

ALASKA SUSTAINABLE ENERGY ACT ANNUAL REPORT

DEPARTMENT OF TRANSPORTATION & PUBLIC
FACILITIES



2024 PROGRESS REPORT

Submitted January 2025



EXECUTIVE SUMMARY

In accordance with AS 44.42.067(d), this 2024 Progress Report is presented to the Alaska State Legislature and details the progress of the State of Alaska Department of Transportation and Public Facilities (DOT&PF) in reducing the state's energy consumption.

AS 44.42.067 (a) requires that the DOT&PF shall work with other state agencies to retrofit 25% of all public facilities that are at least 10,000 square feet and larger, starting with the least energy efficient facilities. This goal was achieved in 2014. The DOT&PF continues to develop and execute further energy efficiency projects to accomplish energy improvements in as many state facilities as possible. The DOT&PF also provides guidance to communities, municipalities, school districts and other local governments to help them carry out energy efficiency projects.

The DOT&PF and other state agencies have been working to reduce the state's energy consumption through the use of energy savings performance contracts or other means for many years. To present, through the use of energy savings performance contracts, the state has accomplished energy savings performance projects in over 79 facilities, as well as upgrades to streetlights, and has achieved cumulative annual cost avoidance greater than **\$5.6 Million**. The cumulative energy savings achieved through the performance contracts is presented in **Table 1** below:

Table 1
Cumulative Annual Energy Savings through Energy Savings Performance Projects

<u>Energy Type Saved</u>	<u>Cumulative Annual Total</u>	<u>Unit</u>
<i>Electricity</i>	>15,453,229	kWh
<i>Natural Gas</i>	>333,283	CCF
<i>Heating Oil</i>	>323,194	Gallons
<i>CO2 Reduction¹</i>	>17,095	Tons

State energy savings performance projects have been accomplished through commercial financing, federal and state agency funds. The major accomplishments for 2024 include:

- Substantial Completion of the Department of Transportation & Public Facilities Central Region Street lighting upgrades.
- Substantial Completion of the Fairbanks Regional Office Building cooling system upgrades.
- Progress on the Investment Grade Energy Audit and Proposal phase of the Department of Fish and Game Anchorage and Fairbanks Sport Fish Hatcheries.

Goals for 2025 include:

- Advancing the Department of Fish and Game Hatcheries Energy Efficiency projects.

¹ Estimated CO2 reduction calculated utilizing EPA Greenhouse Gas Equivalencies Calculator.

- Advancing opportunities of combined heat and power energy projects at the Ted Stevens International Airport, supporting infrastructure efficiency and resilience.
- Contract closures of substantially completed projects.
- Continued outreach and support to other state agencies to encourage them in further energy efficiency project opportunities and efforts.
- Continue prioritization of energy projects, review, add to, and refresh energy data in state databases, and coordinate with state deferred maintenance program efforts, to maximize the potential and synergy of energy program and deferred maintenance projects.

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1.0 INTRODUCTION

The State of Alaska Department of Transportation and Public Facilities (DOT&PF) presents this 2024 progress report to the Alaska State Legislature. Progress in this report includes work completed through 2024.

AS 44.42.067 requires the DOT&PF to retrofit at least 25 percent of all State of Alaska public facilities, excluding court and legislative buildings, over 10,000 square feet no later than January 1, 2020. This 25 percent goal was achieved at the end of 2014. The DOT&PF continues to develop and execute projects for State of Alaska public facilities and is committed to progression of the energy efficiency program.

There still remains great opportunity for energy efficiency improvements in state, local government and educational facilities throughout Alaska. The DOT&PF is able to assist these entities by providing expert knowledge, technical assistance and energy savings performance contract resources.

The milestones for continued achievement, growth and development of the energy efficiency program include:

- Continued collection of energy consumption and cost data for facilities to generate Energy Use Indexes (AS 37.07.040 (12)).
- Identifying and prioritizing the least energy efficient facilities.
- Determining project scopes for energy retrofit work in those facilities that will meet net cost savings within approximately 15 years.
- Working with state agencies to arrange funding or financing for determined energy retrofit projects.
- Contracting with Energy Services Companies to perform energy performance contracts.
- Executing the energy retrofit projects and verifying the energy savings.
- Continuous monitoring of state energy consumption to be compared to levels of past years.
- Outreach, education and technical assistance to communities, local governments, and school districts to enable them in accomplishing energy efficiency projects.
- Continued coordination with the Alaska Housing Finance Corporation (AHFC) and Alaska Energy Authority (AEA).

Utility Information for facilities continues to be entered in the AHFC Alaska Retrofit Information System (ARIS). This information is being used to generate energy use indexes for the purposes of determining energy use consumption changes and assisting in prioritizing facility energy efficiency retrofit projects.

For many years, state agencies have performed projects that result in energy savings and are continually striving to perform more energy efficiency projects. The DOT&PF encourages and educates agencies on Energy Savings Performance Contracting and assists agencies in developing specific projects intended to utilize the program.

Subsequent sections of this report provide details on energy efficiency projects in progress, analysis of the utility consumption and expense data collected through ARIS, and the DOT&PF's coordination with other agencies.

2.0 ENERGY EFFICIENCY RETROFIT PROJECTS

This section details energy efficiency related projects completed and in-progress by the DOT&PF in 2024.

2.1. ENERGY SAVINGS PERFORMANCE CONTRACTING PROJECTS COMPLETED

In 2024 the Central Region Street Light Upgrades and Fairbanks Regional Office Building Energy Upgrades achieved substantial completion.

Department of Transportation and Public Facilities

Project: Central Region Street Lighting Upgrades

This project provided upgraded roadway lighting and control upgrades to over 3,800 DOT&PF owned streetlights in the greater Anchorage area, extending from approximately the Glenn Highway to Potters Marsh. Annual resultant energy and operational energy savings from the project are approximately 4,500,000 kWh in energy and \$660,000 in dollars.



Figure 1: Example Street Lights Upgraded

Department of Transportation and Public Facilities

Project: Fairbanks Regional Office Building Energy Efficiency Upgrades

This project upgraded the main cooling systems of the facility. Annual resultant energy and operational savings from the project are approximately 64,500 kWh in energy and \$12,200 in dollars.



Figure 2: Fairbanks Regional Office Building

2.2. ENERGY SAVINGS PERFORMANCE CONTRACTING PROJECTS IN-PROGRESS

Department of Fish and Game

Project: Anchorage and Fairbanks Hatcheries Energy Efficiency Upgrades

In partnership with DF&G, the Anchorage and Fairbanks Sport Fish Hatcheries were identified as candidates for potential energy efficiency upgrades. Preliminary project feasibility was carried out and selection of an Energy Services Company was made. Site visits, energy analysis, and scoping work has been on-going in 2024. A draft of the Investment Grade Energy Audit and Energy Savings Proposal is in review with DOT&PF and DF&G project stakeholders.



Figure 3: Ruth Burnett (Anchorage) Sport Fish Hatchery

PROJECT PRIORITIZATION

When developing a project, priority is given to facilities that are least energy efficient. However, other factors such as individual facility and department needs, condition of the facility's systems, as well as the geographic locations of the facilities must also be considered.

Because completing the work as cost effectively as possible is essential when commencing energy efficiency retrofit projects, the DOT&PF attempts to group projects by geographic locations to the extent possible. This assists in expediting project completions, reducing project costs, and maximizing project resources. However, it may mean one group of facilities includes multiple departments and multiple funding sources and that energy retrofits to facilities are not completed in exact order of their baseline Energy Use Indexes.

Through the ARIS system, utility consumption and cost data information is collected and entered for state public facilities by individual agencies. Provided that there is sufficient available data, the state can determine the Energy Use Indexes - the energy use per square foot - of individual facilities. Using this information, the state can examine individual facility Energy Use Indexes to identify the least energy efficient facilities and find potential candidates for energy efficiency upgrades.

3.0 ENERGY CONSUMPTION AND COST DATA ANALYSIS

The Alaska Housing Finance Corporation developed the Alaska Retrofit Information System (ARIS) - a web-based platform to collect energy consumption and expense data for state-owned facilities.

The Office of Management and Budget coordinated with the DOT&PF and AHFC and directed that all state agencies input their respective facility energy consumption and cost information into ARIS.

ARIS

Information entered by state agencies and the university remain continually in-progress and each are in various stages of entering in respective data. A number of state owned smaller, specialized use and residential facilities are not represented in ARIS, including such buildings as sand and cold storage buildings, seasonal residential buildings, shelters, cabins and various others because they have negligible or minimal energy use.

The DOT&PF has analyzed gross available data in ARIS and adjusted for potential errors and missing information where possible. Analysis is based on a gross per square foot level of information entered into ARIS. Data from ARIS represents facilities from across all of Alaska. Due to vast amount of information, the analysis does not account for weather normalization of individual facilities. Present available information in ARIS shows a gross Energy Use Index decrease from 2020 to 2022 and increase in 2023, however not all data has been entered in ARIS and further data would be needed for a more thorough analysis.

It is important to note that the analysis is based only on the available information entered into ARIS at present. Multiple other factors greatly affect and influence annual energy consumption including weather, facility programmatic changes, plug-load equipment and the individual missions of each agency.

4.0 COORDINATION WITH OTHER AGENCIES

The DOT&PF continues to work closely with all executive branch agencies in coordinating, developing and executing energy savings performance projects. The DOT&PF also continues to work with the AHFC and AEA as applicable; both partners in the efforts to achieve the goals of the Alaska Sustainability Act.

APPENDIX

A.1: Term Definitions

AkWarm-C©: AHFC data collection software for energy audits.

Alaska Retrofit Information System (ARIS): data collection, management, and information access resource for state agency utility information and AHFC AkWarm-C© files.

Baseline Conditions: the baseline energy consumption and operating conditions for a facility, including the equipment inventory and conditions, occupancy, energy consumption rate, control strategies, etc. in place prior to implementation of EEMs.

Baseline Energy Consumption: for any billing period, the Energy Consumption that would have been incurred by the Facility if the ESCO Services and ESCO Equipment had not been implemented, as calculated by utilizing the data, methodology and variables set forth in the Energy Performance Contract.

Benchmarking: An initial assessment of energy use for a facility to collect data that may be used for a variety of purposes, including prioritizing projects for funding, assessing the building's energy use against available end use indexes (EUI), and developing an Alaska-specific EUI.

Billing Period: the time period as set forth in the Energy Services Proposal (e.g. month, quarter, year) used to calculate Energy Savings for the Facility.

Commissioning: (From ASHRAE Guidance, "The Commissioning Process") a quality-oriented process for achieving, verifying, and documenting that the operation and performance of facilities, systems, and assemblies meets defined objectives and criteria.

Energy Consumption: the amount of energy and power, in the form of electricity, natural gas, oil, propane, or other energy source, consumed in the Facility in any Billing Period, as calculated by utilizing the data, methodology and variables set forth in the Energy Performance Contract. Energy consumption may also include other utilities such as water and wastewater.

Energy Cost Index: the total annual energy cost for all energy sources to operate a building, reported in \$/ft².

Energy Cost Savings: savings in units of consumption (e.g. kWh, kW demand, therms, CCF, gallons, etc.) in a Billing Period times the cost per unit of consumption for the Billing Period, as established in the Energy Performance Contract.

Energy Conservation Measures (ECMs): Policies and procedures intended to reduce a building's energy consumption by modifying human behavior. ECMs are administrative controls, such as training employees to turn lights off in un-used areas, disconnect appliances that are not in use, lower room temperature thermostat set-points, etc.

Energy Efficiency Measure (EEMs): Per 10 CFR 420.2, any capital improvement that reduces energy costs in an amount sufficient to recover the total cost of purchasing and installing such measure over an appropriate period of time and maintains or reduces energy consumption from non-renewable sources.

Energy Savings Performance Contract (ESPC): the contracting mechanism between the Facility Owner and the Energy Services Company that implements energy efficiency measures to achieve guaranteed energy savings. Projects can be executed without up-front capital through energy project loan funds, with capital funds, or combinations of loan and capital funds.

Energy Savings: for each form of energy for each Billing Period, the difference between the Baseline Energy Consumption for that Billing Period and the Energy Consumption actually incurred in that Billing Period as set forth in the Energy Performance Contract.

Energy Services Company (ESCO): a contractor that performs the energy audit, design, implementation, and measurement and verification of savings for energy efficiency retrofit projects.

Energy Use Intensity or Energy Use Index (EUI): Energy Use Intensity or Energy Use Index (EUI): a unit of measurement that describes a building's energy use in units of energy consumed by the building per unit area of square footage (BTU/ft²), or BTU/ft²/year. The EUI is used to compare a building's energy use to others of similar size and end use.

The energy consumed is converted into BTUs and divided by the square footage of the building. The EUI can then be used to compare and rank all facilities. The larger the EUI, the more energy consumed per square foot. Different types of facilities will have different EUIs based on their operational function, equipment, space usage and occupancies. For example, a health care or laboratory facility, an office facility, and a parking facility will all have very different EUIs, ranging from highest to lowest respectively.

Typical units for measuring the energy consumption are.

Energy Source	Category	Measured In Units of	
Electrical Consumption	Electricity	Kilowatt-hours	kWh
Electrical Demand	Electricity	Kilowatt	kW
Natural Gas	Heating	Thousand Cubic Feet	ccf
Heating Fuel Oil	Heating	Gallons	gal
Propane	Heating	Gallons	gal

Investment Grade Audit: an energy analysis of a facility to identify cost effective EEMs. The Investment Grade Audit provides detailed engineering investigation and report of a facility's current baseline energy and water consumption, equipment condition, operation, performance, maintenance, potential energy and water efficiency upgrades, life cycle costs, and risks for future performance.

Measurement and Verification (M&V): (From the Efficiency Valuation Organization "Energy Savings Measurement Guide") the process of using measurement to reliably determine actual savings created within an individual facility by an energy management, energy conservation or energy efficiency project or program. As savings cannot be directly measured, the savings can be determined by comparing measured use before and after implementation of a project, making appropriate adjustments for changes in conditions."

A.2: Energy Savings Performance Projects



Energy Savings Performance Projects Completed Through DOT&PF Statewide Public Facilities

		Last Updated:	December 24, 2024																		
Related ESPC RFP #	Project No.	Agency	Project Name	Year Completed	Facility(s)	Total Bldg Sq. Ft.	Total Number Bldgs Completed	Qty Bldgs > 10K Sq. Ft.	City	Project Scope	Project Energy Savings						Project Total Energy Savings (\$)	Total Project Cost (\$)	Fund Source	ESCO	Notes
											Elec kW	Elec (kWh)	Elec (\$)	Gas (CCF)	Heating Oil (Gal)	Water (kGal)					
							79	52	CUMULATIVE ENERGY SAVINGS TOTALS=> (For Completed Projects)						15,838	15,453,229	542,385	333,283	323,194	266,588	\$ 49,082,614
N/A	RFP 25242009	DF&G	Anchorage and Hatchery Energy Upgrades		Anchorage and Fairbanks Hatcheries	197,807			Anchorage & Fairbanks	Applicable and feasible energy upgrades meeting operational and payback needs											
7		DOT&PF	Central Region Street Lighting Upgrades	2024	Anchorage Area Street Lights				Anchorage	Lighting and lighting control upgrades of approx 4,000 street lights in Anchorage area		4,135,284					\$ 737,385	\$ 5,276,581	Financed: Key Bank	Ameresco	Implementation Substantially Completed in 2024
5		DOA	Fairbanks Regional Office Building Energy Upgrades	2024	Fairbanks Regional Office Building	92,942	1	1	Fairbanks	Cooling System Replacement	3,389	64,501					\$ 12,419	\$ 1,686,279	State Funded	Siemens	Implementation Substantially Completed in 2024
4		DEED	Andrew P. Kashevaroff Alaska State Library, Archives, and Museum Energy Upgrades	2022	Andrew P. Kashevaroff Alaska State Library, Archives, and Museum	158,000	1	1	Juneau	Optimization of Building Automation Systems, Select Lighting, UPS, Retro-commissioning, air balancing		885,632			14,718		\$ 168,192	\$ 1,213,778	State Funded	Siemens	Project completed in 2022. Updated with Year 2 M&V from June 2024
2		DEC	Environmental Health Laboratory Energy upgrades	2020	Environmental Health Lab	23,000	1	1	Anchorage	Comprehensive: Heating systems, ventilation, interior and exterior lighting, and more	693	413,254		121,503		303	\$ 197,726	\$ 3,001,669	Financed: Bank of America	Siemens	Updated with Year 2 M&V Results from January 2023
1		DOT&PF	Anton Anderson Memorial Tunnel Campus	2019	Anton Anderson Memorial Tunnel Campus	242,735	7		Whittier	Building lighting, Tunnel Lighting, lighting contrls, VFDs, SCADA		714,547	#####				\$ 169,792	\$ 2,952,144	Financed: Bank of America	Johnson Controls	
9		DOC	Spring Creek Correctional Center Energy Upgrades	2016	Spring Creek Correctional Center	205,952			Seward	Exterior bldg and mast lighting, interior lighting, central heating plant upgrades, DDC Optimization	2,889	1,120,944	#####		43,904		\$ 349,041	\$ 3,197,162	Financed: Bank of America	Siemens	Energy & cost savings data from Siemens 2016 M&V Report
11		DOT&PF	DOT&PF Northern Region Energy Upgrades	2016	Multiple Northern Region Maintenance Facilities	115,846	16	4	Chitina, Enerstine, Gulkana, Nelchina, Paxson Fairbanks, Slana, St. Mary's, Tazlina	Interior and exterior lighting, DDC upgrades, heating system upgrades, programmable thermostats, building envelope upgrades, CHP, re-commissioning study	1,243	375,544	#####		27,103		\$ 261,241	\$ 3,555,534	Financed: Bank of America	Siemens	Energy & cost savings data from Siemens 2016 M&V Report
8	PJ 81121-A	DEED	MEHS Campus-Wide Energy Upgrades (Ph-2)	2014	Bldg 289-Central Heating Plant, Bldg 290-Cafeteria , Bldg 292-Boys Dorm, Bld 293-Girls Dorm, Bld 295-	226,431	8	7	Sitka	Campus Wide DDC Upgrades, Bldg 1331-Gym Hydronic Heating Piping Replacement, Upper Campus Heating Plant Upgrades		153,027	\$ 17,437		39,361		\$ 234,881	\$ 2,721,701	State Funded	Siemens	
7	PJ 81136	DFG	Fairbanks Regional Headquarters Energy Upgrades	2014	Regional HQ Bldg, Indoor Shooting, Range, Sealing Laboratory	39,632	3	2	Fairbanks	Lighting Upgrades, lighting controls, laboratory	363	122,060			4,841		\$ 43,434	\$ 521,822	State Funded	Ameresco	
1	PJ 80058	DOC	Dept. of Corrections Facilities (Change Order)	2013	Lemon Creek Correctional Center	85,088	1	1	Juneau	DDC Upgrade to Supply Fan (SF-3) system in 'Mod Section' of LCCCC					1,099		\$ 2,660	\$ 221,534	State Funded	Siemens	Energy & cost savings data from Siemens 2013 IGA&ESP.
8	PJ 81121	DEED	MEHS Upper Campus Heating Upgrades (Ph-1)	2013	Bldg 289-Central Heating Plant, Bldg 290-Cafeteria , Bldg 292-Boys Dorm, Bldg 293-Girls Dorm, Bldg 295-				Sitka	Upper Campus Heating Plant Boiler Replacements, Primary Heating and Domestic Water Distribution Piping Replacments,		4,192	\$ 356		27,430		\$ 155,077	\$ 1,809,569	State Funded	Siemens	Energy & cost savings data from Siemens 2014 M&V Report
	PJ 83023-81163	DPS	DPS Fairbanks Alaska State Trooper Bldg Energy Upgrades	2013	Fairbanks State Trooper Building	35,352	1	1	Fairbanks	Lighting retrofits including DMV and Dispatch, HVAC upgrades, Conference Room Window Upgrade,		50,372	\$ 7,018		45		\$ 7,174	\$ 749,995	State Funded	Siemens	Energy & cost savings data from Siemens 2013 IGA&ESP



Energy Savings Performance Projects Completed Through DOT&PF Statewide Public Facilities

Related ESPC RFP #	Project No.	Agency	Project Name	Year Completed	Facility(s)	Total Bldg Sq. Ft.	Total Number Bldgs Completed	Qty Bldgs > 10K Sq. Ft.	City	Project Scope	Project Energy Savings						Project Total Energy Savings (\$)	Total Project Cost (\$)	Fund Source	ESCO	Notes
											Elec kW	Elec (kWh)	Elec (\$)	Gas (CCF)	Heating Oil (Gal)	Water (kGal)					
1	83080-A	DOT&PF-SR	DOT&PF-Southeast Region Facilities	2012	7-Mile Facility	53,700	1	1	Juneau	Heating System Replacement, DDC Upgrade, VFD drives and high efficiency motors		24,157			5,688		\$ 46,135	\$ 1,219,816	ARRA Funded	Siemens	Energy & cost savings data from Siemens 2012 M&V Report
				2012	AMHS Maint Bldg	5,000	1		Juneau	Lighting Upgrades, Destrat Fan		42,648			(187)						
				2012	Sitka State & City Office	28,138	1	1	Sitka	Lighting Upgrades, Lighting Controls		67,127			(934)						
				2012	Ketchikan State Court & Office	36,218	1	1	Ketchikan	Boiler Replacements, VFDs, 3-Way Valves		4,979			4,204						
1	83080-A	DOC	Dept. of Corrections Facilities	2012	Ketchikan Correctional Center	18,092	1	1	Ketchikan	Boiler Replacements					5,813		\$ 22,913	\$ 1,288,680	ARRA Funded & State Funded	Siemens	Energy & cost savings data from Siemens 2012 M&V Report
				2012	Lemon Creek Correctional Laundry	9,066	1		Juneau	Thermal Fluid Heating System					3,607						
1	83080-A	DEED	Dept. of Education Facilities	2012	MEHS Gymnasium Bldg	53,826	1	1	Sitka	Lighting Upgrades, Lighting Controls		71,041			(1,037)		\$ 8,122	\$ 327,956	ARRA Funded	Siemens	Energy & cost data from Siemens 2012 M&V Report
				2012	Sitka SJ Muesum	6,500	1		Sitka	Lighting Upgrades, Lighting Controls, Demand Controlled Ventilation		35,803									
2	83080-B: DOTPF-CR	DOT&PF-CR	DOT&PF- Central Region Facilities	2012	Palmer Vehicle Maintenance Shop	12,600	1	1	Palmer	Lighting Upgrades, Lighting Controls, Boiler Reg	43	23,790	\$ 2,498	48,846			\$ 55,389	\$ 1,290,320	ARRA Funded	Ameresco	Energy & cost data from Ameresco 2012 M&V Report
				2012	Communications Bldg	12,432	1	1	Anchorage	Lighting Upgrades, Lighting Controls, Boiler Reg	277	113,188	\$ 11,549	645							
2	83080-B: DOL&WD	DOL&WD	AVTEC Facilities	2012	AVTEC First Lake Facility	20,000	1	1	Seward	Lighting Upgrades, Lighting Control Upgrades, B	384	112,753	\$ 21,079		2,391		\$ 29,172	\$ 334,950	ARRA Funded	Ameresco	Energy & cost data from Ameresco 2012 M&V Report
2	83080-B: DF&G	DF&G	DF&G Cordova Facilities	2012	Cordova Administration Bldg	3,920	1		Cordova	High Eff. Boiler Replacment, Lighting, Upgrades, Lighting controls, DDC Upgrades, instantaneous water heater	45	11,447	\$ 3,285		684		\$ 9,471	\$ 328,374	ARRA Funded	Ameresco	Energy & cost data from Ameresco 2012 M&V Report
				2012	Cordova Bunkhouse	3,876	1		Cordova	High Eff. Boiler Replacment, Lighting, Upgrades	21	2,253	\$ 1,045		729						
2	83080-B: DNR	DNR	DNR Facilities	2012	Forestry Palmer Admin Bldg	15,678	1	1	Palmer	High Eff. Boiler Replacement, Lighting Controls, DDC system improvements, Instantaneous Hot Water Heater		6,047	\$ 574	2,732			\$ 12,797	\$ 334,950	ARRA Funded	Ameresco	Energy & cost data from Ameresco 2012 M&V Report
				2012	Forestry Palmer Warehouse Bldg	18,000	1	1	Palmer	Lighting upgrades, lighting controls, radiant heat controls, night temperature setback, unified water metering	94	18,712	\$ 2,165	1,540							
				2012	Forestry Palmer Hanger	15,000	1	1	Palmer	Lighting upgrades, lighting controls, radiant heat controls, vehicle door replacement, hanger door seal, instantaneous water heater	104	33,795	\$ 3,775	2,239							
3	83080-C: DOTPF-NR	DOT&PF-NR	DOT&PF-Northern Region Facilities	2012	Peger Road HQ Bldg	21,900	1	1	Fairbanks	Hydronic Heating System, High Eff. Motors, DDC Upgrades, Window Replacement		509,317			(10,989)		\$ 58,580	\$ 1,274,413	ARRA Funded	Siemens	Energy & cost data from Siemens 2012 M&V Report
3	83080-C: DPS	DPS	DPS Facilities	2012	Coldfoot Hanger	4,053	1		Coldfoot	Lighting Upgrades, Heating System Upgrade, Building Envelope Upgrades		5,040			1,183		\$ 7,412	\$ 326,889	ARRA Funded	Siemens	Energy & cost data from Siemens 2012 M&V Report
3	83080-C: DMVA	DMVA	DMVA Facilities	2012	Anchorage Armory	210,283	1	1	JBER	High Eff. Boiler Upgrade				33,359			\$ 27,066	\$ 669,123	ARRA Funded	Siemens	Energy & cost savings data from Siemens 2012 M&V Report
4	83080-D: DOA	DOA	DOA Facilities	2012	Atwood Bldg	338,000	1	1	Anchorage	DDC Upgrades, Stack Effect Correction				3,333			\$ 10,610	\$ 932,202	ARRA Funded	Siemens	Energy & cost savings data from Siemens 2012 M&V Report
				2012	Community Bldg	22,400	1	1	Juneau	DDC Heating System Upgrades,					2,989						
5	83080-E: DHSS	DHSS	DHSS Facilities	2012	Assets Bldg	24,310	1	1	Anchorage	High Efficiency Boiler Upgrade				2,844			\$ 8,619	\$ 351,317	ARRA Funded	Ameresco	Energy & cost savings data from Ameresco engineering data
				2012	McLaughlin Youth Center	60,705	1	1	Anchorage	Lighting and Lighting Control Upgrades		70,714									
6	PJ 54552	DOT&PF-CR	Aviation Bldg Boiler Upgrades	2012	DOTPF-CR Aviation Bldg Boilers	62,000	1	1	Anchorage	High Efficiency Boiler Upgrade, DDC Panel Upgrades, AHU O/A Damper Improvements				11,045			\$ 7,765	\$ 495,856	State Funded	Siemens	Energy & cost savings data from Siemens 2012 IGA&ESP



Energy Savings Performance Projects Completed Through DOT&PF Statewide Public Facilities

Last Updated:		December 24, 2024																			
Related ESPC RFP #	Project No.	Agency	Project Name	Year Completed	Facility(s)	Total Bldg Sq. Ft.	Total Number Bldgs Completed	Qty Bldgs > 10K Sq. Ft.	City	Project Scope	Project Energy Savings						Project Total Energy Savings (\$)	Total Project Cost (\$)	Fund Source	ESCO	Notes
											Elec kW	Elec (kWh)	Elec (\$)	Gas (CCF)	Heating Oil (Gal)	Water (kGal)					
N/A		DOC	State of Alaska: Department of Corrections Energy Savings Performance Project (Phase 2)	2009	Anchorage Correctional Center		1	1	Anchorage	Comprehensive	5,856	3,538,268		42,202	58,200	38,763	\$ 966,253	\$ 9,000,000	Financed: Siemens Financial Services	Siemens	Energy & cost savings data from Siemens Year (3) M&V Report submitted 2012
				2009	Hiland Mountain Correctional		1	1	Eagle River												
				2009	Spring Creek Correctional		1	1	Seward												
				2009	Wildwood Correctional		1	1	Kenai												
				2009	Fairbanks Correctional		1	1	Fairbanks												
				2009	Lemon Creek Correctional		1	1	Juneau												
				2009	Yukon Kuskokwim Correctional		1	1	Bethel												
				2009	Anvil Mountain Correctional		1	1	Nome												
N/A		DOT&PF/DOA	State of Alaska: Department of Administration / Department of Transportation & Public Facilities Energy Savings Performance Project (Phase 1)	2006	Dimond Courthouse		1	1	Juneau	Comprehensive	437	2,722,793		13,506	92,352	2,923	\$ 557,763	\$ 4,000,000	Financed: Key Bank	Siemens	Energy & cost savings data from Siemens Year (3) M&V report submitted 2009
				2006	Alaska Office Building		1	1	Juneau												
				2006	Court Plaza Building		1	1	Juneau												
				2006	Douglas Island Building		1	1	Juneau												
				2006	State Office Building		1	1	Juneau												
				2006	Aviation Building		1	1	Anchorage												
				2006	DOT&PF Annex Building		1	1	Anchorage												
				2006	Public Safety Building		1	1	Anchorage												

Cumulative Annual Energy Cost Savings from Energy Savings Performance Projects

Applicable Escalation Factors

Energy =>
Operations & Maintenance =>

AGENCY / PROJECT	TYPE	Year					2022	2023	2024	
		2017	2018	2019	2020	2021				
DOA/DOTPF (SOA Phase 1)	Energy	\$ 709,630	\$ 734,467	\$ 760,174	\$ 786,780	\$ 814,317	\$ 842,818	\$ 872,317	\$ 902,848	\$ 920,046 Subtotal
	Operations	\$ 14,972	\$ 15,271	\$ 15,577	\$ 15,888	\$ 16,206	\$ 16,530	\$ 16,861	\$ 17,198	
DOC (SOA Phase 2)	Energy	\$ 1,147,605	\$ 1,187,772	\$ 1,229,344	\$ 1,272,371	\$ 1,316,904	\$ 1,362,995	\$ 1,410,700	\$ 1,460,075	\$ 1,463,234 Subtotal
	Operations	\$ 2,750	\$ 2,805	\$ 2,861	\$ 2,919	\$ 2,977	\$ 3,037	\$ 3,097	\$ 3,159	
DOT&PF-SE	Energy	\$ 54,794	\$ 56,712	\$ 58,697	\$ 60,751	\$ 62,877	\$ 65,078	\$ 67,356	\$ 69,713	\$ 71,955 Subtotal
	Operations	\$ 1,952	\$ 1,991	\$ 2,031	\$ 2,071	\$ 2,113	\$ 2,155	\$ 2,198	\$ 2,242	
DOC	Energy	\$ 27,213	\$ 28,166	\$ 29,152	\$ 30,172	\$ 31,228	\$ 32,321	\$ 33,452	\$ 34,623	\$ 34,623 Subtotal
	Operations	\$ -	\$ -							
DEED - MEHS	Energy	\$ 9,646	\$ 9,984	\$ 10,333	\$ 10,695	\$ 11,069	\$ 11,457	\$ 11,858	\$ 12,273	\$ 14,558 Subtotal
	Operations	\$ 1,990	\$ 2,029	\$ 2,070	\$ 2,111	\$ 2,154	\$ 2,197	\$ 2,241	\$ 2,285	
DF&G	Energy	\$ 10,850	\$ 11,229	\$ 11,622	\$ 12,029	\$ 12,450	\$ 12,886	\$ 13,337	\$ 13,804	\$ 14,230 Subtotal
	Operations	\$ 371	\$ 378	\$ 386	\$ 394	\$ 402	\$ 410	\$ 418	\$ 426	
DOL-AVTEC	Energy	\$ 32,386	\$ 33,519	\$ 34,693	\$ 35,907	\$ 37,163	\$ 38,464	\$ 39,810	\$ 41,204	\$ 43,619 Subtotal
	Operations	\$ 2,102	\$ 2,144	\$ 2,187	\$ 2,231	\$ 2,275	\$ 2,321	\$ 2,367	\$ 2,415	
DOT-CR	Energy	\$ 64,941	\$ 67,214	\$ 69,567	\$ 72,002	\$ 74,522	\$ 77,130	\$ 79,830	\$ 82,624	\$ 83,524 Subtotal
	Operations	\$ 784	\$ 800	\$ 816	\$ 832	\$ 849	\$ 865	\$ 883	\$ 900	
DNR	Energy	\$ 14,271	\$ 14,771	\$ 15,288	\$ 15,823	\$ 16,377	\$ 16,950	\$ 17,543	\$ 18,157	\$ 19,147 Subtotal
	Operations	\$ 862	\$ 880	\$ 897	\$ 915	\$ 933	\$ 952	\$ 971	\$ 990	
DMVA	Energy	\$ 32,146	\$ 33,271	\$ 34,436	\$ 35,641	\$ 36,888	\$ 38,179	\$ 39,516	\$ 40,899	\$ 40,899 Subtotal
	Operations	\$ -	\$ -							
DPS	Energy	\$ 8,803	\$ 9,111	\$ 9,430	\$ 9,760	\$ 10,102	\$ 10,455	\$ 10,821	\$ 11,200	\$ 11,433 Subtotal
	Operations	\$ 203	\$ 207	\$ 211	\$ 216	\$ 220	\$ 224	\$ 229	\$ 233	
DOT-NR	Energy	\$ 69,575	\$ 72,010	\$ 74,530	\$ 77,139	\$ 79,839	\$ 82,633	\$ 85,525	\$ 88,518	\$ 88,518 Subtotal
	Operations	\$ -	\$ -							
DOA	Energy	\$ 12,601	\$ 13,042	\$ 13,499	\$ 13,971	\$ 14,460	\$ 14,966	\$ 15,490	\$ 16,032	\$ 16,032 Subtotal
	Operations	\$ -	\$ -							

Cumulative Annual Energy Cost Savings from Energy Savings Performance Projects

Applicable Escalation Factors

Energy =>
Operations & Maintenance =>

AGENCY / PROJECT	TYPE	Year					2022	2023	2024	
		2017	2018	2019	2020	2021				
DOT&PF Aviation Bldg Boiler Upgrades	Energy Operations	\$ 9,222 \$ -	\$ 9,545 \$ -	\$ 9,879	\$ 10,225	\$ 10,583	\$ 10,953	\$ 11,337	\$ 11,733	\$ 11,733 Subtotal
DPS Fairbanks Alaska State Trooper Bldg	Energy Operations	\$ 8,232 \$ -	\$ 8,520 \$ -	\$ 8,819	\$ 9,127	\$ 9,447	\$ 9,777	\$ 10,120	\$ 10,474	\$ 10,474 Subtotal
DEED-MEHS Upper Campus Heating Upgrades (Phase 1)	Energy Operations	\$ 150,531 \$ 48,709	\$ 155,800 \$ 49,684	\$ 161,252 \$ 50,677	\$ 166,896 \$ 51,691	\$ 172,738 \$ 52,725	\$ 178,784 \$ 53,779	\$ 185,041 \$ 54,855	\$ 191,517 \$ 55,952	\$ 247,469 Subtotal
DOC Lemon Creek SF-3 DDC Upgrades	Energy	\$ 3,052 \$ -	\$ 3,159 \$ -	\$ 3,270	\$ 3,384	\$ 3,503	\$ 3,625	\$ 3,752	\$ 3,884	\$ 3,884 Subtotal
DEED-MEHS Campus Wide Energy Upgrades (Phase 2)	Energy Operations	\$ 193,893.69 \$ 66,523.07	\$ 200,679.97 \$ 68,851.38	\$ 207,703.77 \$ 71,261.18	\$ 214,973.40 \$ 73,755.32	\$ 222,497.47 \$ 76,336.76	\$ 230,284.88 \$ 79,008.54	\$ 238,344.85 \$ 81,773.84	\$ 246,686.92 \$ 84,635.93	\$ 331,323 Subtotal
DF&G Fairbanks Regional HQ Energy Upgrades	Energy Operations	\$ 48,156.05	\$ 49,841.51	\$ 51,585.97	\$ 53,391.48	\$ 55,260.18	\$ 57,194.28	\$ 59,196.08	\$ 61,267.95	\$ 61,268 Subtotal
DOT&PF Northern Region Energy Upgrades	Energy Operations	\$ 234,915.36 \$ 43,639.58	\$ 243,137.40 \$ 44,512.37	\$ 251,647.20 \$ 45,402.62	\$ 260,454.86 \$ 46,310.67	\$ 269,570.78 \$ 47,236.88	\$ 279,005.75 \$ 48,181.62	\$ 288,770.95 \$ 49,145.25	\$ 298,877.94 \$ 50,128.16	\$ 337,916 Subtotal
DOC Spring Creek Correctional Center Energy Upgrades	Energy Operation	\$ 324,343.13 \$ 36,380.34	\$ 335,695.13 \$ 37,107.95	\$ 347,444.46 \$ 37,850.11	\$ 359,605.02 \$ 38,607.11	\$ 372,191.20 \$ 39,379.25	\$ 385,217.89 \$ 40,166.84	\$ 398,700.51 \$ 40,970.17	\$ 412,655.03 \$ 41,789.58	\$ 454,445 Subtotal
DOT&PF AAMT (Whitttier Tunnel)	Energy Operations			\$ 147,171 \$ 22,621	\$ 152,321.99 \$ 23,073.42	\$ 157,653.25 \$ 23,534.89	\$ 163,171.12 \$ 24,005.59	\$ 168,882.11 \$ 24,485.70	\$ 174,792.98 \$ 24,975.41	\$ 199,768 Subtotal
DEC Environmental Health Lab	Energy Operations				\$ 197,985 \$ 21,982	\$ 197,985 \$ 21,982	\$ 197,985 \$ 21,982	\$ 197,985 \$ 21,982	\$ 197,726 \$ 22,360	Updated from Year 2 M&V Report \$ 220,086 Subtotal
DEED APK Museum Energy Upgrades	Energy Operations						\$ 118,071 \$ 33,122	\$ 164,900 \$ 41,295	\$ 168,192 \$ 34,116	Updated from Year 2 M&V Report \$ 202,308 Subtotal
DOA/DOT&PF Fairbanks Regional Office Building	Energy Operations								\$ 12,419	Substantial Completion 2024 \$ 12,419 Subtotal
DOT&PF Central Region Street Lighting Upgrades	Energy Operations								\$ 737,385	Substantial Completion 2024 \$ 737,385 Subtotal
									\$ 5,663,387	=> 2024 Cumulative Annual Energy Cost Savings

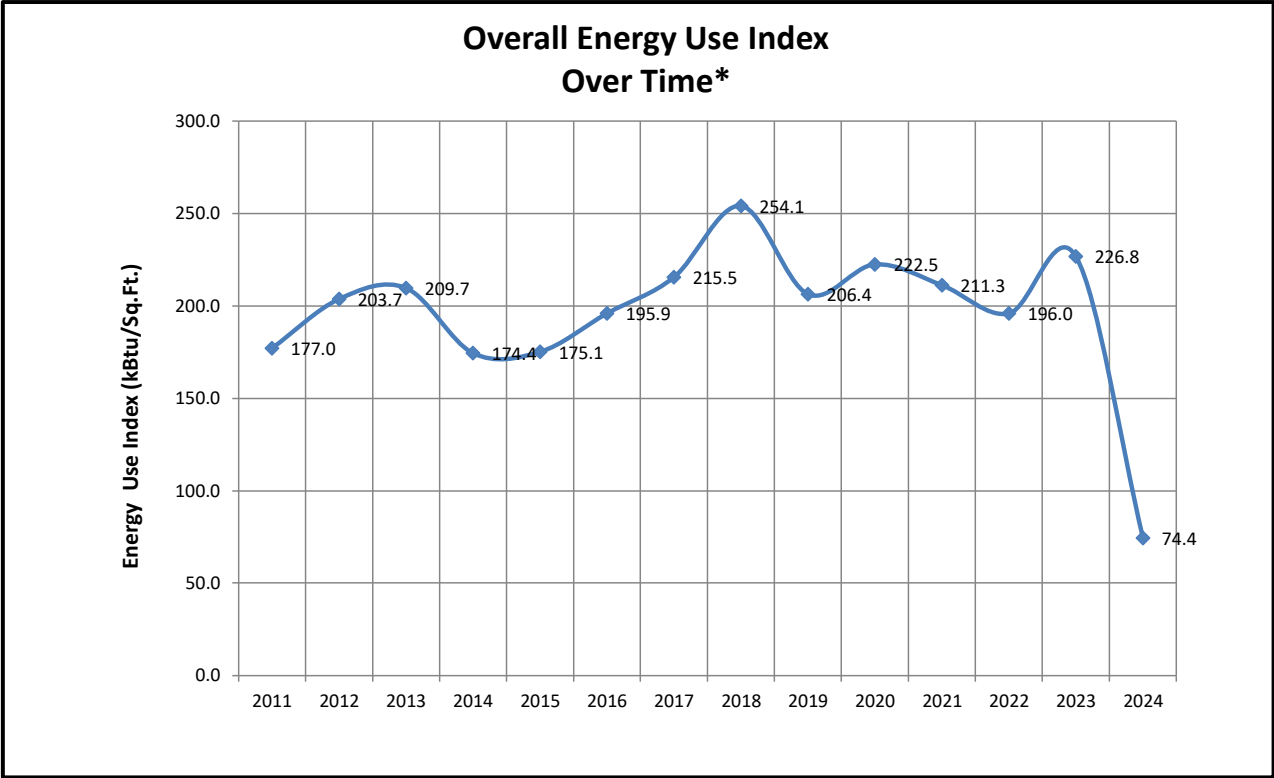
A.3: ARIS Energy Consumption & Cost Data

Summary of energy consumption and cost information entered into ARIS for State Agencies and the University of Alaska

Data is adjusted, as best as possible, to account for errors, missing information, etc.

Last Updated/Modified: December 2024

AGENCY	YEAR	SQ. FT. of FACILITIES ENTERED INTO ARIS	TOTAL ENERGY CONSUMPTION [kbtus]	ENERGY USE INDEX EUI [kbtu/S.F.]	EUI CHANGE [%]	TOTAL ENERGY COST ENTERED INTO ARIS	ENERGY COST INDEX ECI [\$ /S.F.]	ENERGY COST CHANGE [%]	ENERGY COST INDEX CHANGE [%]	NOTE:
TOTALS	2011	9,801,076	1,735,249,601	177.0		\$ 31,693,376	\$ 3.23			
TOTALS	2012	9,930,757	2,023,109,174	203.7		\$ 34,620,688	\$ 3.49	9%	8%	
TOTALS	2013	10,637,546	2,230,967,213	209.7	3%	\$ 37,919,675	\$ 3.56	10%	2%	
TOTALS	2014	14,856,588	2,591,644,406	174.4	-17%	\$ 56,938,133	\$ 3.83	50%	8%	
TOTALS	2015	13,290,792	2,327,872,455	175.1	0%	\$ 45,028,166	\$ 3.39	-21%	-12%	
TOTALS	2016	11,770,199	2,306,128,376	195.9	12%	\$ 37,016,062	\$ 3.14	-18%	-7%	
TOTALS	2017	11,136,118	2,399,849,023	215.5	10%	\$ 35,741,164	\$ 3.21	-3%	2%	
TOTALS	2018	9,896,607	2,514,878,449	254.1	18%	\$ 33,781,404	\$ 3.41	-5%	6%	
TOTALS	2019	11,329,356	2,338,374,313	206.4	-19%	\$ 38,754,406	\$ 3.42	15%	0%	
TOTALS	2020	12,532,942	2,789,051,557	222.5	8%	\$ 49,889,435	\$ 3.98	29%	16%	
TOTALS	2021	12,291,104	2,596,885,479	211.3	-5%	\$ 26,101,955	\$ 2.12	-48%	-47%	Not all 2021 data entered.
TOTALS	2022	6,861,273	1,344,593,701	196.0	-7%	\$ 23,148,868	\$ 3.37	-11%	59%	Not all 2022 data entered as of date, accounting for lower comparative total energy consumption and cost. Also removed some anomolous data from the individual data sets in ARIS.
TOTALS	2023	7,276,392	1,650,120,819	226.8	16%	\$ 29,862,616	\$ 4.10	29%	22%	Not all 2023 data entered amongst departments
TOTALS	2024	7,140,484	531,281,206	74.4	-67%	\$ 16,497,496	\$ 2.31	-45%	-44%	Not all 2024 data entered as of December 2024, which explains the decrease



*Of data reported into ARIS.