the impact of various financial tools and incentives for retrofit projects. The assumptions we made about the sample building for this study are summarized in Table 1.

Table 1. Sample building characteristics

Location	Edmonton
Building size	20,000 sqft
Building type	Mixed-use light industrial (could include warehouse/storage, light industrial space, office space)
Year of upgrades	2026
Energy use intensity (EUI)	1.15 GJ/m^2/year

Retrofit Upgrades

The retrofit pathway we assumed for this building included the following upgrades:

- **Ground Source Heat Pump (GSHP) System:** A high-efficiency mechanical system providing heating and cooling by exchanging thermal energy between the building and the ground. This exchange of energy is made possible by installing underground fluid-filled piping, referred to as a "ground loop" or "geoexchange field." The system was assumed to have a coefficient of performance (COP) of 3.8, meaning that for each unit of electrical energy the system consumes, it delivers 3.8 units of heat to the building.

- **Rooftop Solar Photovoltaic (PV) System:** An array of solar modules (also known as solar panels) that produce renewable electricity on-site by converting energy from sunlight. The system was assumed to be slightly under 150 kW so that it qualifies as a micro-generator under the Government of Alberta's Micro-generation Regulation.

- **Other Efficiency Upgrades:** A suite of unspecified upgrades that collectively reduce energy consumption of the building by 15%. We did not specify exactly which upgrades would be implemented, but examples include adjusting equipment setpoints, adding or adjusting building controls and automation systems, installing LED lighting or variable frequency drives (VFDs), and using hydronic heating additives.[1]

The costs of the retrofit project are summarized in Figure 1. We assumed that the building needed a heating system replacement and that the "business-as-usual" (BAU) scenario would replace the existing heating system with standard condensing boilers. As such, this case study focused on the *incremental cost* of $855,000 for the retrofit project, which is the difference between the retrofit upgrades and the business-as-usual scenario.

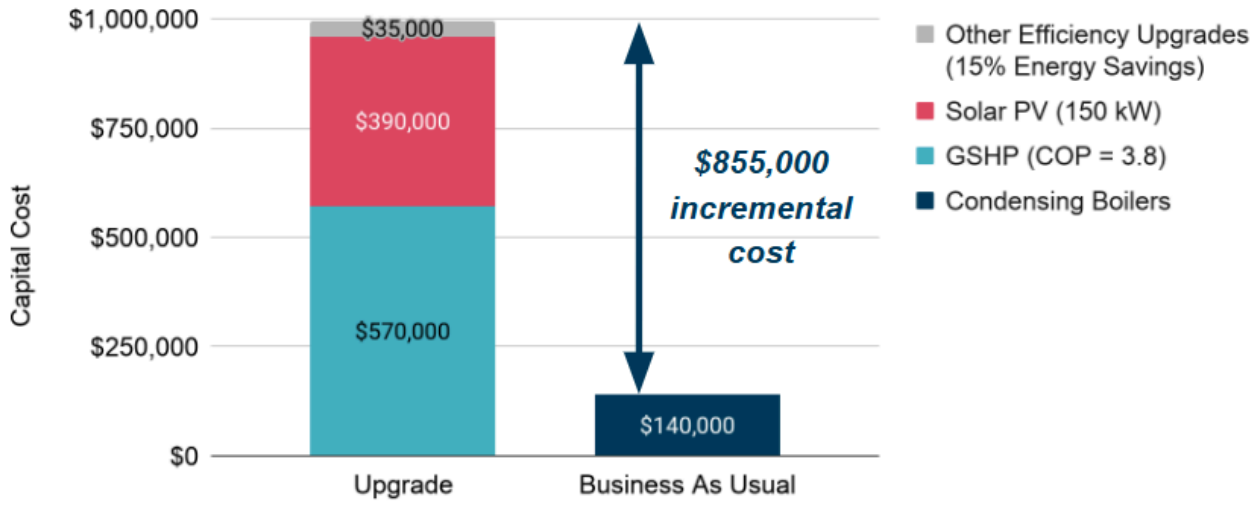

Figure 1. *Assumed capital costs of retrofit upgrades*

[1] We arrived at the $35,000 and 15% energy savings estimates by looking at 45 deep retrofit plans completed with support from the Alberta Ecotrust Retrofit Accelerator program. For each deep retrofit plan, any energy conservation measure with a simple payback of ten years or less was recorded. The total cost of this group of measures and their combined energy savings were determined for each plan. We used the average cost and per cent energy savings across all applicable plans and prorated the value by floor area to a 20,000 square foot building.

Additional Assumptions

In addition to the details listed above, we made a variety of other assumptions to clearly represent the financial tools and incentives considered in this study. Wherever possible, the assumptions used in this study are grounded in "real-world" data. Sources include:

- Aggregated data from deep retrofit plans funded through the Alberta Ecotrust Retrofit Accelerator Program
- City of Edmonton Building Energy Benchmarking Program
- Other government sources (e.g., Natural Resources Canada)
- Public industry resources (e.g., American Society of Heating, Refrigerating and Air-Conditioning Engineers or ASHRAE)

The additional assumptions are summarized in Table 2. A full list of assumptions made for this study, along with the data source supporting each, is available in Appendix A - Assumptions.

Table 2. Additional case study assumptions

Financial Values	
Discount rate	7.5%
Inflation rate	2.0%
Alberta corporate tax rate	23%
Technical Building Characteristics	
Annual natural gas consumption for hot water	0.05567 GJ/m^2/year
Percent of energy usage that is natural gas	79.9%
Efficiency of existing heating equipment	81%
Business As Usual Boiler Replacement	
Efficiency of new condensing boilers	92%
Expected useful life of condensing boilers	20 years
Ground Source Heat Pump (GSHP)	
Expected useful life of heat pumps (ground loop will have a longer life)	20 years

Table 2. Additional case study assumptions - continued		
Solar Photovoltaic (PV) System		
Solar potential		1030 kWh/kWp/year
Solar module width		1.134 m
Solar module height		1.722 m
Solar module capacity		420 W
Utility Costs	**Electricity**	**Natural Gas**
Energy base rate	$0.0734 / kWh	$3.4545 / GJ
Retail fee	$31.50 / month	$31.50 / month
Transmission & distribution variable costs	$0.1119 $/kWh	$3.7674 / GJ
Transmission & distribution fixed costs	$27.39 / month	$44.07 / month
Escalation rate	6.6%	5.4%

Financial Tools and Incentives

Clean Energy Improvement Program (CEIP)

The Clean Energy Improvement Program (CEIP) is administered by certain municipalities in Alberta and offers lending of up to $1,000,000 to support retrofit work. This financing tool offers fixed-rate financing with terms of up to 20 years. Repayment is made through the building's property tax bill, and the obligation to pay can be transferred to the new owner upon sale of the property. The relevant information and assumptions from CEIP used in this case study are summarized in Table 3 and included in Appendix A - Assumptions.

Table 3. Clean Energy Improvement Program Assumptions*	
Maximum financing amount	$1,000,000
Annual interest rate	6%
Term - ground source heat pump	16 years
Term - solar PV system	20 years
Term - other energy efficiency measures	15 years
Maximum per cent of project costs that can be covered	100%
**Consult ceip.abmunis.ca for detailed program information*	

Figure 2 illustrates the projected cash flow in our case study with and without CEIP financing. CEIP allows building owners to significantly reduce the high initial costs typically associated with retrofit projects, making upgrades more accessible and financially manageable.

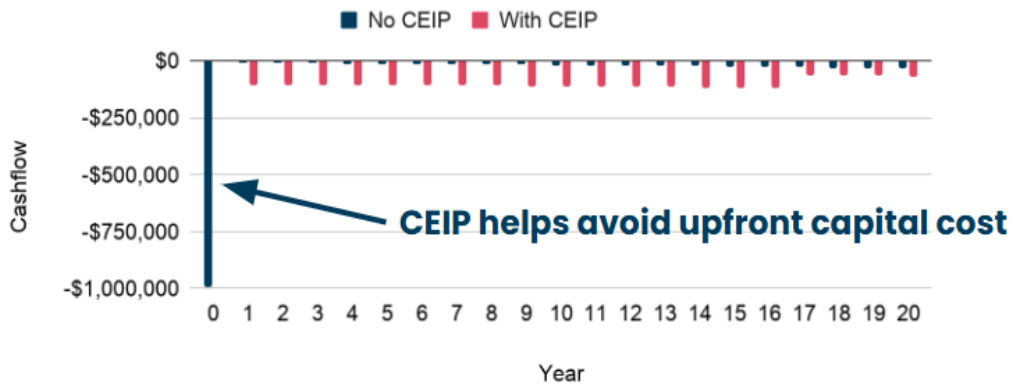

Figure 2. *Cashflow for retrofit project with and without CEIP financing*

Accelerated Investment Incentive (AII)

The Accelerated Investment Incentive (AII) is a temporary measure that allows companies to recover the costs of new capital investments more quickly through the tax system. This one-time incentive enhances the Capital Cost Allowance (CCA) deduction for most eligible capital assets in their first year of operation.

Certain asset categories, including clean energy generation and conservation equipment, are eligible for a 100% write-off in the first year (immediate expensing) until 2029, after which the incentive will be phased out.

Capital Cost Allowance (CCA): *Some assets that companies own lose value (or depreciate) as they age. The Capital Cost Allowance (CCA) is a tax mechanism which allows companies to deduct a portion of the cost of depreciable assets each year, based on fixed rates set by the Canada Revenue Agency (CRA). Higher depreciation claimed in a given year will lower the taxable income for that year.*

To illustrate how AII works, we show various depreciation calculations in Figure 3. Straight-line depreciation divides the total cost of the system by its expected useful life, reducing the system's value by that amount each year. Standard declining balance tax depreciation (without AII) allows a certain percentage of the remaining asset value to be depreciated each year (e.g., 30% each year for Class 43.1 assets, which includes eligible solar PV and ground source heat pump systems). With AII, the full value of the asset can be depreciated in the first year.

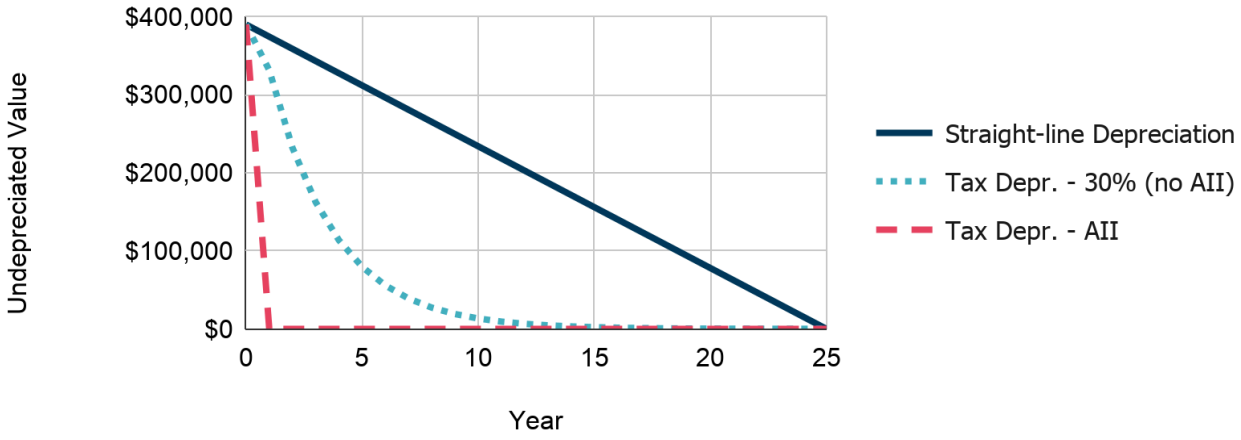

Figure 3. *Depreciation of $390,000 solar PV system with 25 year expected useful life*

In our case study, we assume that the business owning the building has a net income that is at least as much as the cost of the retrofit upgrades that are eligible for the AII. This includes the solar PV and the GSHP systems for a total of $960,000.

When the full 100% of that expense is claimed as a depreciation expense, the savings are an estimated $220,800, as shown in Table 4.

Table 4. Accelerated Depreciation Expenses

	Without depreciation expense	With depreciation expense
Net income (before depreciation expense)	$960,000	$960,000
Depreciation expense	$0	$960,000
Net income (after depreciation expense)	$960,000	$0
Corporate tax rate	23%	23%
Tax Owing	**$220,800**	$0

Clean Technology (CT) Investment Tax Credit (ITC)

The Clean Technology (CT) Investment Tax Credit (ITC) is a one-time refundable tax credit for capital invested in the adoption and operation of new clean technology property (equipment). In addition to other limitations, the property must be acquired and available for use before December 31, 2033. Equipment eligibility is described by the CRA here and generally includes technologies like solar PV and GSHP systems.

This tax credit is refundable, meaning that if the tax credit amount exceeds the total tax owing, the difference will be distributed as a refund.

Don't pay taxes? There may still be Investment Tax Credits for you.

A slightly different tax credit - the Clean Electricity Investment Tax Credit, covers technologies such as solar PV systems. This 15% credit has different eligibility criteria and is available to qualifying municipalities, Indigenous-owned corporations, crown corporations, and others.

This amount of the tax credit is:

- ➔ 30 percent if CRA labour requirements relating to prevailing wage and apprenticeships are met;
- ➔ 20 percent if these labour requirements are not met.

For the purposes of this study, we have assumed that the 30% savings are achieved, resulting in a CT ITC tax refund of $960,000 x 30% = $288,000.

Strategic Energy Management for Industry (SEMI)

The Strategic Energy Management for Industry (SEMI) program was launched by Emissions Reductions Alberta in 2024. It provides funding for various activities related to energy management and retrofit work for industrial buildings in Alberta. The program saw very high demand, and all four activity streams were closed to new applications by March 2026.

Nonetheless, we have illustrated the impact of the SEMI program in our case study to show the impact that direct-granting programs can have on retrofit work. We assumed that the building's use met the program's eligibility requirements and that it could access grant funding through the Capital Retrofits activity stream. Our assumptions regarding the total funding available for the case study retrofit upgrade are summarized in Table 5.

Table 5. Strategic Energy Management for Industry (SEMI) Assumptions*

Funding rate for retrofits other than solar PV (for eligible for-profit organizations)	50%
Maximum funding rate for solar PV	20%
Maximum funding rate for solar PV per Watt	$0.50 / W

**Consult eralberta.ca/semi for detailed program information*

Comparing the Impact of Financial Tools and Incentives

To compare the impacts of the various financial tools and incentives we considered, we estimated the net present value (NPV) of the retrofit upgrade work using a 20-year timeline. In this calculation, we included the incremental capital cost of doing the retrofit upgrades compared to the BAU condensing boiler installation. We also projected utility costs with and without the retrofit upgrades for the 20 years following project implementation using the utility data assumptions from Table 2. The results for each program discussed in the previous section are shown in Figure 4. Our calculations are provided in Appendix B - Calculations.

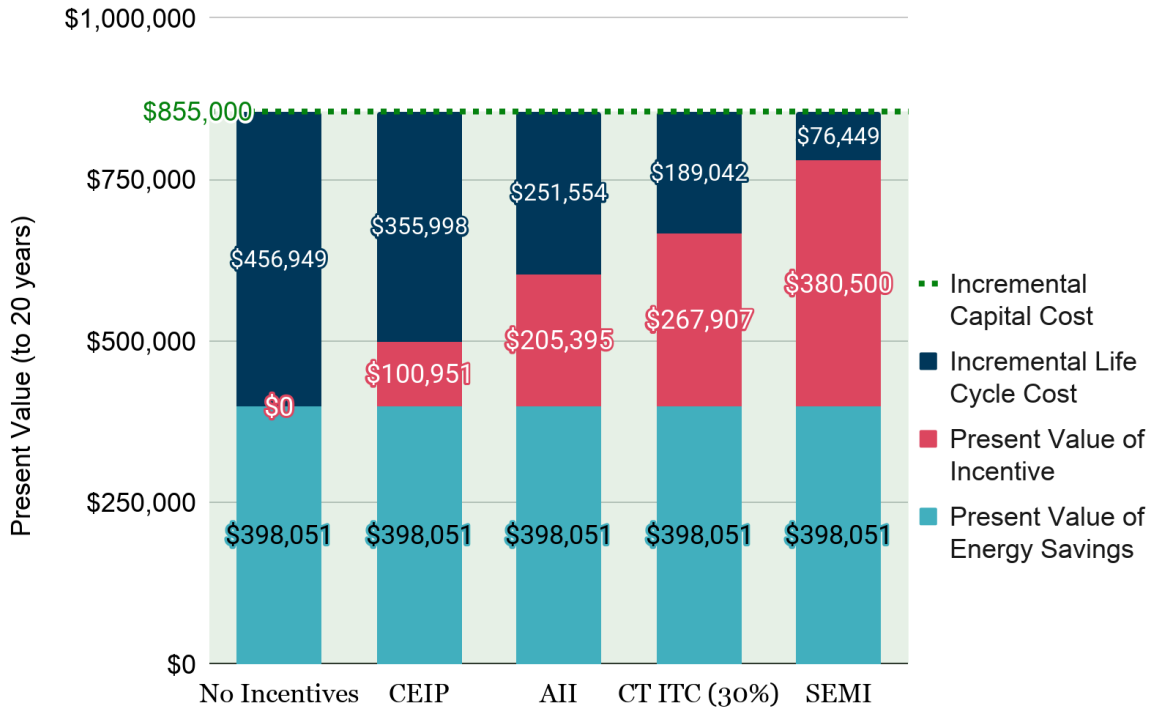

Figure 4. *Incremental net present value of the retrofit upgrades when taking advantage of various financial tools and incentives*[2]

In each bar in Figure 4, the full height (green line) is the $855,000 incremental capital cost of the retrofit upgrades. The light blue "Present Value of Energy Savings" bar illustrates the anticipated payback from energy savings over the 20-year timeline. The pink "Present Value of Incentive" bar illustrates the potential additional value that may be achieved using the relevant financial tool or incentive. The dark blue "Incremental Life Cycle Cost" is the remaining cost of the project that is not paid back at the end of the 20-year period.

[2] For the tax incentives (AII and CT ITC), the "Present Value of Incentives" are slightly less than the savings stated in the previous section. This is because we assumed that the building owner's taxes are filed and the incentives are received in 2027, the year following the initial investment (2026). The present value of the incentives are calculated accordingly based on the 7.5% discount rate and one-year delay.

Discussion: Selection of Building Characteristics and Retrofit Upgrades

It's important to note that the sample building we chose for this study was not selected specifically for its suitability for the proposed retrofit upgrades. As such, this study is not intended to indicate whether any of the chosen retrofit upgrades will pay back over a certain period of time. The appropriateness of any specific retrofit upgrade for a given building depends on a variety of factors that we have not explored here.

Of particular note is our assumption that the existing building was not equipped with space cooling. GSHP systems are particularly well-suited to buildings requiring both heating and cooling. If our sample building required cooling and the business-as-usual scenario reflected the need to install a cooling system and consume electricity for cooling, the project's overall economics would be different.

Discussion: Combining the Financial Tools and Incentives

In some cases, it may be possible to combine the tools and incentives discussed here. We encourage anyone interested in these incentives to seek the appropriate professional advice to understand and determine whether they might be able to take advantage of more than one tool or incentive. It is also recommended to contact the program administrators of each program to understand how they might combine. In exploring combinations of tools and incentives, important factors to consider include:

- ➔ eligibility requirements for each program
- ➔ stacking limits for combining with other funding and financing sources
- ➔ program requirements
- ➔ timing of applications and funding

Aside from accessing the same financial tools and incentives for a single retrofit upgrade, it may also be possible to combine incentives when a given upgrade is eligible for one incentive but not another. Certain pieces of your overall project may be eligible for different incentives, and it may be worthwhile to consider how they can be combined this way.

As an illustrative example in this case study, we explored a scenario in which the project utilized both the CEIP and SEMI programs. In this scenario, we assumed that the project qualified for both programs, accessing $380,500 in grant funding from SEMI and $995,000 in financing through CEIP. Figure 5 shows how this scenario achieved a neutral (or in fact very slightly positive) net present value over the 20-year timeline.

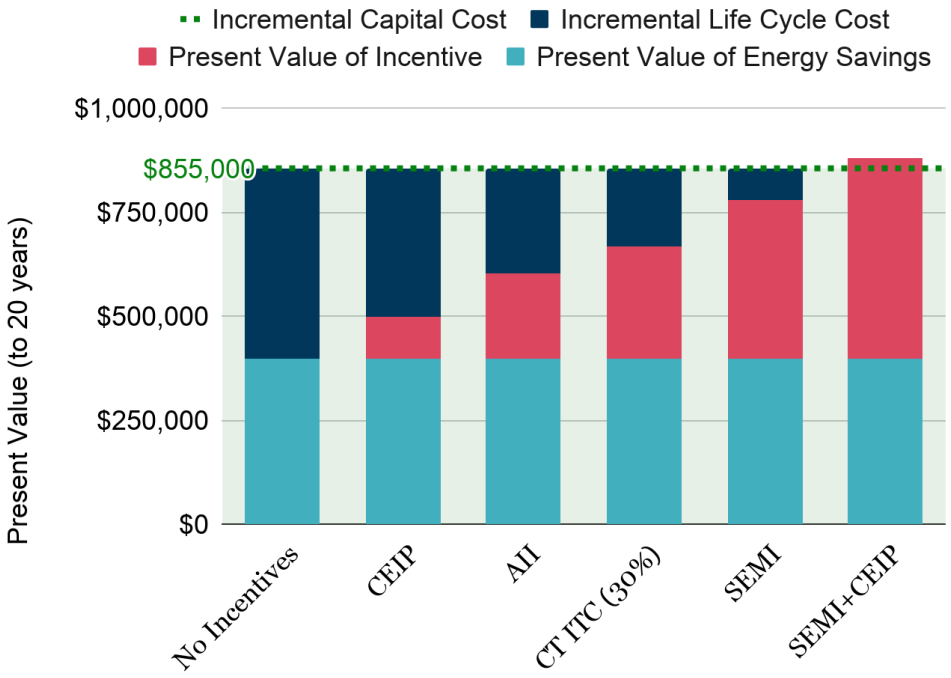

Figure 5. *Incremental net present value of the retrofit upgrades including a scenario that combines financial tools and incentives*

Discussion: Timing of Incentives

Another important factor when considering incentives to support your retrofit project is the timing of available tools and incentives. This includes the time periods during which programs are available, application deadlines, and funding allocation methods (e.g., first-come-first-served). It is also important to think about when funds for a given project will become available (e.g., reimbursement models vs. direct payments to service providers). We encourage you to consult each program to understand their timelines and to talk to your professional advisors about how these will affect your project.

Conclusions

Decisions about retrofit projects often focus on the project's projected energy savings as the primary mechanism for paying back the initial capital cost. By considering other financial tools and incentives relevant to retrofits in Alberta, we take a broader look at the payback of these projects over time. If you are considering a retrofit project, we encourage you to discuss these financial tools and incentives with your team and relevant professionals to understand which, if any, may be available for your project.

References

Micro-generation Regulation
Alberta Ecotrust Retrofit Accelerator Program
City of Edmonton Building Energy Benchmarking Program
Natural Resources Canada
American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
Clean Energy Improvement Program (CEIP)
Accelerated Investment Incentive (AII)
Clean Technology (CT) Investment Tax Credit (ITC)
What property qualifies? - Clean Technology Investment Tax Credit (ITC)
For incentive claimants: Avoiding the reduced tax credit rate for Clean Economy ITCs
Strategic Energy Management for Industry (SEMI)

Appendix A - Assumptions

Refer to two (2) attached pages.

Table A1. Assumptions and References

Assumption	Value	Unit	Notes	Source
Building Characteristics				
Location	Edmonton	N/A	Chosen	N/A
Building size (square feet)	20,000	sqft	Chosen. Among commerical and institutional buildings in Canada in 2019, those between 10,001 and 50,000 square feet made up the largest floor space (36.0%) and energy use (39.4%).	Statistics Canada. (2019). Table 3.1 buildings – characteristics by building size, 2019. *Survey of Commercial and Institutional Energy Use (SCIEU) - Buildings 2019.* https://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/menus/scieu/2019/tables.cfm
Building size (square metres)	1,858	m2		
Building type	Mixed-use light industrial	N/A	Chosen	N/A
Year of upgrades	2026	N/A	Chosen	N/A
Energy use intensity (EUI)	1.15	GJ/m2/year	Average site EUI by floor area for Garages, Service Yards, and Warehouses from City of Edmonton Building Energy Benchmarking Program Year 8 (2023) Dashboard.	City of Edmonton. (n.d.). Average natural gas consumption by month. *Building Energy Benchmarking Program Year 8 Dashboard* (pp. 3). City of Edmonton. (n.d.). Average electricity consumption by month. *Building Energy Benchmarking Program Year 8 Dashboard,* (pp. 3). https://app.powerbi.com/view?r=eyJrIjoiMGEyYTI1ODQtNmI3Ny00ZWM3LTg5ZTUtYTBkMTg4YWRiNTYxIiwidCI6ImNkZjUyNWY5LWQ1MDItNDgzZi1hMWU4LTQ5NjRlMjkwZTY1MSJ9&pageName=907c6a384605a94b4e3f
Annual natural gas consumption for hot water	0.05567	GJ/m2/year	Calculated based on average natural gas consumption in July and August for Garages, Service Yards, and Warehouses from City of Edmonton Building Energy Benchmarking Program Year 8 (2023) Dashboard.	
Per cent of energy usage that is natural gas	79.9%	N/A	Average energy use by energy source for Garages, Service Yards, and Warehouses from City of Edmonton Building Energy Benchmarking Program Year 8 (2023) Dashboard.	City of Edmonton. (n.d.). Energy use and emissions by energy source. *Building Energy Benchmarking Program Year 8 Dashboard,* (pp. 4). https://app.powerbi.com/view?r=eyJrIjoiMGEyYTI1ODQtNmI3Ny00ZWM3LTg5ZTUtYTBkMTg4YWRiNTYxIiwidCI6ImNkZjUyNWY5LWQ1MDItNDgzZi1hMWU4LTQ5NjRlMjkwZTY1MSJ9&pageName=907c6a384605a94b4e3f
Efficiency of existing heating equipment	81%	N/A	Average of available data on efficiency of existing boiler systems.	Alberta Ecotrust Foundation. (2026). Selected data from 45 deep retrofit plans supported through the Alberta Ecotrust Retrofit Accelerator.
Financial Values				
Discount rate	7.5%	N/A	Chosen. Average discount rates across Canada from data firm MSCI between 2005 and 2019 ranged from 6% to 9%. We chose the mid-point of this range.	Yuen, A. (2019, December 2). *Yielding perspective: cap rates, discount rates and relative value for real estate.* GWL Realty Advisors. https://www.gwlrealtyadvisors.com/research_report/yielding-perspective-cap-rates-discount-rates-and-relative-value-for-real-estate/
Inflation rate	2.0%	N/A	"The Bank of Canada aims to keep inflation at the 2 per cent midpoint of an inflation-control target range of 1 to 3 per cent."	Bank of Canada. (n.d.). *Inflation.* https://www.bankofcanada.ca/core-functions/monetary-policy/inflation/
Alberta corporate tax rate	23%	N/A	Alberta general corporate tax rate: 8% Federal net corporate tax rate: 15%	Treasury Board and Finance. (n.d.). *Alberta tax overview.* Government of Alberta. https://www.alberta.ca/taxes-levies-overview Canada Revenue Agency. (2025, May 5). *Corporation tax rates.* Government of Canada. https://www.canada.ca/en/revenue-agency/services/tax/businesses/topics/corporations/corporation-tax-rates.html
Business As Usual Boiler Replacement				
Cost: condensing boilers	140,000	$	Average of available data on cost of new condensing boiler systems, prorated by floor area to a 20,000 sqft building.	Alberta Ecotrust Foundation. (2026). Selected data from 45 deep retrofit plans supported through the Alberta Ecotrust Retrofit Accelerator.
Efficiency of new condensing boilers	92%	N/A	Average of available data on efficiency of new condensing boiler systems.	
Expected useful life of condensing boilers	20	years	Rounded from 19.2 years calculated using ASHRAE median lifetimes of boilers.	ASHRAE. (n.d.). *Service life and maintenance cost database.* Retrieved February 21, 2026, from https://weblegacy.ashrae.org/publicdatabase/default.asp
Ground Source Heat Pump (GSHP) System				
Cost: ground source heat pump system (including ground loop and above-ground components)	570,000	$	Average of available data on cost of GSHP systems. Prorated by floor area to a 20,000 sqft building.	Alberta Ecotrust Foundation. (2026). Selected data from 45 deep retrofit plans supported through the Alberta Ecotrust Retrofit Accelerator.
GSHP coefficient of performance (COP)	3.8	N/A	Recommended through personal communications with industry experts.	N/A
Expected useful life of heat pumps (ground loop will have a longer life)	20	years	Rounded from 21.5 years calculated using ASHRAE median lifetimes of heat pumps.	ASHRAE. (n.d.). *Service life and maintenance cost database.* Retrieved February 21, 2026, from https://weblegacy.ashrae.org/publicdatabase/default.asp
Solar Photovoltaic (PV) System				
Cost: solar (per Watt)	2.60	$/W	Average of available data on cost of rooftop solar PV systems over 90 kW, adjusted so that the total system cost is rounded to the nearest $5,000.	Alberta Ecotrust Foundation. (2026). Selected data from 45 deep retrofit plans supported through the Alberta Ecotrust Retrofit Accelerator.
Cost: solar PV system (total)	390,000	$	Calculated from cost of solar per Watt.	N/A
Solar potential	1030	kWh/kWp/yr	Average of available data on production of rooftop solar PV systems over 90 kW.	Alberta Ecotrust Foundation. (2026). Selected data from 45 deep retrofit plans supported through the Alberta Ecotrust Retrofit Accelerator.
Module width	1.134	m	Sample PV module specifications.	LONGi. (n.d.). *Hi-MO 5 Monofacial 54c.* https://www.longi.com/us/products/modules/hi-mo-5-monofacial/
Module height	1.722	m		
Module capacity	420	W		
Max generation as a "small micro-generator" in Alberta	149,999	W	Solar PV system size is as large as possible while still less than 150 kW as per Alberta's Micro-generation Regulation. Actual PV system size is rounded to a whole number of solar modules.	Affordability and Utilities. (n.d.). *Micro-generation.* Government of Alberta. https://www.alberta.ca/micro-generation
Total system size	149,940	W		
Other Efficiency Upgrades				
Cost: general energy efficiency upgrades	35,000	$	For each deep retrofit plan, any energy conservation measure with a simple payback of ten years or less was recorded. The total cost of this group of measures and their combined energy savings were determined for each plan. We used the average cost and per cent energy savings across all applicable plans and prorated the value by floor area to a 20,000 square foot building.	Alberta Ecotrust Foundation. (2026). Selected data from 45 deep retrofit plans supported through the Alberta Ecotrust Retrofit Accelerator.
Efficiency improvement	15%	N/A		

Table A1. Assumptions and References - continued

Assumption	Value	Unit	Notes	Source
Electrical Utility Costs				
Energy base rate	$0.0734	$/kWh	Selected a sample rate plan from Alberta's Utilities Consumer Advocate (UCA) Cost Comparison Tool.	Utilities Consumer Advocate. (n.d.). *AltaConnect: 1 year rate electricity.* Government of Alberta. Retrieved February 18, 2026, from https://ucahelps.alberta.ca/cost-comparison-tool/cost-comparison-tool-detailed/?usageType=1&energyType=energyTypeNeither&locationCityTown=Edmonton&locationPostalCode=&locationMeterNumber=&filterPlanType=%28Fixed+Rate+Plan%29&locationCityTownPostal=&locationSiteID=&naturalGasMonth=&electricityUsage=&electricityBillingDemand=&electricityFarmUsage=&naturalGasUsage=&planIDs=21708
Retail fee	$31.50	$/month		
Transmission & distribution variable costs	$0.1119	$/kWh		
Transmission & distribution fixed costs	$27.39	$/month		
Escalation rate	6.6%	N/A	Estimated based on historical Alberta electricity prices.	Statistics Canada. (2026, February 11). *Table 18-10-0204-01 Electric power selling price index, monthly.* https://doi.org/10.25318/1810020401-eng
Natural Gas Utility Costs				
Energy base rate	$3.4545	$/GJ	Selected a sample rate plan from Alberta's Utilities Consumer Advocate (UCA) Cost Comparison Tool.	Utilities Consumer Advocate. (n.d.). *AltaConnect: 1 year rate natural gas.* Government of Alberta. Retrieved February 18, 2026, from https://ucahelps.alberta.ca/cost-comparison-tool/cost-comparison-tool-detailed/?usageType=1&energyType=energyTypeNeither&locationCityTown=Edmonton&locationPostalCode=&locationMeterNumber=&filterPlanType=%28Fixed+Rate+Plan%29&locationCityTownPostal=&locationSiteID=&naturalGasMonth=&electricityUsage=&electricityBillingDemand=&electricityFarmUsage=&naturalGasUsage=&planIDs=19314
Retail fee	$31.50	$/month		
Transmission & distribution variable costs	$3.7674	$/GJ		
Transmission & distribution fixed costs	$44.07	$/month		
Escalation rate	5.4%	N/A	Estimated based on projections from the Alberta Energy Regulator (AER).	Alberta Energy Regulator. (2025, June). *AECO-C price.* https://www.aer.ca/data-and-performance-reports/statistical-reports/alberta-energy-outlook-st98/prices-and-capital-expenditure/natural-gas-prices/aeco-c-price
Edmonton Commercial Clean Energy Improvement Program (CEIP)				
Maximum financing amount	1,000,000	$	City of Edmonton Clean Energy Improvement Program (CEIP) information. The length of the term for "other efficiency measures" was chosen to be the median term for all eligible upgrades through the program, as defined by Alberta Municipalitites.	City Environmental Strategies. (2026, February 25). *Clean energy improvement program.* City of Edmonton. https://www.edmonton.ca/city_government/environmental_stewardship/clean-energy-improvement-program Alberta Municipalitites. (2023, January 5). *Elibile upgrades for commercial property owners in the clean energy improvement program.* https://ceip.abmunis.ca/wp-content/uploads/CEIP-Commercial-Upgrades.pdf
Annual interest rate	6%	N/A		
Term - ground source heat pump	16	years		
Term - solar PV system	20	years		
Term - other energy efficiency measures	15	years		
Maximum per cent of project costs that can be covered	100%	N/A		
Accelerated Investment Incentive (AII)				
Accelerated Investment Incentive rate - first year	100%	N/A	Fully re-instating the Accelerated Investment Incentive and immediate expensing (i.e., 100% first-year expensing) for qualifying assets was proposed in the 2024 Fall Economic Statement and confirmed in Canada's Budget 2025.	Department of Finance Canada. (2025, November 4). Tax measures, supplementary information. *Canada strong budget 2025.* Government of Canada. https://budget.canada.ca/2025/report-rapport/pdf/budget-2025.pdf Department of Finance Canada. (2024) *2024 fall economic statement.* Government of Canada. https://www.budget.canada.ca/update-miseajour/2024/report-rapport/FES-EEA-2024-en.pdf
Clean Technology Investment Tax Credit (CT ITC)				
CT ITC Rate	30%	N/A	Clean Technology Investment Tax Credit (CT ITC) information.	Canada Revenue Agency. (2026, May 1). *Clean technology investment tax credit (ITC).* Government of Canada. https://www.canada.ca/en/revenue-agency/services/tax/businesses/topics/corporations/business-tax-credits/clean-economy-itc/clean-technology-itc.html
Strategic Energy Management for Industry (SEMI)				
Funding rate for retrofits other than solar PV (for eligible for-profit organizations)	50%	N/A	Strategic Energy Management for Industry (SEMI) information.	Emissions Reduction Alberta. (n.d.). *Strategic energy management for industry - capital retrofits.* https://www.eralberta.ca/semi/capital-retrofits/
Maximum funding rate for solar PV	20%	N/A		
Maximum funding rate for solar PV per Watt	0.5	$/W		

Appendix B – Calculations

Refer to nine (9) attached pages.

Building Information				
Building size	20,000	sqft		
Building size	1858	m2	<-- Referenced by Assumptions tab	
Chosen EUI for sample warehouse	1.15	GJ/m2/year	319	kWh/m2/year
Annual energy use	2,137	GJ/year	593548	kWh/year
Percent NG	79.90%			
Annual NG consumption	1707	GJ/year	474245	kWh/year
Domestic hot water NG consumption	0.05567	GJ/m2/year		
Domestic hot water NG consumption	103	GJ/year	28733	kWh/year
Heating NG consumption	1604		445512	kWh/year
Percent electricity	20.10%			
Annual electrical consumption	429	GJ/year	119303	kWh/year

Energy Efficiency Upgrades		
Efficiency improvement	15%	
Improved EUI	0.978	GJ/m2/year
Improved annual energy use	504,516	kWh/year
Improved annual energy use	1816	GJ/year

GSHP		
Amount of total energy used for heating	75.06%	Rest is plug loads, DHW, lighting, fans etc.
Annual NG use for heating	378,685	kWh/year
Non-heating energy loads	125,831	kWh/year
Assumed efficiency of current heating equipment	81%	
Annual heat loss to be covered by heat pump	306,735	kWh/year
GSHP COP	3.8	
GSHP annual electrical consumption	80,720	kWh/year
Condensing boilers (BAU) cost	$140,000	
GSHP total cost	$570,000	

Conversion Rates		
277.777778	kWh/GJ	
10.7639	sqft/m2	

Solar PV			
Total electrical load w/ GSHP	206,550	kWh/year	
Solar potential	1030	kWh/kW	
Module capacity	420	W	
Max solar as per microgen regulations	149999	W	
Number of panels	357		
System size	149,940	W	<-- Referenced by Assumptions tab
Solar rate	$2.60	$/W	
Cost of solar array	$390,000		<-- Referenced by Assumptions tab
Roof space check			
Module width	1.1	m	
Module height	1.7	m	
Module size	2.0	m2	
Total area of modules	697	m2	
Module area as percent of roof area	38%	Assuming single story building	
Annual solar generation	154,438	kWh/year	
Net annual electrical consumption	52,112	kWh/year	

Type Of Potential Retrofit	Total Capital Cost ($)	Incremental Cost Compared to BAU ($)
Space Heating	$570,000	$430,000
Renewables	$390,000	$390,000
Other Energy Efficiency Upgrades	$35,000	$35,000
Total	**$995,000**	**$855,000**

Business As Usual		
Electricity		
Annual electrical consumption	119,303	kWh/year
Electrical energy base rate ($/kWh)	$0.07	$/kWh
Electrical retail fee ($/month)	$31.50	$/month
Electrical T&D variable costs ($/kWh)	$0.11	$/kWh
Electrical T&D fixed costs ($/month)	$27.39	$/month
Annual electrical energy cost	$9,134	
Annual electrical T&D cost	$13,674	
Annual electrical cost	$22,808	$/yr
Escalation rate	6.6%	
Annual NG consumption	1516	GJ/year
Natural gas base rate ($/GJ)	$3.45	$/GJ
Natural gas retail fee ($/month)	$31.50	$/month
Gas T&D variable costs $/GJ	$3.77	$/GJ
Gas T&D fixed costs ($/month)	$44.07	$/month
Annual NG energy cost	$5,613	
Annual NG T&D cost	$6,238	
Annual NG cost	$11,852	$/yr
Escalation rate	5.4%	

Upgrades		
Net annual electrical consumption	52,112	kWh/year
Electrical energy base rate ($/kWh)	$0.07	$/kWh
Electrical retail fee ($/month)	$31.50	$/month
Electrical T&D variable costs ($/kWh)	$0.11	$/kWh
Electrical T&D fixed costs ($/month)	$27.39	$/month
Annual electrical energy cost	$4,203	
Annual electrical T&D cost	$6,158	
Annual electrical cost	$10,361	$/yr
Escalation rate	6.6%	

<-- Energy is reduced from previous year because we upgrade to condensing boilers

Energy Cost - NPV Over 20 Years	
Business As Usual	$576,218
Upgrade	$178,167
Incremental	-$398,051

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Year	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**
Consumption - BAU	**Electricity (kWh/yr)**	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303	119,303
	Natural gas (GJ/yr)	1516	1516	1516	1516	1516	1516	1516	1516	1516	1516	1516	1516	1516	1516	1516	1516	1516	1516	1516	1516
Consumption - DER	**Electricity (kWh/yr)**	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112	52,112
	Natural gas (GJ/yr)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Utility Rates	**Electricity Rate ($/kWh)**	$0.07	$0.08	$0.08	$0.09	$0.09	$0.10	$0.11	$0.11	$0.12	$0.13	$0.14	$0.15	$0.16	$0.17	$0.18	$0.19	$0.20	$0.22	$0.23	$0.25
	Natural Gas Rate ($/GJ)	$3.45	$3.64	$3.84	$4.04	$4.26	$4.49	$4.74	$4.99	$5.26	$5.55	$5.85	$6.16	$6.49	$6.84	$7.21	$7.60	$8.01	$8.45	$8.90	$9.38
Utility Costs - BAU	**Annual Electricity Cost**	$22,808	$24,313	$25,918	$27,628	$29,452	$31,396	$33,468	$35,677	$38,031	$40,541	$43,217	$46,069	$49,110	$52,351	$55,806	$59,490	$63,416	$67,601	$72,063	$76,819
	Annual Natural Gas Cost	$11,852	$12,492	$13,166	$13,877	$14,627	$15,417	$16,249	$17,126	$18,051	$19,026	$20,054	$21,136	$22,278	$23,481	$24,749	$26,085	$27,494	$28,978	$30,543	$32,193
	Total Utility Cost	$34,660	$36,805	$39,084	$41,506	$44,078	$46,812	$49,717	$52,803	$56,083	$59,567	$63,271	$67,206	$71,388	$75,832	$80,555	$85,575	$90,910	$96,580	$102,606	$109,012
Utility Costs - DER	**Annual Electricity Cost**	$10,361	$11,044	$11,773	$12,550	$13,379	$14,262	$15,203	$16,206	$17,276	$18,416	$19,631	$20,927	$22,308	$23,781	$25,350	$27,023	$28,807	$30,708	$32,735	$34,895
	Annual Natural Gas Cost	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total Utility Cost	$10,361	$11,044	$11,773	$12,550	$13,379	$14,262	$15,203	$16,206	$17,276	$18,416	$19,631	$20,927	$22,308	$23,781	$25,350	$27,023	$28,807	$30,708	$32,735	$34,895
	Utility Savings	$24,299	$25,761	$27,311	$28,955	$30,700	$32,551	$34,514	$36,597	$38,807	$41,151	$43,639	$46,279	$49,079	$52,051	$55,205	$58,551	$62,103	$65,872	$69,871	$74,116

Scenario 1 - No Incentives

Legend
Pink = assumption
Blue = calculated
Yellow = input differs from Scenario 1 - No Incentives

Key Results	
NPV of Incentives	$0
Project (total) NPV	-$1,173,167
Incremental NPV	-$456,949

Common Variables	
Total Capital Cost	$995,000
Inflation Rate	2.00%
Discount rate	7.5%
GSHP cost	$570,000
Solar cost	$390,000

CEIP	
General CEIP max loan amount	$0
Max CEIP loan percentage	100%
CEIP Annual Interest Rate	6.00%
CEIP Term (years) - GSHP	16
CEIP Term (years) - Solar	20
CEIP Term (years) - Other	15
CEIP Loan - GSHP	$0
CEIP Loan - Solar	$0
CEIP Loan - Other	$0
CEIP Loan - Total	$0
Annual Payment - GSHP	$0
Annual Payment - Solar	$0
Annual Payment - Other	$0

AII	
First year dep'n rate	0%
Class 43 Tax dep'n rate	0%
Business tax rate	23%
Eligible Capital Cost	$960,000
Taxable income	$960,000

CT ITC	
CT ITC Percentage	0%
Eligible Capital Cost	$960,000
Total CT ITC	$0

SEMI	
SEMI Max funding (non-solar)	0%
SEMI Solar PV Max incentive (%)	0%
SEMI Solar PV Max incentive ($)	$0
Funding for non-solar ECMS	$0
Funding for solar	$0
Total SEMI max funding amount	$0

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Year (calender)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
CEIP Loan Amortization Schedule - GSHP																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP Loan Amortization Schedule - Solar																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP Loan Amortization Schedule - Other																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Capital Cost Allowance Tax savings																					
Tax Depreciation UCC		$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000
Taxable Income w/o Equip Dep'n		$960,000	$979,200	$998,784	$1,018,760	$1,039,135	$1,059,918	$1,081,116	$1,102,738	$1,124,793	$1,147,289	$1,170,235	$1,193,639	$1,217,512	$1,241,862	$1,266,700	$1,292,034	$1,317,874	$1,344,232	$1,371,116	$1,398,539
Potential Dep'n		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Actual Tax Dep'n		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tax savings		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project Cashflow																					
Expenses																					
Cost of Equipment	-$995,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Energy Cost		-$10,361	-$11,044	-$11,773	-$12,550	-$13,379	-$14,262	-$15,203	-$16,206	-$17,276	-$18,416	-$19,631	-$20,927	-$22,308	-$23,781	-$25,350	-$27,023	-$28,807	-$30,708	-$32,735	-$34,895
Incentives																					
CEIP Payments		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP	$0																				
SEMI	$0																				
CT ITC		$0																			
CCA		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total savings from incentives	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Cash Flow	-$995,000	-$10,361	-$11,044	-$11,773	-$12,550	-$13,379	-$14,262	-$15,203	-$16,206	-$17,276	-$18,416	-$19,631	-$20,927	-$22,308	-$23,781	-$25,350	-$27,023	-$28,807	-$30,708	-$32,735	-$34,895

Business As Usual (BAU)

Legend
Pink = assumption
Blue = calculated
Yellow = input differs from Scenario 1 - No Incentives

Key Results	
NPV of Incentives	$0
Project (total) NPV	-$716,218
Incremental NPV	n/a

Common Variables	
Total Capital Cost	$140,000
Inflation Rate	2.00%
Discount rate	7.5%
GSHP cost	$0
Solar cost	$0

CEIP	
General CEIP max loan amount	$0
Max CEIP loan percentage	100%
CEIP Annual Interest Rate	6.00%
CEIP Term (years) - GSHP	16
CEIP Term (years) - Solar	20
CEIP Term (years) - Other	15
CEIP Loan - GSHP	$0
CEIP Loan - Solar	$0
CEIP Loan - Other	$0
CEIP Loan - Total	$0
Annual Payment - GSHP	$0
Annual Payment - Solar	$0
Annual Payment - Other	$0

AII	
First year dep'n rate	0%
Class 43 Tax dep'n rate	0%
Business tax rate	23%
Eligible Capital Cost	$0
Taxable income	$960,000

CT ITC	
CT ITC Percentage	0%
Eligible Capital Cost	$0
Total CT ITC	$0

SEMI	
SEMI Max funding (non-solar)	0%
SEMI Solar PV Max incentive (%)	0%
SEMI Solar PV Max incentive ($)	$0
Funding for non-solar ECMS	$0
Funding for solar	$0
Total SEMI max funding amount	$0

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Year (calender)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
CEIP Loan Amortization Schedule - GSHP																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP Loan Amortization Schedule - Solar																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP Loan Amortization Schedule - Other																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Capital Cost Allowance Tax savings																					
Tax Depreciation UCC		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Taxable Income w/o Equip Dep'n		$960,000	$979,200	$998,784	$1,018,760	$1,039,135	$1,059,918	$1,081,116	$1,102,738	$1,124,793	$1,147,289	$1,170,235	$1,193,639	$1,217,512	$1,241,862	$1,266,700	$1,292,034	$1,317,874	$1,344,232	$1,371,116	$1,398,539
Potential Dep'n		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Actual Tax Dep'n		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tax savings		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project Cashflow																					
Expenses																					
Cost of Equipment	-$140,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Energy Cost		-$34,660	-$36,805	-$39,084	-$41,506	-$44,078	-$46,812	-$49,717	-$52,803	-$56,083	-$59,567	-$63,271	-$67,206	-$71,388	-$75,832	-$80,555	-$85,575	-$90,910	-$96,580	-$102,606	-$109,012
Incentives																					
CEIP Payments		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP	$0																				
SEMI	$0																				
CT ITC		$0																			
CCA		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total savings from incentives	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Cash Flow	-$140,000	-$34,660	-$36,805	-$39,084	-$41,506	-$44,078	-$46,812	-$49,717	-$52,803	-$56,083	-$59,567	-$63,271	-$67,206	-$71,388	-$75,832	-$80,555	-$85,575	-$90,910	-$96,580	-$102,606	-$109,012

Scenario 2 - CEIP

Legend
Pink = assumption
Blue = calculated
Yellow = input differs from Scenario 1 - No Incentives

Key Results	
NPV of Incentives	$100,951
Project (total) NPV	-$1,072,216
Incremental NPV	-$355,998

Common Variables	
Total Capital Cost	$995,000
Inflation Rate	2.00%
Discount rate	7.5%
GSHP cost	$570,000
Solar cost	$390,000

CEIP	
General CEIP max loan amount	$1,000,000
Max CEIP loan percentage	100%
CEIP Annual Interest Rate	6.00%
CEIP Term (years) - GSHP	16
CEIP Term (years) - Solar	20
CEIP Term (years) - Other	15
CEIP Loan - GSHP	$570,000
CEIP Loan - Solar	$390,000
CEIP Loan - Other	$35,000
CEIP Loan - Total	$995,000
Annual Payment - GSHP	$56,403
Annual Payment - Solar	$34,002
Annual Payment - Other	$3,604

AII	
First year dep'n rate	0%
Class 43 Tax dep'n rate	0%
Business tax rate	23%
Eligible Capital Cost	$960,000
Taxable income	$960,000

CT ITC	
CT ITC Percentage	0%
Eligible Capital Cost	$960,000
Total CT ITC	$0

SEMI	
SEMI Max funding (non-solar)	0%
SEMI Solar PV Max incentive (%)	0%
SEMI Solar PV Max incentive ($)	$0
Funding for non-solar ECMS	$0
Funding for solar	$0
Total SEMI max funding amount	$0

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Year (calender)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
CEIP Loan Amortization Schedule - GSHP																					
Beginning Balance		$570,000	$547,797	$524,262	$499,315	$472,872	$444,841	$415,129	$383,634	$350,249	$314,862	$277,350	$237,589	$195,441	$150,765	$103,408	$53,210	$0	$0	$0	$0
Payment		$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$0	$0	$0	$0
Interest		$34,200	$32,868	$31,456	$29,959	$28,372	$26,690	$24,908	$23,018	$21,015	$18,892	$16,641	$14,255	$11,726	$9,046	$6,205	$3,193	$0	$0	$0	$0
Principal		$22,203	$23,535	$24,947	$26,444	$28,030	$29,712	$31,495	$33,385	$35,388	$37,511	$39,762	$42,147	$44,676	$47,357	$50,198	$53,210	$0	$0	$0	$0
Ending Balance		$547,797	$524,262	$499,315	$472,872	$444,841	$415,129	$383,634	$350,249	$314,862	$277,350	$237,589	$195,441	$150,765	$103,408	$53,210	$0	$0	$0	$0	$0
CEIP Loan Amortization Schedule - Solar																					
Beginning Balance		$390,000	$379,398	$368,160	$356,248	$343,620	$330,236	$316,048	$301,009	$285,067	$268,169	$250,258	$231,271	$211,145	$189,812	$167,199	$143,229	$117,820	$90,888	$62,339	$32,077
Payment		$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002
Interest		$23,400	$22,764	$22,090	$21,375	$20,617	$19,814	$18,963	$18,061	$17,104	$16,090	$15,015	$13,876	$12,669	$11,389	$10,032	$8,594	$7,069	$5,453	$3,740	$1,925
Principal		$10,602	$11,238	$11,912	$12,627	$13,385	$14,188	$15,039	$15,941	$16,898	$17,912	$18,987	$20,126	$21,333	$22,613	$23,970	$25,408	$26,933	$28,549	$30,262	$32,077
Ending Balance		$379,398	$368,160	$356,248	$343,620	$330,236	$316,048	$301,009	$285,067	$268,169	$250,258	$231,271	$211,145	$189,812	$167,199	$143,229	$117,820	$90,888	$62,339	$32,077	$0
CEIP Loan Amortization Schedule - Other																					
Beginning Balance		$35,000	$33,496	$31,902	$30,213	$28,422	$26,524	$24,511	$22,378	$20,117	$17,721	$15,180	$12,487	$9,633	$6,607	$3,400	$0	$0	$0	$0	$0
Payment		$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$0	$0	$0	$0	$0
Interest		$2,100	$2,010	$1,914	$1,813	$1,705	$1,591	$1,471	$1,343	$1,207	$1,063	$911	$749	$578	$396	$204	$0	$0	$0	$0	$0
Principal		$1,504	$1,594	$1,690	$1,791	$1,898	$2,012	$2,133	$2,261	$2,397	$2,540	$2,693	$2,854	$3,026	$3,207	$3,400	$0	$0	$0	$0	$0
Ending Balance		$33,496	$31,902	$30,213	$28,422	$26,524	$24,511	$22,378	$20,117	$17,721	$15,180	$12,487	$9,633	$6,607	$3,400	$0	$0	$0	$0	$0	$0
Capital Cost Allowance Tax savings																					
Tax Depreciation UCC		$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000
Taxable Income w/o Equip Dep'n		$960,000	$979,200	$998,784	$1,018,760	$1,039,135	$1,059,918	$1,081,116	$1,102,738	$1,124,793	$1,147,289	$1,170,235	$1,193,639	$1,217,512	$1,241,862	$1,266,700	$1,292,034	$1,317,874	$1,344,232	$1,371,116	$1,398,539
Potential Dep'n		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Actual Tax Dep'n		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tax savings		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project Cashflow																					
Expenses																					
Cost of Equipment	-$995,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Energy Cost		-$10,361	-$11,044	-$11,773	-$12,550	-$13,379	-$14,262	-$15,203	-$16,206	-$17,276	-$18,416	-$19,631	-$20,927	-$22,308	-$23,781	-$25,350	-$27,023	-$28,807	-$30,708	-$32,735	-$34,895
Incentives																					
CEIP Payments		-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$90,405	-$34,002	-$34,002	-$34,002	-$34,002
CEIP	$995,000																				
SEMI	$0																				
CT ITC		$0																			
CCA		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total savings from incentives	$995,000	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$90,405	-$34,002	-$34,002	-$34,002	-$34,002
Net Cash Flow	$0	-$104,369	-$105,053	-$105,782	-$106,559	-$107,387	-$108,270	-$109,211	-$110,215	-$111,284	-$112,424	-$113,640	-$114,936	-$116,317	-$117,789	-$119,359	-$117,428	-$62,809	-$64,710	-$66,737	-$68,897

Scenario 3 - AII

Legend
Pink = assumption
Blue = calculated
Yellow = input differs from Scenario 1 - No Incentives

Key Results	
NPV of Incentives	$205,395
Project (total) NPV	-$967,771
Incremental NPV	-$251,554

Common Variables	
Total Capital Cost	$995,000
Inflation Rate	2.00%
Discount rate	7.5%
GSHP cost	$570,000
Solar cost	$390,000

CEIP	
General CEIP max loan amount	$0
Max CEIP loan percentage	100%
CEIP Annual Interest Rate	6.00%
CEIP Term (years) - GSHP	16
CEIP Term (years) - Solar	20
CEIP Term (years) - Other	15
CEIP Loan - GSHP	$0
CEIP Loan - Solar	$0
CEIP Loan - Other	$0
CEIP Loan - Total	$0
Annual Payment - GSHP	$0
Annual Payment - Solar	$0
Annual Payment - Other	$0

AII	
First year dep'n rate	100%
Class 43 Tax dep'n rate	0%
Business tax rate	23%
Eligible Capital Cost	$960,000
Taxable income	$960,000

CT ITC	
CT ITC Percentage	0%
Eligible Capital Cost	$960,000
Total CT ITC	$0

SEMI	
SEMI Max funding (non-solar)	0%
SEMI Solar PV Max incentive (%)	0%
SEMI Solar PV Max incentive ($)	$0
Funding for non-solar ECMS	$0
Funding for solar	$0
Total SEMI max funding amount	$0

288000

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Year (calender)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
CEIP Loan Amortization Schedule - GSHP																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP Loan Amortization Schedule - Solar																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP Loan Amortization Schedule - Other																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Capital Cost Allowance Tax savings																					
Tax Depreciation UCC		$960,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Taxable Income w/o Equip Dep'n		$960,000	$979,200	$998,784	$1,018,760	$1,039,135	$1,059,918	$1,081,116	$1,102,738	$1,124,793	$1,147,289	$1,170,235	$1,193,639	$1,217,512	$1,241,862	$1,266,700	$1,292,034	$1,317,874	$1,344,232	$1,371,116	$1,398,539
Potential Dep'n		$960,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Actual Tax Dep'n		$960,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tax savings		$220,800	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project Cashflow																					
Expenses																					
Cost of Equipment	-$995,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Energy Cost		-$10,361	-$11,044	-$11,773	-$12,550	-$13,379	-$14,262	-$15,203	-$16,206	-$17,276	-$18,416	-$19,631	-$20,927	-$22,308	-$23,781	-$25,350	-$27,023	-$28,807	-$30,708	-$32,735	-$34,895
Incentives																					
CEIP Payments		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP	$0																				
SEMI	$0																				
CT ITC		$0																			
CCA		$220,800	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total savings from incentives	$0	$220,800	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Cash Flow	-$995,000	$210,439	-$11,044	-$11,773	-$12,550	-$13,379	-$14,262	-$15,203	-$16,206	-$17,276	-$18,416	-$19,631	-$20,927	-$22,308	-$23,781	-$25,350	-$27,023	-$28,807	-$30,708	-$32,735	-$34,895

Scenario 4 - CT ITC

Legend
Pink = assumption
Blue = calculated
Yellow = input differs from Scenario 1 - No Incentives

Key Results	
NPV of Incentives	$267,907
Project (total) NPV	-$905,260
Incremental NPV	-$189,042

Common Variables	
Total Capital Cost	$995,000
Inflation Rate	2.00%
Discount rate	7.5%
GSHP cost	$570,000
Solar cost	$390,000

CEIP	
General CEIP max loan amount	$0
Max CEIP loan percentage	100%
CEIP Annual Interest Rate	6.00%
CEIP Term (years) - GSHP	16
CEIP Term (years) - Solar	20
CEIP Term (years) - Other	15
CEIP Loan - GSHP	$0
CEIP Loan - Solar	$0
CEIP Loan - Other	$0
CEIP Loan - Total	$0
Annual Payment - GSHP	$0
Annual Payment - Solar	$0
Annual Payment - Other	$0

AII	
First year dep'n rate	0%
Class 43 Tax dep'n rate	0%
Business tax rate	23%
Eligible Capital Cost	$960,000
Taxable income	$960,000

CT ITC	
CT ITC Percentage	30%
Eligible Capital Cost	$960,000
Total CT ITC	$288,000

SEMI	
SEMI Max funding (non-solar)	0%
SEMI Solar PV Max incentive (%)	0%
SEMI Solar PV Max incentive ($)	$0
Funding for non-solar ECMS	$0
Funding for solar	$0
Total SEMI max funding amount	$0

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Year (calender)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
CEIP Loan Amortization Schedule - GSHP																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP Loan Amortization Schedule - Solar																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP Loan Amortization Schedule - Other																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Capital Cost Allowance Tax savings																					
Tax Depreciation UCC		$960,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000	$672,000
Taxable Income w/o Equip Dep'n		$960,000	$979,200	$998,784	$1,018,760	$1,039,135	$1,059,918	$1,081,116	$1,102,738	$1,124,793	$1,147,289	$1,170,235	$1,193,639	$1,217,512	$1,241,862	$1,266,700	$1,292,034	$1,317,874	$1,344,232	$1,371,116	$1,398,539
Potential Dep'n		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Actual Tax Dep'n		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tax savings		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project Cashflow																					
Expenses																					
Cost of Equipment	-$995,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Energy Cost		-$10,361	-$11,044	-$11,773	-$12,550	-$13,379	-$14,262	-$15,203	-$16,206	-$17,276	-$18,416	-$19,631	-$20,927	-$22,308	-$23,781	-$25,350	-$27,023	-$28,807	-$30,708	-$32,735	-$34,895
Incentives																					
CEIP Payments		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP	$0																				
SEMI	$0																				
CT ITC		$288,000																			
CCA		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total savings from incentives	$0	$288,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Cash Flow	-$995,000	$277,639	-$11,044	-$11,773	-$12,550	-$13,379	-$14,262	-$15,203	-$16,206	-$17,276	-$18,416	-$19,631	-$20,927	-$22,308	-$23,781	-$25,350	-$27,023	-$28,807	-$30,708	-$32,735	-$34,895

Scenario 5 - SEMI

Legend
Pink = assumption
Blue = calculated
Yellow = input differs from Scenario 1 - No Incentives

Key Results	
NPV of Incentives	$380,500
Project (total) NPV	-$792,667
Incremental NPV	-$76,449

Common Variables	
Total Capital Cost	$995,000
Inflation Rate	2.00%
Discount rate	7.5%
GSHP cost	$570,000
Solar cost	$390,000

CEIP	
General CEIP max loan amount	$0
Max CEIP loan percentage	100%
CEIP Annual Interest Rate	6.00%
CEIP Term (years) - GSHP	16
CEIP Term (years) - Solar	20
CEIP Term (years) - Other	15
CEIP Loan - GSHP	$0
CEIP Loan - Solar	$0
CEIP Loan - Other	$0
CEIP Loan - Total	$0
Annual Payment - GSHP	$0
Annual Payment - Solar	$0
Annual Payment - Other	$0

AII	
First year dep'n rate	0%
Class 43 Tax dep'n rate	0%
Business tax rate	23%
Eligible Capital Cost	$960,000
Taxable income	$960,000

CT ITC	
CT ITC Percentage	0%
Eligible Capital Cost	$960,000
Total CT ITC	$0

SEMI	
SEMI Max funding (non-solar)	50%
SEMI Solar PV Max incentive (%)	20%
SEMI Solar PV Max incentive ($)	$0.50
Funding for non-solar ECMS	$302,500
Funding for solar	$78,000
Total SEMI max funding amount	$380,500

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Year (calender)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
CEIP Loan Amortization Schedule - GSHP																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP Loan Amortization Schedule - Solar																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP Loan Amortization Schedule - Other																					
Beginning Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Payment		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Interest		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Principal		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Balance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Capital Cost Allowance Tax savings																					
Tax Depreciation UCC		$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000
Taxable Income w/o Equip Dep'n		$960,000	$979,200	$998,784	$1,018,760	$1,039,135	$1,059,918	$1,081,116	$1,102,738	$1,124,793	$1,147,289	$1,170,235	$1,193,639	$1,217,512	$1,241,862	$1,266,700	$1,292,034	$1,317,874	$1,344,232	$1,371,116	$1,398,539
Potential Dep'n		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Actual Tax Dep'n		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tax savings		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project Cashflow																					
Expenses																					
Cost of Equipment	-$995,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Energy Cost		-$10,361	-$11,044	-$11,773	-$12,550	-$13,379	-$14,262	-$15,203	-$16,206	-$17,276	-$18,416	-$19,631	-$20,927	-$22,308	-$23,781	-$25,350	-$27,023	-$28,807	-$30,708	-$32,735	-$34,895
Incentives																					
CEIP Payments		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CEIP	$0																				
SEMI	$380,500																				
CT ITC		$0																			
CCA		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total savings from incentives	$380,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net Cash Flow	-$614,500	-$10,361	-$11,044	-$11,773	-$12,550	-$13,379	-$14,262	-$15,203	-$16,206	-$17,276	-$18,416	-$19,631	-$20,927	-$22,308	-$23,781	-$25,350	-$27,023	-$28,807	-$30,708	-$32,735	-$34,895

Scenario 6 - CEIP + SEMI

Legend
Pink = assumption
Blue = calculated
Yellow = input differs from Scenario 1 - No Incentives

Key Results	
NPV of Incentives	$481,451
Project (total) NPV	-$691,716
Incremental NPV	$24,502

Common Variables	
Total Capital Cost	$995,000
Inflation Rate	2.00%
Discount rate	7.5%
GSHP cost	$570,000
Solar cost	$390,000

CEIP	
General CEIP max loan amount	$1,000,000
Max CEIP loan percentage	100%
CEIP Annual Interest Rate	6.00%
CEIP Term (years) - GSHP	16
CEIP Term (years) - Solar	20
CEIP Term (years) - Other	15
CEIP Loan - GSHP	$570,000
CEIP Loan - Solar	$390,000
CEIP Loan - Other	$35,000
CEIP Loan - Total	$995,000
Annual Payment - GSHP	$56,403
Annual Payment - Solar	$34,002
Annual Payment - Other	$3,604

AII	
First year dep'n rate	0%
Class 43 Tax dep'n rate	0%
Business tax rate	23%
Eligible Capital Cost	$960,000
Taxable income	$960,000

CT ITC	
CT ITC Percentage	0%
Eligible Capital Cost	$960,000
Total CT ITC	$0

SEMI	
SEMI Max funding (non-solar)	50%
SEMI Solar PV Max incentive (%)	20%
SEMI Solar PV Max incentive ($)	$0.50
Funding for non-solar ECMS	$302,500
Funding for solar	$78,000
Total SEMI max funding amount	$380,500

Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Year (calender)	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
CEIP Loan Amortization Schedule - GSHP																					
Beginning Balance		$570,000	$547,797	$524,262	$499,315	$472,872	$444,841	$415,129	$383,634	$350,249	$314,862	$277,350	$237,589	$195,441	$150,765	$103,408	$53,210	$0	$0	$0	$0
Payment		$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$56,403	$0	$0	$0	$0
Interest		$34,200	$32,868	$31,456	$29,959	$28,372	$26,690	$24,908	$23,018	$21,015	$18,892	$16,641	$14,255	$11,726	$9,046	$6,205	$3,193	$0	$0	$0	$0
Principal		$22,203	$23,535	$24,947	$26,444	$28,030	$29,712	$31,495	$33,385	$35,388	$37,511	$39,762	$42,147	$44,676	$47,357	$50,198	$53,210	$0	$0	$0	$0
Ending Balance		$547,797	$524,262	$499,315	$472,872	$444,841	$415,129	$383,634	$350,249	$314,862	$277,350	$237,589	$195,441	$150,765	$103,408	$53,210	$0	$0	$0	$0	$0
CEIP Loan Amortization Schedule - Solar																					
Beginning Balance		$390,000	$379,398	$368,160	$356,248	$343,620	$330,236	$316,048	$301,009	$285,067	$268,169	$250,258	$231,271	$211,145	$189,812	$167,199	$143,229	$117,820	$90,888	$62,339	$32,077
Payment		$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002	$34,002
Interest		$23,400	$22,764	$22,090	$21,375	$20,617	$19,814	$18,963	$18,061	$17,104	$16,090	$15,015	$13,876	$12,669	$11,389	$10,032	$8,594	$7,069	$5,453	$3,740	$1,925
Principal		$10,602	$11,238	$11,912	$12,627	$13,385	$14,188	$15,039	$15,941	$16,898	$17,912	$18,987	$20,126	$21,333	$22,613	$23,970	$25,408	$26,933	$28,549	$30,262	$32,077
Ending Balance		$379,398	$368,160	$356,248	$343,620	$330,236	$316,048	$301,009	$285,067	$268,169	$250,258	$231,271	$211,145	$189,812	$167,199	$143,229	$117,820	$90,888	$62,339	$32,077	$0
CEIP Loan Amortization Schedule - Other																					
Beginning Balance		$35,000	$33,496	$31,902	$30,213	$28,422	$26,524	$24,511	$22,378	$20,117	$17,721	$15,180	$12,487	$9,633	$6,607	$3,400	$0	$0	$0	$0	$0
Payment		$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$3,604	$0	$0	$0	$0	$0
Interest		$2,100	$2,010	$1,914	$1,813	$1,705	$1,591	$1,471	$1,343	$1,207	$1,063	$911	$749	$578	$396	$204	$0	$0	$0	$0	$0
Principal		$1,504	$1,594	$1,690	$1,791	$1,898	$2,012	$2,133	$2,261	$2,397	$2,540	$2,693	$2,854	$3,026	$3,207	$3,400	$0	$0	$0	$0	$0
Ending Balance		$33,496	$31,902	$30,213	$28,422	$26,524	$24,511	$22,378	$20,117	$17,721	$15,180	$12,487	$9,633	$6,607	$3,400	$0	$0	$0	$0	$0	$0
Capital Cost Allowance Tax savings																					
Tax Depreciation UCC		$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000	$960,000
Taxable Income w/o Equip Dep'n		$960,000	$979,200	$998,784	$1,018,760	$1,039,135	$1,059,918	$1,081,116	$1,102,738	$1,124,793	$1,147,289	$1,170,235	$1,193,639	$1,217,512	$1,241,862	$1,266,700	$1,292,034	$1,317,874	$1,344,232	$1,371,116	$1,398,539
Potential Dep'n		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Actual Tax Dep'n		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tax savings		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Project Cashflow																					
Expenses																					
Cost of Equipment	-$995,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Energy Cost		-$10,361	-$11,044	-$11,773	-$12,550	-$13,379	-$14,262	-$15,203	-$16,206	-$17,276	-$18,416	-$19,631	-$20,927	-$22,308	-$23,781	-$25,350	-$27,023	-$28,807	-$30,708	-$32,735	-$34,895
Incentives																					
CEIP Payments		-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$90,405	-$34,002	-$34,002	-$34,002	-$34,002
CEIP	$995,000																				
SEMI	$380,500																				
CT ITC		$0																			
CCA		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total savings from incentives	$1,375,500	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$94,008	-$90,405	-$34,002	-$34,002	-$34,002	-$34,002
Net Cash Flow	$380,500	-$104,369	-$105,053	-$105,782	-$106,559	-$107,387	-$108,270	-$109,211	-$110,215	-$111,284	-$112,424	-$113,640	-$114,936	-$116,317	-$117,789	-$119,359	-$117,428	-$62,809	-$64,710	-$66,737	-$68,897