Gem State Air Quality Initiative

Priority Plan

State of Idaho

Department of Environmental Quality

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Prepared by

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Table of Contents

Tables

Figures

Abbreviations, Acronyms, and Symbols

CO_2e	Carbon dioxide equivalent
CAFO	Confined Animal Feeding Operation
CEJST	Climate and Economic Justice Screening Tool
CPRG	Climate Pollution Reduction Grant
DEQ	Idaho Department of Environmental Quality
DOE	U.S. Department of Energy
DOI	U.S. Department of Interior
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FWS	U.S. Fish and Wildlife Service
GHG	Greenhouse Gas
GSAQI	Gem State Air Quality Initiative
ICOLT	Idaho Coalition of Land Trusts
IDFG	Idaho Department of Fish and Game
IDHW	Idaho Department of Health and Welfare
IDL	Idaho Department of Lands
IRA	Inflation Reduction Act
IRS	Internal Revenue Service
ISDA	Idaho State Department of Agriculture
ISDE	Idaho State Department of Education
ITD	Idaho Transportation Department
LHTAC	Local Highway Technical Assistance Council
LIDAC	Low-Income and Disadvantaged Communities
LULUCF	Land-Use, Land-Use Change, and Forestry
MT	Metric ton
MMT	Million Metric Ton
NH_3	Ammonia
NO_x	Nitrogen Oxides
NRCS	U.S. Natural Resources Conservation Service
OEMR	Office of Energy and Mineral Resources
OSC	Office of Species Conservation
TNC	The Nature Conservancy
$PM_{2.5}$	Particulate matter with diameter less than or equal to 2.5 microns

SO_2	Sulfur Dioxide
USDA	U.S. Department of Agriculture
VOCs	Volatile Organic Compounds
$/MT	Dollars Per Metric Ton

1 Introduction

The Gem State Air Quality Initiative (GSAQI) is funded through the U.S. Environmental Protection Agency (EPA) *Climate Pollution Reduction Grant* (CPRG) Program, part of the Inflation Reduction Act (IRA), which aims to support job creation, lower energy costs for families, and deliver cleaner air in places where people live, work, play, and go to school, particularly in rural communities. The CPRG Program provides nearly $5 billion to state, municipalities, and Tribes to plan for and implement projects in their jurisdiction.

The CPRG Program is funded in two phases. The first is the planning phase that provides funds to states, Tribes, and municipalities to update existing climate, energy, or sustainability plans, or develop new plans. The second phase is the implementation phase that includes competitive implementation grants to fund measures included in priority plans developed by municipalities, states, and Tribes under the planning phase.

Idaho, with the Department of Environmental Quality (DEQ) as the lead agency, elected to receive the planning grant to ensure rural communities in Idaho would have access to funds available under the competitive implementation grant phase. With the assistance of the University of Idaho McClure Center for Public Policy Research (McClure Center), DEQ coordinated with other state agencies, local governments, nonprofits, utilities, businesses, industries, and numerous other stakeholders across Idaho to develop Idaho's Priority Plan. This plan qualifies Idaho entities to apply for federal funding to support investment in Idaho communities to reduce air pollution, create high-quality jobs, spur economic growth, and enhance the quality of life for all Idahoans.

The purpose of this plan is to ensure that all Idaho communities, regardless of size, have an opportunity to receive funding through the implementation phase of the CPRG Program. All priority measures included in this plan are non-regulatory, voluntary in nature and do not set any expectation of implementation.

This plan satisfies the EPA grant requirement for the development of a Priority Climate Action Plan and is funded wholly by the EPA under the assistance agreement 5D-02J31201. This plan includes the following elements:

- Greenhouse gas (GHG) emissions inventory
- Low-income and disadvantaged communities (LIDAC) benefits analysis
- Priority measures
  - Key implementing agencies and partners
  - Geographic scope
  - Quantification of potential GHG emission reductions
  - Quantification of potential co-pollutant emission reductions
  - Co-benefits analysis
  - Agency authority to implement
  - Implementation schedule and milestones
  - Metrics for tracking progress

  - Other funding sources
- Workforce analysis
- Coordination and engagement
  - Interagency and intergovernmental coordination
  - Public and stakeholder engagement

2 Greenhouse Gas Emissions Inventory

The GHG emissions inventory by economic sector, presented in Table 1, is from *EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State* and shows the economic sectors and includes all GHGs. Idaho's GHG emissions have had a net increase of 9.5 million metric tons (MMT) since 2000. Agriculture is the largest contributor of GHG emissions in Idaho, accounting for 40% of the total emissions, followed by the transportation sector (30%). A detailed emissions inventory is included in Appendix A.

Table 1. Idaho greenhouse gas emissions in MMT CO_2e by economic sector.

Sector	2000	2010	2021
Agriculture	11.6	13.8	16.2
Commercial	1.7	1.8	2.4
Industry	5.7	3.6	3.7
Power	0.5	1.0	2.3
Residential	1.6	1.7	2.3
Transportation	9.2	9.4	11.1
Total Emissions (Sources)	**30.2**	**31.4**	**37.8**
Land-Use, Land-Use Change, and Forestry (LULUCF) Sector Net Total	0.8	(2.3)	2.7
Net Emissions (Sources and Sinks)	**31.0**	**29.1**	**40.5**

Figure 1, also from the *EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State*, shows the trend of GHG emissions from 1990-2021. The industrial sector has decreased total GHG emissions by 17% since 1990, with the addition of new technologies and more sustainable business practices. However, most sectors have seen an increase in GHG emissions. The residential sector, commercial, transportation, and electric power sector emissions have been increasing since 1990.

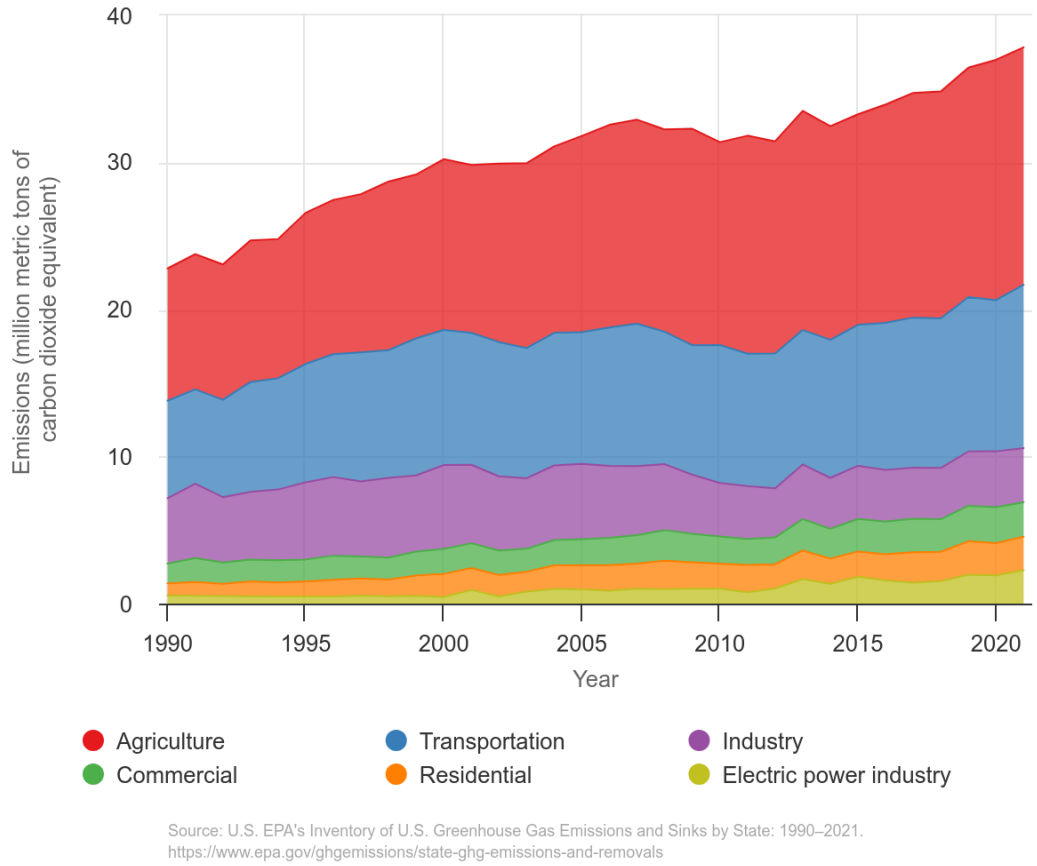

Figure 1. Idaho greenhouse gas emissions by economic sector, 1990–2021.

Natural vegetation plays an important role in the climate system by sequestering carbon from the atmosphere and storing it in biomass and soil, acting as a carbon sink. However, when the soil and plants are disturbed (e.g. fire, deforestation, stress), the stored carbon emissions can be released back into the atmosphere and act as a source of GHG emissions. Figure 2 shows that since 2015, Idaho's lands have been trending toward a source of GHG emissions rather than a sink (*EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks by State*). Enhancing carbon sequestration through healthy lands could be a tool for mitigating GHG emissions in the state.

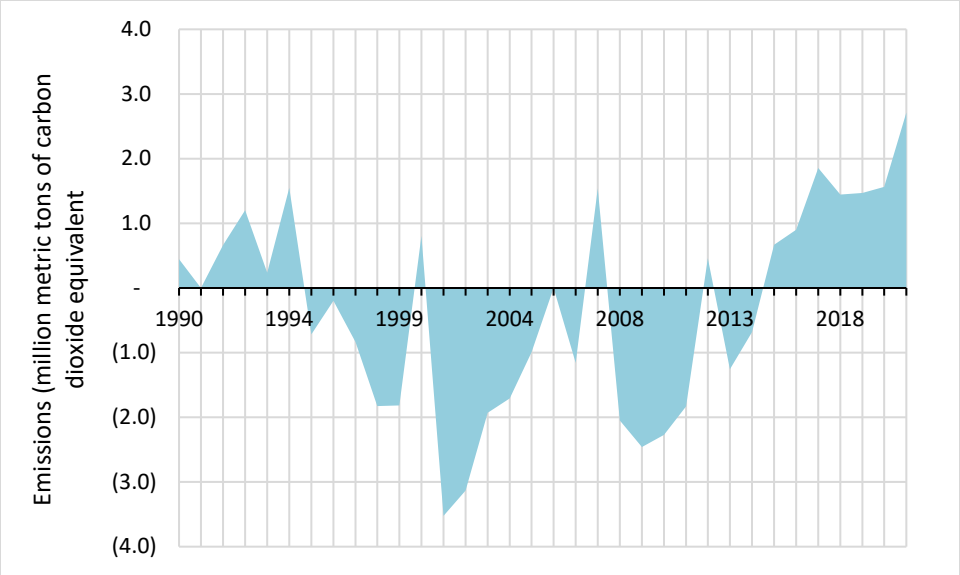

Figure 2. Idaho greenhouse gas emissions for land use, land use change, and forestry, 1990–2021.

3 Benefits to Low-Income and Disadvantaged Communities

The effects of a changing climate such as drought, extreme temperatures, and catastrophic wildfires can be realized by all Idahoans. LIDAC may not have the resources to easily adapt or recover from extreme events and may be disproportionately burdened. The priority measures outlined in this plan benefit LIDAC across all of Idaho. These benefits could be direct reductions of GHGs in LIDAC or localized co-benefits to LIDAC such as clean water and community resilience. Idaho considered the impacts of each priority measure to LIDAC in the sections that follow.

3.1 Identification of the Low-income and Disadvantaged Communities

DEQ used the following definition for LIDAC that is included in *EPA's CPRG Program Technical Reference Document Benefits Analyses: Low-Income and Disadvantaged Communities*.

- Any Census tract that is included as disadvantaged in the Climate and Economic Justice Screening Tool (CEJST); and/or
- Any Census block group that is at or above the 90th percentile for any of EJScreen's Supplemental Indexes when compared to the nation or state and/or any geographic area within Tribal lands and indigenous areas as included in EJScreen.

Figure 3 shows the areas in Idaho that meet EPA's definition for LIDAC for the purposes of the GSAQI. A detailed list of Census tracts is included in Appendix B.

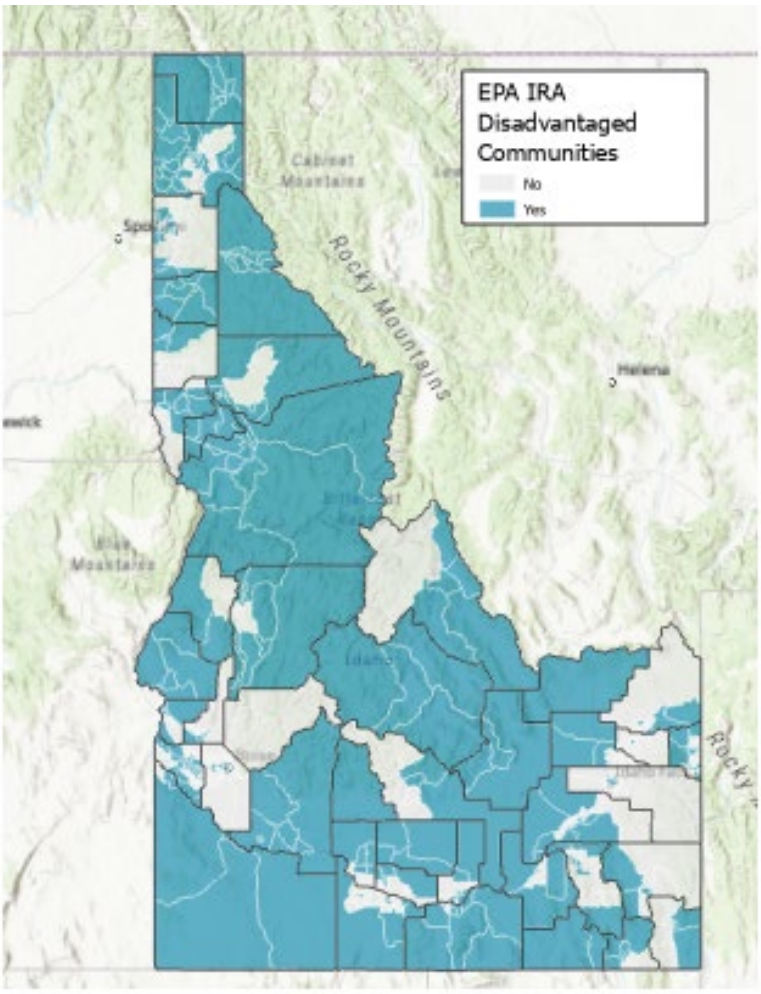

Figure 3. Low-income and disadvantaged communities, per EPA's CPRG technical reference document.

4 Priority Measures

DEQ and the McClure Center solicited project ideas for this plan from September 21 through November 8, 2023. DEQ received more than 250 submissions and developed a draft list of priority measures for inclusion in this plan. The draft list of priority measures was posted on DEQ's website for feedback from January 5 through January 19, 2024.

The measures included in this plan have been identified as "priority measures" for the purposes of pursuing funding through CPRG implementation grants. This list is not exhaustive of Idaho's priorities. The selected priority measures included in this plan meet the following criteria:

- Fit within the *EPA's Implementation Grant* criteria, including:
  - Implementation ready: The design of the program or project is complete enough so a full scope of work and budget can be included in an Implementation Grant application.
  - Can be completed, and all funds expended, within the five-year performance period of the Implementation Grant.
  - Has quantifiable GHG emission reductions or increases in sequestered carbon.
  - Additional funding is needed for the measure.
  - Targets and/or supports LIDAC.
- Align with Idaho state agency responsibilities, efforts, and priorities.
- Connect with existing programs already in progress throughout Idaho.

DEQ focused on the sectors that have experienced an increase in GHG emissions since 1990 and have substantial stakeholder support. For the purposes of the implementation phase of the CPRG Program, DEQ identified priority measures in agriculture, buildings, natural and working lands, power, transportation, and waste. Appendix C includes a description of the methodology used to estimate the potential GHG and co-pollutant emission reductions and cost-effectiveness for the priority measures.

4.1 Agriculture

4.1.1 Support the use of climate smart agriculture practices

This measure supports the adoption of climate smart agriculture practices throughout Idaho, including soil health, nitrogen management, manure and feed management for livestock, energy efficiency, and on-farm energy production, as well as other sustainable climate smart practices. This includes supporting the development of the workforce needed to carry out this measure.

Key Implementing Agencies and Partners: Idaho State Department of Agriculture (ISDA), DEQ, University of Idaho, The Nature Conservancy (TNC)

Geographic Scope: Statewide

Quantification of Potential Emission Reductions and Co-Benefits: In addition to reductions in GHG emissions shown in Table 2, adopting climate smart agriculture practices can improve water quality, reduce odors, reduce soil erosion, strengthen plant health and productivity, reduce energy use, and reduce costs.

Table 2. Climate smart agriculture potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	1,041,373						484
By 2050	6,684,560						8

LIDAC Benefits Analysis: Adopting climate smart agriculture practices can improve farm productivity, food security, household income, and enhance resilience to the impacts of climate change. This can have a positive impact on rural Idaho communities that rely on agriculture production for livelihoods. Climate smart agriculture also has the co-benefit of improving soil and water quality by more effectively using fertilizers to reduce runoff into water sources.

State Agency Authority to Implement:

- **DEQ—**Idaho Code 39-105 provides DEQ with the authority to apply for and utilize federal grants for the purposes of health and environmental protection.
- **ISDA—**Idaho Code 22-103 provides ISDA the authority to encourage and promote the interests of agriculture and promote improved methods of production, storage, sales, and marketing of agricultural industries.

Implementation Schedule and Milestones: This measure builds on existing programs which allows for implementation to be evenly spread over the 5-year period 2025-2029, with 20% of the work being completed each year.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: type and location of project, type and number of animal units associated with methane reduction project, and number of acres and crop type.

Other Funding Sources: The following funding sources have been identified as applicable to the implementation of this measure:

- DEQ—Idaho Confined Animal Feeding Operations (CAFO) Improvement Program
- DEQ—Idaho State Agricultural Best Management Practices Grant Program
- EPA—§319 Nonpoint Source Management Program
- Natural Resources Conservation Service (NRCS)—Agricultural Conservation Easement Program
- NRCS—Conservation Stewardship Program
- NRCS—Environmental Quality Incentives Program
- NRCS—Regional Conservation Partnership Program
- U.S. Department of Agriculture (USDA)—Biofuel Infrastructure and Agriculture Product Market Expansion (Higher Blend Infrastructure Incentive Program)
- USDA—Partnerships for Climate-Smart Commodities
- USDA—Rural Energy for America Program

4.2 Buildings

4.2.1 Support energy efficiency improvements in buildings throughout Idaho

Idaho has several programs that focus on improving energy efficiency in buildings, but the demand is far higher than current funding. This measure aims to address those gaps in funding by supporting programs that improve building energy efficiency throughout Idaho. Approaches can include, but are not limited to, weatherization, lighting retrofits, appliances, thermostats, and heating and cooling equipment. This includes supporting the development of the workforce needed to carry out this measure.

Key Implementing Agencies and Partners: DEQ, Office of Energy and Mineral Resources (OEMR), Idaho State Department of Education (ISDE), local governments

Geographic Scope: Statewide

Quantification of Potential Emission Reductions and Co-Benefits: In addition to reductions in GHG and co-pollutant emissions shown in Table 3, other benefits can include lower overall energy demand, energy cost savings, decreased water use, improved air quality, workforce development, and job creation.

Table 3. Energy efficiency improvements in buildings potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	271,886	77	48	3	0.50	0.88	331
By 2050	1,135,231	1,310	957	46	8	14	79

LIDAC Benefits Analysis: Improving energy efficiency in buildings can reduce energy cost, improve indoor and outdoor air quality leading to public health benefits, improve comfort and safety in cold and hot seasons, increase resiliency during wildfire smoke events, increase property value, and provide jobs.

State Agency Authority to Implement:

- **DEQ—** Idaho Code 39-105 provides DEQ with the authority to apply for and utilize federal grants for the purposes of health and environmental protection.
- **OEMR—**Executive Order No. 2020-17 provides OEMR with the authority to apply for and utilize federal grants.
- **ISDE—**As an executive agency under the State Board of Education, Idaho Code 33-110 provides the Department of Education with the authority to apply for and utilize federal grants.

Implementation Schedule and Milestones: This measure builds on existing programs which allows for implementation to be evenly spread over the 5-year period 2025-2029, with 20% of the work being completed each year.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: number, location, and type of buildings; heating and cooling conversion type; and efficiency strategies deployed in each building (e.g., appliances, windows, doors, lighting, insulation).

Other Funding Sources: The following funding sources have been identified as applicable to the implementation of this measure:

- DEQ—Woodstove Changeout Program
- U.S. Department of Energy (DOE)—Weatherization Assistance Program
- DOE—Energy Efficiency and Conservation Block Grant Program
- DOE—Home Energy Performance Based Whole-House Rebate
- DOE—High-Efficiency Electric Home Rebate Program
- DOE—Renew America's Schools Program
- Idaho Power—Heating and Cooling Efficiency Program
- Internal Revenue Service (IRS)—Energy Efficient Home Improvement Federal Tax Credit
- Intermountain Gas Company—Energy Efficiency Program
- IRS – Residential Clean Energy Federal Tax Credit
- IRS—Energy Efficient Commercial Buildings Federal Tax Deduction
- OEMR—Government Leading by Example Program
- USDA—Rural Energy for America Program Renewable Energy Systems & Energy Efficiency Improvement Guaranteed Loans & Grants

4.3 Natural and Working Lands

4.3.1 Support healthy lands through sustainable land management to manage wildfire risk, disease, and pest mitigation

This measure supports sustainable forest management practices and climate smart forestry, including vegetation management, low impact timber harvesting equipment, longer timber rotations, thinning, replanting understocked forests, alternatives to pile burning, and biochar utilization and other sustainable practices to manage for wildfire risk, disease, and pest mitigation statewide. This includes supporting the workforce development needed to carry out this measure.

Key Implementing Agencies and Partners: DEQ, Idaho Department of Lands (IDL), Idaho Department of Fish and Game (IDFG)

Geographic Scope: Statewide

Quantification of Potential Emission Reductions and Co-benefits: In addition to reductions in GHG emissions and enhancing the carbon sequestered shown in Table 4, this measure can improve forest resiliency, reduce the impact of catastrophic wildfires, improve soil quality, and reduce wildfire smoke impacts to downwind communities.

Table 4. Sustainable land management potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	3,538-7,076						848-1,413
By 2050	21,228-42,455						141-235.54

LIDAC Benefits Analysis: Maintaining healthy resilient forests can lead to more resilient rural communities by reducing the risk of wildfire and other natural disasters. Healthy working forests also impact the economy and create jobs in rural areas, many of which are considered LIDAC.

State Agency Authority to Implement:

- **DEQ—**Idaho Code 39-105 provides DEQ with the authority to apply for and utilize federal grants for the purposes of health and environmental protection.
- **IDL—**Idaho Code 58-104.5 provides IDL with the authority to implement this measure, specifically to determine the policy, direct the work to be undertaken, solicit bids, contract for work to be performed, and appropriate from its funds the money necessary to carry out such work.
- **IDFG—**The Idaho Fish and Game Commission administers state wildlife policy through IDFG, including land acquisition and management for the purposes of game, bird, fish, or fur-bearing animal restoration, propagation, or protection; and for public hunting, fishing, or trapping areas to provide places where the public may fish, hunt, or trap (Idaho Code 36-104 (b)9).

Implementation Schedule and Milestones: This measure builds on existing programs which allows for implementation to be evenly spread over the 5-year period 2025-2029, with 20% of the work being completed each year.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: acres, land types, and management methods.

Other Funding Sources: The following funding sources have been identified as applicable to the implementation of this measure:

- EPA—Environmental and Climate Justice Block Grants—Change Grants
- Department of Interior (DOI)—Wildfire Management
- NRCS—Conservation Stewardship Program
- USDA—Landscape Scale Restoration Landowner Assistance Program
- USDA—Supporting Underserved and Small-Acreage Forest Landowners Participation in Emerging Private Markets
- USDA—Urban and Community Forestry Assistance Program
- USDA—Forest Legacy Program
- USDA—Joint Chiefs Landscape Restoration Partnership Program
- USDA—Reforestation Trust Fund

- USDA—Collaborative Forest Landscape Restoration Program
- USDA/DOI—Good Neighbor Authority
- USDA—Collaborative Wildfire Risk Reduction Program
- USDA—Hazardous Fuels Reduction Projects in Wildland Urban Interface

4.3.2 Support conservation and restoration of Idaho's lands

This measure supports habitat restoration and conservation to increase carbon sequestration, prevent land degradation, and promote healthy lands across Idaho. This includes funding for due diligence costs to remove barriers for conservation easements for existing land acquisition programs and investing in existing habitat management programs to protect, restore, and ensure management encourages carbon sequestration on prioritized lands. This includes supporting the development of the workforce needed to carry out this measure.

Key Implementing Agencies and Partners: IDL, IDFG, DEQ, Idaho Coalition of Land Trusts (ICOLT)

Geographic Scope: Statewide

Quantification of Potential Emission Reductions and Co-Benefits: In addition to reductions in GHG emissions and increases in carbon sequestered shown in Table 5, other benefits include improved resiliency, air and water quality, soil health, flood control, and drought mitigation.

Table 5. Land conservation and restoration potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	5,430-10,861	36	13	22			276-552
By 2050	32,583- 65,167	180	54	96			46-92

LIDAC Benefits Analysis: Habitat restoration projects can create jobs, increase habitat resiliency to extreme weather, and increase recreational opportunities. Enhancing recreational opportunities may also boost economies of nearby communities. Restoring habitats can improve water quality for downstream communities.

State Agency Authority to Implement:

- **DEQ—**Idaho Code 39-105 provides DEQ with the authority to apply for and utilize federal grants for the purposes of health and environmental protection.
- **IDFG—**The Idaho Fish and Game Commission administers state wildlife policy through the Department, including land acquisition and management for the purposes of game, bird, fish, or fur-bearing animal restoration, propagation, or protection; and for public hunting, fishing, or trapping areas to provide places where the public may fish, hunt, or trap (Idaho Code 36-104 (b) 9). Idaho code 36-104(7) provides the Idaho Fish and Game Commission with the authority to acquire lands and conservation easements.
- **IDL—**Idaho Code 58-104.5 provides IDL with the authority to implement this measure, specifically to determine the policy, direct the work to be undertaken, solicit bids,

contract for work to be performed, and appropriate from its funds the money necessary to carry out such work.

Implementation Schedule and Milestones: This measure builds on existing programs which allows for implementation to be evenly spread over the 5-year period 2025-2029, with 20% of the work being completed each year.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: acres restored and conserved, land type, number and type of plants, and sustainable land management practices utilized.

Other Funding Sources: The following funding sources have been identified as applicable to the implementation of this measure:

- DOI—Land and Water Conservation Fund
- NRCS—Agricultural Conservation Easement Program
- NRCS—Conservation Stewardship Program
- U.S. Fish and Wildlife Service (FWS)—Recovery Land Acquisition Grants

4.3.3 Support community forestry, greenspaces, and urban gardens

This measure supports community greenspace programs for small scale community-based native urban gardens, greenspaces, and tree planting to optimize carbon sequestration and canopy cover. This includes supporting the development of the workforce needed to carry out this measure.

Key Implementing Agencies and Partners: DEQ, IDL, local governments

Geographic Scope: Statewide

Quantification of Potential Emission Reductions and Co-benefits: In addition to reductions in GHG and co-pollutant emissions shown in Table 6, urban gardens and greenspaces offer a variety of benefits to communities and residents such as positive impacts on mental health, a place for outdoor recreation and beautification, reduced cooling cost, reduced urban heat island effect, improved air quality, stormwater management, reduced noise pollution, wind moderation, and enhanced wildlife habitat.

Table 6. Community forestry and community garden potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	3.9	6.22	15.13	5.84			133,518
By 2050	8.3	10.86	26.43	10.20			62,406

LIDAC Benefits Analysis: This measure can enhance infrastructure, storm buffers, and stormwater mitigation. This measure also can support cost-effective energy conservation through strategic tree planting efforts. Greenspaces can provide access to open spaces and the

corresponding physical and mental health benefits. This measure also creates jobs to maintain these spaces.

State Agency Authority to Implement:

- **DEQ—**Idaho Code 39-105 provides DEQ with the authority to apply for and utilize federal grants for the purposes of health and environmental protection.
- **IDL—**Idaho Code 58-104.5 provides IDL with the authority to implement this measure, specifically to determine the policy, direct the work to be undertaken, solicit bids, contract for work to be performed, and appropriate from its funds the money necessary to carry out such work.

Implementation Schedule and Milestones: This measure builds on existing programs which allows for implementation to be evenly spread over the 5-year period 2025-2029, with 20% of the work being completed each year.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: location, proximity to LIDAC and community spaces, number and type of plants, and canopy cover.

Other Funding Sources: The following funding sources have been identified as applicable to the implementation of this measure:

- USDA—Urban and Community Forestry Assistance Program

4.4 Power

4.4.1 Support the adoption of solar energy

This measure supports the adoption of solar and/or solar and storage at locations throughout Idaho to reduce energy costs and provide resilience in case of an electric grid outage. This includes supporting the development of the workforce needed to carry out this measure.

Key Implementing Agencies and Partners: DEQ, OEMR, Idaho Parks and Recreation, local governments

Geographic Scope: Statewide

Quantification of Potential Emission Reductions and Co-Benefits: In addition to reductions in GHG and co-pollutant emissions shown in Table 7, increasing the use of solar can reduce energy costs, improve air quality leading to public health benefits, increase resiliency of power systems, provide predictable power for first responders and critical services in rural areas, and create jobs.

Table 7. Solar energy potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	80,309	11	6	1.24	0.37	0.37	809
By 2050	527,599	267	148	29.20	8.76	8.67	123

LIDAC Benefits Analysis: Implementing this measure can improve air quality and public health. Implementation of this measure can also reduce energy costs, allowing commercial and government entities to redirect funding spent on energy to provide additional services to communities.

State Agency Authority to Implement:

- **DEQ—**Idaho Code 39-105 provides DEQ with the authority to apply for and utilize federal grants for the purposes of health and environmental protection.
- **OEMR—**Executive Order No. 2020-17 provides OEMR with the authority to apply for and utilize federal grants.

Implementation Schedule and Milestones: There are no programs that can be built upon for this measure. The first year will be program development with the remaining 4 years implementing the program.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: number of facilities installing renewable energy and storage, size of systems, capacity of batteries, expected lifespans of projects, number of performance years to quantify lifetime pollution reductions, and percentage of systems installed in LIDAC.

Other Funding Sources: The following funding sources have been identified as applicable to the implementation of this measure:

- DOE—Energy Efficiency and Conservation Block Grant
- EPA—U.S. EPA Solar for All
- Idaho Power—Solar 4R Schools
- Idaho Tax Commission—Residential Alternative Energy Idaho Tax Deduction
- IRS—Solar Panel Federal Tax Credit
- OEMR—Idaho State Energy Loan Program
- USDA—Rural Energy for America Program Renewable Energy Systems & Energy Efficiency Improvement Guaranteed Loans & Grants
- USDA—Electric Loans for Renewable Energy
- U.S. Federal Emergency Management Agency—Building Resilient Infrastructure and Communities

4.4.2 Support the adoption of geothermal as a heat source

This measure supports the conversion of buildings and facilities heating to geothermal, as well as supporting the development of the workforce needed to carry out this measure.

Key Implementing Agencies and Partners: DEQ, OEMR, local governments

Geographic Scope: Statewide

Quantification of Potential Emission Reductions and Co-Benefits: In addition to reductions in GHG and co-pollutant emissions shown in Table 8, geothermal provides a stable and predictable renewable heating source, requires little maintenance, reduces costs, and creates jobs.

Table 8. Geothermal energy potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	8,447	16	0.01	0.18		0.13	1,276
By 2050	64,757	3576	0.33	4		3.	167

LIDAC Benefits Analysis: Converting buildings to geothermal heat can improve air quality and increase resiliency of heating and cooling systems in buildings.

State Agency Authority to Implement:

- **OEMR—**Executive Order No. 2020-17 provides OEMR with the authority to apply for and utilize federal grants.
- **DEQ—**Idaho Code 39-105 provides DEQ with the authority to apply for and utilize federal grants for the purposes of health and environmental protection.

Implementation Schedule and Milestones: There are no programs that can be built upon for this measure. The first year will be program development with the remaining 4 years implementing the program.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: heating demand from expanded or converted systems.

Other Funding Sources: The following funding sources have been identified as applicable to the implementation of this measure:

- DOE—Energy Efficiency and Conservation Block Grant Program

4.4.3 Support the transition of small equipment to cleaner fuels

This measure supports the voluntary transition of small equipment and motors to cleaner fuels. Examples include, but are not limited to, the conversion to solar generators, conversion to electric lawn and garden equipment. This includes the development of the workforce needed to carry out this measure.

Key Implementing Agencies and Partners: DEQ, local governments

Geographic Scope: Statewide

Quantification of Potential Emission Reductions and Co-Benefits: In addition to reductions in GHG and co-pollutant emissions shown in Table 9, the conversion to electric equipment and small motors can improve air quality and lower energy and maintenance costs.

Table 9. Clean energy for small equipment potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	2,190	1.48	0.01	0.02	0.01	0.00	2,793
By 2050	9,174	16	0.17	0.19	0.06	0.01	667

LIDAC Benefits Analysis: Supporting the transition of small equipment to clean energy can improve air quality, reduce noise pollution, and reduce inhalation of pollutants associated with gas and diesel motors.

State Agency Authority to Implement:

- **DEQ:** Idaho Code 39-105 provides DEQ with the authority to apply for and utilize federal grants for the purposes of health and environmental protection.

Implementation Schedule and Milestones: There are no programs that can be built upon for this measure. The first year will be program development with the remaining 4 years implementing the program.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: number and types of devices converted.

Other Funding Sources: No other funding sources have been identified as applicable to the implementation of this measure.

4.5 Transportation

4.5.1 Support sustainable transportation networks

This measure supports the development of sustainable transportation networks throughout Idaho. This includes projects that support public transit, active transportation, and traffic flow improvement, as well as the development of the workforce needed to implement this measure. Examples include, but are not limited to, expanding and improving bike and pedestrian infrastructure; expanding access to biking as an alternative transportation method; and improving traffic signal coordination and synchronization.

Key Implementing Agencies and Partners: DEQ, Idaho Transportation Department (ITD), Local Highway Technical Assistance Council (LHTAC), local governments metropolitan planning organizations

Geographic Scope: Statewide

Quantification of Potential Emission Reductions and Co-Benefits: In addition to reductions in GHG and co-pollutant emissions shown in Table 10, supporting sustainable transportation networks can reduce traffic congestion; remove barriers to accessing healthy transportation options such as public transport, biking, and walking; reduce maintenance and fuel costs; and reduce noise pollution.

Table 10. Sustainable transportation networks potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	18,320	15.1		0.2			1,232
By 2050	133,482	110.6		1.2			

LIDAC Benefits Analysis: Supporting sustainable transportation networks can improve air quality; reduce traffic congestion; remove barriers to accessing healthy transportation options such as public transport, biking, and walking; reduce maintenance and fuel costs; and reduce noise pollution.

State Agency Authority to Implement:

- **DEQ**—Idaho Code 39-105 provides DEQ with the authority to apply for and utilize federal grants for the purposes of health and environmental protection.
- **ITD—**Idaho Code 40-702 and 40-707 provide ITD with the authority to implement this measure.

Implementation Schedule and Milestones: This measure builds on existing programs which allows for implementation to be evenly spread over the 5-year period 2025-2029, with 20% of the work being completed each year.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: number and location of e-bike/e-scooter incentives issued; miles and location of bike and pedestrian paths developed; number and location of buses and fuel type replaced; number, location, and fuel type of new public transit services; and type and location of traffic flow projects.

Other Funding Sources: The following funding sources have been identified as applicable to the implementation of this measure:

- U.S. Department of Transportation (DOT)—Active Transportation Infrastructure Investment Program
- DOT—Safe Streets and Roads for All
- DOT—Neighborhood Access and Equity Grant Program
- DOT—Local and Regional Project Assistance Grants
- DOT—Rebuilding American Infrastructure with Sustainability and Equity discretionary grant program
- Federal Highway Administration (FHWA)—Transportation Alternatives Set-Aside from the Surface Transportation Block Grant

- Federal Transit Administration (FTA)—Grants for Buses and Bus Facilities Formula Program – 5339(a)
- FTA—Grants for Buses and Bus Facilities Competitive Program – 5339(b)
- FTA—Low or No Emission Grant Program – 5339(c)

4.5.2 Support the transition to sustainable cleaner fuels

This measure supports private and public entities and individuals to transition their vehicles to cleaner fuels such as biodiesel, electricity, ethanol, hydrogen, natural gas, and propane. This includes light-, medium-, and heavy-duty vehicles and those that are flexible-fuel, dual-fuel, and hybrid and use fuel cells and idle mitigation technology. This measure also supports the installation of clean fuel infrastructure for the use by Idahoans, private companies, and governments, as well as the development of the workforce needed to carry out this measure.

Key Implementing Agency: DEQ, OEMR, ITD, LHTAC, local governments

Geographic Scope: Statewide

Quantification of Potential Emission Reductions and Co-Benefits: In addition to reductions in GHG and co-pollutant emissions shown in Table 11, this measure can reduce noise pollution, fuel costs, and maintenance costs.

Table 11. Clean fuel transition potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	13,020	24		0.5			1,015
By 2050	98,626	186		4.1			

LIDAC Benefits Analysis: Supporting the transition to cleaner fuels can improve air quality and reduce maintenance and fuel costs and noise pollution.

State Agency Authority to Implement:

- **DEQ—**Idaho Code 39-105 provides DEQ with the authority to apply for and utilize federal grants for the purposes of health and environmental protection.
- **OEMR—**Executive Order No. 2020-17 provides OEMR with the authority to support or implement this measure.
- **ITD—**Idaho Code 40-702 and 40-707 provide ITD with the authority to implement this measure.

Implementation Schedule and Milestones: This measure builds on existing programs which allows for implementation to be evenly spread over the 5-year period 2025-2029, with 20% of the work being completed each year.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: type, age, and fuel of existing vehicles; fuel of new vehicles; location of projects;

number and type of fuel infrastructure; location of new infrastructure; and intended use (public or private).

Other Funding Sources: The following funding sources have been identified as applicable to the implementation of this measure:

- DOE—Energy Efficiency and Conservation Block Grant
- EPA—Clean Heavy-Duty Vehicle Program
- EPA—Diesel Emissions Reduction Act
- IRS—Commercial Clean Vehicle Federal Tax Credit
- IRS—Qualified Clean Vehicle Federal Tax Credit
- IRS—Used Clean Vehicle Federal Tax Credit
- IRS—New and Pre-Owned Plug-In Electric Vehicle Federal Tax Credits.
- IRS—Alternative Fuel Vehicle Refueling Property Federal Tax Credit

4.5.3 Install a truck to rail transload facility in Southeast Idaho

The City of Pocatello proposes to significantly reduce GHG emissions from heavy-duty vehicles by installing a truck to rail transload station on City-owned property located south of the Pocatello Regional Airport. This location would align with existing Union Pacific Railroad rail lines and allow for trucks to transfer freight to rail service and more efficiently move goods. The Pocatello Truck-Rail Transload Facility Project can address the cross-sector goals of reducing GHG emissions by serving as a multi-modal system to improve freight capacity and truck traffic on Interstate 86 (I-86) and Interstate 15 (I-15). Further, the transload facility can remove the need for freight to travel by truck through Pocatello via US-30 and other local roads. The site can also provide future capacity for potential air to rail transloading and expand existing options in the Northwest. The measure also supports related workforce development.

Key Implementing Agencies and Partners: City of Pocatello

Geographic Scope: Bannock and Power Counties

Quantification of Potential Emission Reductions and Co-Benefits: In addition to reductions in GHG emissions shown in Table 12, this measure can reduce heavy-duty truck traffic on highways and interstates and improve air quality.

Table 12. Southeast Idaho truck to rail transload facility potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	1,992,156						90
By 2050	18,593,453						

LIDAC Benefits Analysis: Implementing this measure can improve air quality, reduce diesel PM, reduce congestion, and reduce noise pollution.

Authority to Implement:

- **City of Pocatello—**The City owns the property and is a municipal corporation (local government entity) which is an allowable entity to apply for federal grants and conduct work.

Implementation Schedule and Milestones: This project will be initiated in 2025 and completed in 2029.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: number of trucks transferring loads to rail.

Other Funding Sources: The following funding sources have been identified as applicable to the implementation of this measure:

- DOT—Rebuilding American Infrastructure with Sustainability and Equity
- DOT—Nationally Significant Multimodal Freight & Highway Projects Program
- DOT—National Infrastructure Project Assistance Program
- DOT—Rural Surface Transportation Grant Program
- DOT—Federal Freight Formula Funds
- Federal Railroad Administration (FRA)—Consolidated Rail Infrastructure as Safety Improvements

4.6 Waste Sector

4.6.1 Support diversion of waste from landfills

This measure supports cities and counties to develop or expand recycling, composting, and other waste diversion programs, as well as the workforce development needed to carry out this measure.

Key Implementing Agencies and Partners: DEQ, local governments

Geographic Scope: Statewide

Quantification of Potential Emission Reductions and Co-benefits: In addition to reductions in GHG emissions shown in Table 13, other benefits can include reduced amount of waste entering landfill, extended life of the landfill, improved air quality, improved soil health, enhanced community resilience, workforce development, and job creation.

Table 13. Waste diversion potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	124,950						32
By 2050	124,950						32

LIDAC Benefits Analysis: Expanding existing or creating new recycling and composting programs can support communities. Increasing composting options for yard waste can reduce unhealthy air pollution and smoke from open burning of yard waste. Compost created from the new programs can be available to the community to increase soil health and enhance community resilience.

State Agency Authority to Implement:

- **DEQ—**Idaho Code 39-105 provides DEQ with the authority to apply for and utilize federal grants for the purposes of health and environmental protection.

Implementation Schedule and Milestones: There are no programs that can be built upon for this measure. The first year will be program development with the remaining 4 years implementing the program.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: scope of new or expanding waste diversion programs, amount and type of waste diverted.

Other Funding Sources: The following funding sources have been identified as applicable to the implementation of this measure:

- EPA—Consumer Recycling Education and Outreach Grant Program
- EPA—Wastewater Efficiency Grant Pilot Program
- IRS—Renewable Electricity Production Federal Tax Credit
- USDA—Compost and Food Waste Reduction Cooperative Agreements

4.6.2 Support landfill gas collection

This measure supports the installation of landfill gas capture systems at municipal and private landfills if not federally required, as well as the development of the workforce needed to carry out this measure.

Key Implementing Agencies and Partners: DEQ, local governments

Geographic Scope: Statewide

Quantification of Potential Emission Reductions and Co-benefits: In addition to reductions in GHG emissions shown in Table 14, landfill gas capture can reduce odors, improve air quality, and return energy to the grid.

Table 14. Landfill gas collection potential emission reductions (MT) and cost effectiveness ($/MT CO_2e reduced).

Year	CO_2e	NO_x	SO_2	$PM_{2.5}$	NH_3	VOCs	$/MT
By 2030	741, 037						68
By 2050	3,293,498						15

LIDAC Benefits Analysis: Landfill gas recovery can reduce odors and other hazards to nearby communities. Energy production from landfill gas can replace the use of using non-renewable resources for fuel for the same amount of energy; this also reduces criteria pollutants and hazardous air pollutants from combusting coal or oil. Energy projects from landfill gas capture can also create jobs and revenue from energy sales. Communities can experience cost savings from using landfill gas energy compared to using more expensive fossil fuels.

State Agency Authority to Implement:

- **DEQ—**Idaho Code 39-105 provides DEQ with the authority to apply for and utilize federal grants for the purposes of health and environmental protection.

Implementation Schedule and Milestones: There are no programs that can be built upon for this measure. The first year will be program development with the remaining 4 years implementing the program.

Metrics for Tracking Progress: The following information can be used to track progress of this measure: total tons of waste that incorporate landfill gas capture and percentage used for energy generation.

Other Funding Sources: The following funding sources have been identified as applicable to the implementation of this measure:

- DOE—Waste-to-Energy Technical Assistance for Local Governments
- USDA—Solid Waste Management Grants

5 Workforce Analysis

The priority measures included in this plan can potentially result in the creation of high-quality jobs for Idahoans. DEQ estimates a potential of 2,156 new jobs will be added to Idaho's economy by 2030. Table 15 shows these potential new jobs by sector.

Table 15. Estimated potential new jobs created from implementing priority measures.

Sector	Statewide Workforce Impacts	LIDAC Workforce Impacts
Agriculture	192	77
Building	316	126
Natural and Working Lands	32	13
Power	359	136
Transportation	86	35
Transportation- Municipality Specific	961	560
Waste	210	84
Grand Total	**2156**	**1031[a]**

a. Assumes 40% of the benefits impact LIDAC.

6 Coordination and Engagement

This section describes the approach DEQ and the McClure Center used to support meaningful engagement strategies and comprehensive stakeholder representation and participation. Due to the short time frame for the development of this plan, DEQ and the McClure Center relied on online methods such as DEQ's GSAQI website, a listserv, and DEQ GSAQI email.

DEQ and the McClure Center hosted a hybrid kickoff meeting on October 19, 2023. A hybrid approach was essential to allow for participation from across the state. Approximately 30 people attended in person and 75 joined online. The in-person venue, The Riverside Hotel in Boise, was selected as a prime location with ample free parking. This kickoff meeting was publicized using email invitations to all agency directors, Idaho legislators, and general stakeholders listed in Section 6.1 below; posting on *DEQ's GSAQI website*; posting on *Townhall Idaho website*; posting in the University of Idaho Extension newsletter, and posting in the Association of Idaho Cities and the Idaho Association of Counties newsletters. In addition to the hybrid kickoff meeting, DEQ and the McClure Center met with stakeholders and the public throughout the development of Idaho's Priority Plan.

All stakeholders were encouraged to submit ideas related to measures and projects they wanted to see included in Idaho's Priority Plan. Over 250 ideas were submitted and ultimately shaped the measures included in this plan.

On January 5, 2024, DEQ shared the draft measures for Idaho's Priority Plan via the GSAQI website, GSAQI listserv, and direct communication to eligible entities. Feedback on the draft measures was encouraged, with a deadline of January 19, 2024. DEQ and the McClure Center received and responded to feedback provided.

6.1 Stakeholder Identification

DEQ and the McClure Center initially identified representatives of entities, groups and individuals who may be interested in and/or impacted by the development of Idaho's Priority

Plan. This list was expanded as additional stakeholders signed up for the GSAQI listserv or otherwise notified DEQ and the McClure Center. Stakeholders included, but were not limited to, the following:

- Governor's office
- Tribal governments
- State agencies
- State commissions and associations
- Legislators
- Counties
- Cities
- School districts
- Highway districts
- Metropolitan planning organizations
- Economic development organizations
- Industrial associations and organizations
- Utilities
- Businesses
- Agricultural associations
- Waste management organizations
- Environmental organizations
- Healthcare organizations
- Community-based organizations
- Non-profit and non-governmental organizations
- Universities
- University of Idaho Extension offices
- Chambers of commerce
- Other interested organizations and individuals

6.2 Interagency and Intergovernmental Coordination

DEQ, in coordination with the McClure Center, led collaboration and coordination with state agencies. DEQ met monthly with OEMR and ITD. Throughout the development of this plan, DEQ and the McClure Center also met with the ISDA, ISDE, IDFG, Idaho Department of Health and Welfare (IDHW), Idaho Department of Labor (IDOL), IDL, Idaho Governor's Office of Species Conservation (OSC), and the Idaho Workforce Development Council.

Agency partners were essential in sharing and publicizing the GSAQI with other entities. DEQ and the McClure Center briefed the Governor's office throughout priority plan development and provided the Governor's office and agency directors with a formal update and discussion on the final measures included in Idaho's Priority Plan. DEQ and the McClure Center held over 30 conversations and meetings with agency partners throughout the development of this plan.

DEQ and the McClure Center reached out to Idaho cities and counties through a variety of methods, including regular communications in the Association of Idaho Cities and the Idaho Association of Counties newsletters. The McClure Center and DEQ convened meetings and held conversations throughout the development of this plan, with frequency and size tailored to the requests of communities and entities. Information gathered during these meetings informed Idaho's Priority Plan and voluntary measures included.

6.3 Public and Community Engagement

The McClure Center, in coordination with DEQ, led public and community engagement. The McClure Center built on the relationships developed during the Idaho Climate-Economy Impacts Assessment. In addition, the McClure Center developed a contact list of Idaho organizations whose work intersects with air quality, with input provided by DEQ. List development included a snowball approach with new entities and people continually added to the list. The McClure Center relied on organization and association leads to share GSAQI information with their networks. DEQ and the McClure Center engaged with these groups through the kickoff meeting as well as separate online and in-person meetings as requested.

6.4 Activities and Materials

To ensure accessibility of resources and information, DEQ, in coordination with the McClure Center developed many online materials, including the following:

- Webpage for the GSAQI: *www.deq.idaho.gov/gsaqi*.
- Online form for submitting ideas for Idaho's Priority Plan.
- Email for questions/comments/ideas: *gsaqi@deq.idaho.gov*.
- Option to join a listserv for updates related to GSAQI.
- Registration for the hybrid kickoff meeting, in-person or online.
- Flyer for the hybrid kickoff meeting.
- One-page overview of the GSAQI.
- Recording of the hybrid kickoff meeting and slides used during the hybrid kickoff meeting posted on the GSAQI website.

Table 16. shows the timeline of the outreach activities DEQ and the McClure Center undertook during the development of Idaho's Priority Plan.

Table 16. Coordination and engagement timeline.

Month	Main Activities
September 2023	Developed outreach plan and identified stakeholders, created website, launched registration for hybrid kickoff meeting, developed and launched online idea form to gather ideas, sent invitations for hybrid kickoff meeting and ideas, met with various groups, and developed additional materials.
October 2023	Held hybrid kickoff meeting (10/19/23), held additional agency, one-on-one, and small group meetings with interested entities. Gathered ideas to inform voluntary measures.
November-December 2023	Synthesized submitted ideas, held additional meetings with agencies and others to review provided ideas, drafted voluntary measures.

Month	Main Activities
January 2024	Posted Draft Measures for Idaho's Priority Plan on the GSAQI website. Met and coordinated with other state agencies, municipalities, tribes, and interested entities.
February 2024	Presented final priority measures to other State Agency Directors and the Governor's Office. Continued to meet with agencies, municipalities, tribes and interested entities. Posted Idaho's Priority Plan on the GSAQI website and submitted it to EPA.

Appendix A. Greenhouse Gas Emissions Inventory

Table A-1. Detailed greenhouse gas emissions by economic sector (MMT CO_2e).

Sector/Source	1990	2000	2010	2017	2018	2019	2020	2021
Transportation	**6.6**	**9.2**	**9.4**	**10.2**	**10.2**	**10.5**	**10.3**	**11.1**
CO_2 from Fossil Fuel Combustion	6.4	8.8	9.1	10.0	9.9	10.3	10.1	10.9
Substitution of Ozone Depleting Substances	NO	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Mobile Combustion	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Non-Energy Use of Fuels	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Electric Power Industry	**0.6**	**0.5**	**1.0**	**1.4**	**1.5**	**2.0**	**1.9**	**2.3**
CO_2 from Fossil Fuel Combustion	+	0.1	0.7	1.1	1.3	1.7	1.6	2.0
Stationary Combustion	+	+	0.0	0.0	0.0	0.0	0.0	0.0
Incineration of Waste	0.0	NO	NO	NO	NO	NO	NO	NO
Electrical Equipment	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Other Process Uses of Carbonates	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2
Industry	**4.4**	**5.7**	**3.6**	**3.5**	**3.5**	**3.7**	**3.8**	**3.7**
CO_2 from Fossil Fuel Combustion	2.4	3.4	2.6	2.4	2.3	2.5	2.6	2.5
Natural Gas Systems	0.6	0.5	0.3	0.3	0.4	0.4	0.4	0.4
Non-Energy Use of Fuels	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum Systems	NO	NO	NO	NO	NO	NO	NO	NO
Coal Mining	NO	NO	NO	NO	NO	NO	NO	NO
Iron and Steel Production	NO	NO	NO	NO	NO	NO	NO	NO
Cement Production	0.3	0.4	NO	NO	NO	NO	NO	NO
Substitution of Ozone Depleting Substances	+	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Petrochemical Production	NO	NO	NO	NO	NO	NO	NO	NO
Lime Production	0.3	0.4	NO	NO	0.0	NO	NO	NO
Ammonia Production	0.1	0.1	NO	NO	NO	NO	NO	NO
Nitric Acid Production	0.0	0.0	NO	NO	NO	NO	NO	NO
Abandoned Oil and Gas Wells	+	+	+	+	+	+	+	+
Wastewater Treatment	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Urea Consumption for Non-Agricultural Purposes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mobile Combustion	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Abandoned Underground Coal Mines	NO	NO	NO	NO	NO	NO	NO	NO
Adipic Acid Production	NO	NO	NO	NO	NO	NO	NO	NO
Carbon Dioxide Consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electronics Industry	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0

Sector/Source	1990	2000	2010	2017	2018	2019	2020	2021
N_2O from Product Uses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stationary Combustion	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Other Process Uses of Carbonates	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2
Fluorochemical Production	NO	NO	NO	NO	NO	NO	NO	NO
Aluminum Production	NO	NO	NO	NO	NO	NO	NO	NO
Soda Ash Production	NO	NO	NO	NO	NO	NO	NO	NO
Ferroalloy Production	NO	NO	NO	NO	NO	NO	NO	NO
Titanium Dioxide Production	NO	NO	NO	NO	NO	NO	NO	NO
Caprolactam, Glyoxal, and Glyoxylic Acid Production	NO	NO	NO	NO	NO	NO	NO	NO
Glass Production	NO	NO	NO	NO	NO	NO	NO	NO
Magnesium Production and Processing	NO	NO	NO	NO	NO	NO	NO	NO
Zinc Production	NO	NO	NO	NO	NO	NO	NO	NO
Phosphoric Acid Production	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Lead Production	NO	NO	NO	NO	NO	NO	NO	NO
Landfills (Industrial)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Carbide Production and Consumption	+	0.0	+	+	+	+	+	+
Agriculture	**9.0**	**11.6**	**13.8**	**15.3**	**15.4**	**15.6**	**16.3**	**16.2**
N_2O from Agricultural Soil Management[1,2]	3.8	4.6	4.5	5.1	5.1	5.0	5.1	4.9
Enteric Fermentation	3.3	4.2	5.1	5.9	6.0	6.1	6.2	6.2
Manure Management	0.9	2.0	2.9	3.3	3.3	3.4	3.6	3.7
CO_2 from Fossil Fuel Combustion	0.9	0.6	1.1	0.8	0.8	0.6	0.7	0.6
Rice Cultivation	NO	NO	NO	NO	NO	NO	NO	NO
Urea Fertilization	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Liming	NO	0.0	NO	NO	NO	0.3	0.6	0.6
Mobile Combustion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Field Burning of Agricultural Residues[1,2]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stationary Combustion	+	+	+	+	+	+	+	+
Commercial	**1.3**	**1.7**	**1.8**	**2.3**	**2.2**	**2.4**	**2.4**	**2.4**
CO_2 from Fossil Fuel Combustion	0.8	1.1	1.1	1.4	1.4	1.5	1.5	1.4
Landfills (Municipal)	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.5
Substitution of Ozone Depleting Substances	+	0.0	0.2	0.1	0.2	0.1	0.2	0.2
Wastewater Treatment	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Composting	+	+	+	0.1	0.1	0.1	0.1	0.1
Stationary Combustion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Sector/Source	1990	2000	2010	2017	2018	2019	2020	2021
Anaerobic Digestion at Biogas Facilities	+	+	+	+	+	+	+	+
Residential	**0.8**	**1.6**	**1.7**	**2.1**	**2.0**	**2.3**	**2.2**	**2.3**
CO_2 from Fossil Fuel Combustion	0.8	1.5	1.6	1.9	1.8	2.0	2.0	2.0
Substitution of Ozone Depleting Substances	+	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Stationary Combustion	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Total Emissions (Sources)	**22.8**	**30.2**	**31.4**	**34.7**	**34.8**	**36.4**	**37.0**	**37.8**
LULUCF Sector Net Total	**0.4**	**0.8**	**(2.3)**	**1.9**	**1.4**	**1.5**	**1.6**	**2.7**
Net Emissions (Sources and Sinks)	**23.2**	**31.0**	**29.1**	**36.6**	**36.3**	**37.9**	**38.5**	**40.5**

Notes: LULUCF source and sink categories are not allocated to economic sectors. Total emissions presented without LULUCF. Total net emissions presented with LULUCF. The LULUCF Sector Net Total is the net sum of all CH4 and N2O emissions to the atmosphere plus net carbon stock changes. Totals may not sum due to independent rounding. Parentheses indicate negative values or sequestration. EPA is using 100-year Global Warming Potentials (GWP) from IPCC's Fifth Assessment Report, as required in reporting annual inventories to the UNFCCC. Changes in carbon stocks from Croplands, Grasslands, Wetlands and Settlements in Alaska are currently not estimated in the LULUCF Sector Net Total, with the exception of Flooded Lands. Changes in carbon stocks from Forest Land and Wetlands in Hawaii are currently not estimated in the LULUCF Sector Net Total, with the exception of Flooded Lands. DC is currently included only for Coastal Wetlands, Peatlands, Landfilled Yard Trimmings and Food Scraps, and Settlement Trees. Puerto Rico is also included for Flooded Lands.

NO = Not occurring.

Symbol "-" indicates value not estimated at this time or are not applicable to the State.
"+" Does not exceed 0.005 MMT CO2 Eq.

https://cfpub.epa.gov/ghgdata/inventoryexplorer/ accessed on 1/26/2024.

Table A-2. Detailed greenhouse gas emissions and sinks by gas (MMT CO_2e).

Gas/Source	1990	2005	2010	2017	2018	2019	2020	2021
CO_2	**12.6**	**17.2**		**18.3**	**18.3**	**19.8**	**19.8**	**20.8**
Fossil Fuel Combustion	11.3	15.8	16.1	17.6	17.6	18.7	18.4	19.4
Electric Power Sector	+	0.6	0.7	1.1	1.3	1.7	1.6	2.0
Transportation	6.4	8.6	9.1	10.0	9.9	10.3	10.1	10.9
Industrial	3.3	4.1	3.6	3.1	3.2	3.2	3.3	3.1
Residential	0.8	1.5	1.6	1.9	1.8	2.0	2.0	2.0
Commercial	0.8	1.0	1.1	1.4	1.4	1.5	1.5	1.4
Non-Energy Use of Fuels	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Natural Gas Systems	+	+	+	0.0	+	0.0	0.0	0.0
Cement Production	0.3	0.4	NO	NO	NO	NO	NO	NO
Lime Production	0.3	0.3	NO	NO	0.0	NO	NO	NO
Other Process Uses of Carbonates	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3
Glass Production	NO	NO	NO	NO	NO	NO	NO	NO
Soda Ash Production	NO	NO	NO	NO	NO	NO	NO	NO
Carbon Dioxide Consumption	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incineration of Waste	0.0	NO	NO	NO	NO	NO	NO	NO
Titanium Dioxide Production	NO	NO	NO	NO	NO	NO	NO	NO
Aluminum Production	NO	NO	NO	NO	NO	NO	NO	NO
Iron and Steel Production & Metallurgical Coke Production	NO	NO	NO	NO	NO	NO	NO	NO
Ferroalloy Production	NO	NO	NO	NO	NO	NO	NO	NO
Ammonia Production	0.1	NO	NO	NO	NO	NO	NO	NO
Urea Consumption for Non-Agricultural Purposes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phosphoric Acid Production	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Petrochemical Production	NO	NO	NO	NO	NO	NO	NO	NO
Carbide Production and Consumption	+	0.0	+	+	+	+	+	+
Lead Production	NO	NO	NO	NO	NO	NO	NO	NO
Zinc Production	NO	NO	NO	NO	NO	NO	NO	NO
Petroleum Systems	NO	NO	NO	NO	NO	NO	NO	NO
Abandoned Oil and Gas Wells	+	+	+	+	+	+	+	+
Magnesium Production and Processing	NO	NO	NO	NO	NO	NO	NO	NO
Coal Mining	NO	NO	NO	NO	NO	NO	NO	NO
Liming	NO	NO	NO	NO	NO	0.3	0.6	0.6
Urea Fertilization	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Substitution of Ozone Depleting Substances	+	+	+	+	+	+	+	+
*International Bunker Fuels***	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1
*Wood Biomass, Ethanol, and Biodiesel Consumption**	2.2	3.4	3.1	3.9	4.1	4.2	3.8	4.0
CH_4	**5.2**	**8.0**	**8.6**	**9.9**	**9.9**	**10.2**	**10.5**	**10.5**
Stationary Combustion	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.2
Mobile Combustion	0.0	0.0	0.0	0.0	0.0	+	+	+

Gas/Source	1990	2005	2010	2017	2018	2019	2020	2021
Coal Mining	NO	NO	NO	NO	NO	NO	NO	NO
Abandoned Underground Coal Mines	NO	NO	NO	NO	NO	NO	NO	NO
Natural Gas Systems	0.6	0.4	0.3	0.3	0.3	0.4	0.4	0.4
Petroleum Systems	NO	NO	NO	NO	NO	NO	NO	NO
Abandoned Oil and Gas Wells	+	+	+	+	+	+	+	+
Petrochemical Production	NO	NO	NO	NO	NO	NO	NO	NO
Carbide Production and Consumption	NO	NO	NO	NO	NO	NO	NO	NO
Iron and Steel Production & Metallurgical Coke Production	NO	NO	NO	NO	NO	NO	NO	NO
Ferroalloy Production	NO	NO	NO	NO	NO	NO	NO	NO
Enteric Fermentation	3.3	4.7	5.1	5.9	6.0	6.1	6.2	6.2
Manure Management	0.6	2.0	2.4	2.7	2.7	2.8	3.0	3.0
Rice Cultivation	NO	NO	NO	NO	NO	NO	NO	NO
Field Burning of Agricultural Residues[1,2]	+	+	+	+	+	+	+	+
Landfills	0.5	0.6	0.5	0.6	0.5	0.6	0.6	0.6
Wastewater Treatment	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Composting	+	+	+	0.0	0.0	0.0	0.0	0.0
Anaerobic Digestion at Biogas Facilities	+	+	+	+	+	+	+	+
Incineration of Waste	+	NO	NO	NO	NO	NO	NO	NO
*International Bunker Fuels***	+	+	+	NO	+	NO	NO	NO
N_2O	**4.4**	**5.9**	**5.3**	**6.1**	**6.1**	**6.0**	**6.1**	**5.9**
Stationary Combustion	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Mobile Combustion	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Adipic Acid Production	NO	NO	NO	NO	NO	NO	NO	NO
Nitric Acid Production	0.0	0.0	NO	NO	NO	NO	NO	NO
Manure Management	0.2	0.5	0.5	0.6	0.6	0.6	0.6	0.6
Agricultural Soil Management[1,2,3]	3.8	5.1	4.5	5.1	5.1	5.0	5.1	4.9
Field Burning of Agricultural Residues[1,2]	+	+	+	+	+	+	+	+
Wastewater Treatment	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
N_2O from Product Uses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Caprolactam, Glyoxal, and Glyoxylic Acid Production	NO	NO	NO	NO	NO	NO	NO	NO
Incineration of Waste	+	NO	NO	NO	NO	NO	NO	NO
Composting	+	+	+	0.0	0.0	0.0	0.0	0.0
Electronics Industry	+	+	+	+	+	+	+	+
Natural Gas Systems	+	+	+	+	+	+	+	+
Petroleum Systems	NO	NO	NO	NO	NO	NO	NO	NO
*International Bunker Fuels***	+	+	+	+	+	+	+	+
HFCs, PFCs, SF_6 and NF_3	**0.5**	**0.7**	**0.6**	**0.5**	**0.6**	**0.5**	**0.7**	**0.70 1**
HFCs	**0.0**	**0.3**	**0.5**	**0.4**	**0.4**	**0.4**	**0.5**	**0.6**
Substitution of Ozone Depleting Substances	+	0.3	0.5	0.3	0.4	0.4	0.5	0.6
Fluorochemical Production	NO	NO	NO	NO	NO	NO	NO	NO

Gas/Source	1990	2005	2010	2017	2018	2019	2020	2021
Electronics Industry	0.0	0.0	+	+	+	+	+	+
Magnesium Production	NO	NO	NO	NO	NO	NO	NO	NO
PFCs	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Aluminum Production	NO	NO	NO	NO	NO	NO	NO	NO
Electronics Industry	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Electrical Equipment	NO	NO	NO	NO	NO	NO	NO	NO
Substitution of Ozone Depleting Substances****	NO	+	+	+	+	+	+	+
SF_6	**0.4**	**0.2**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
Electrical Equipment	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Electronics Industry	0.0	0.0	+	0.0	0.0	0.0	0.0	0.0
Magnesium Production	NO	NO	NO	NO	NO	NO	NO	NO
NF_3	**+**	**0.0**	**+**	**+**	**+**	**+**	**+**	**0.0**
Electronics Industry	+	0.0	+	+	+	+	+	0.0
Total (Sources) Emissions	**22.8**	**31.8**	**14.5**	**34.7**	**34.8**	**36.4**	**37.0**	**37.8**
LULUCF Emissions* **	**0.5**	**1.4**	**0.6**	**1.8**	**1.1**	**0.6**	**1.2**	**1.8**
LULUCF CH_4 Emissions	0.5	1.1	0.5	1.3	0.8	0.5	0.9	1.3
LULUCF N_2O Emissions	+	0.3	0.1	0.5	0.2	0.1	0.3	0.5
LULUCF Carbon Stock Change*** **	(0.1)	(2.4)	(2.9)	0.1	0.4	0.9	0.4	0.910
LULUCF Sector Net Total**** **	0.4	(1.0)	(2.3)	1.9	1.4	1.5	1.6	2.7
Net Emissions (Sources and Sinks)	**23.2**	**30.8**	**12.3**	**36.6**	**36.3**	**37.9**	**38.5**	**40.5**

Notes: Total emissions presented without LULUCF. Net emissions presented with LULUCF. Totals may not sum due to independent rounding. Parentheses indicate negative values or sequestration. EPA is using 100-year Global Warming Potentials (GWP) from IPCC's Fifth Assessment Report, as required in reporting annual national GHG inventories to the UNFCCC.
Symbol "-" indicates value not available at this time or are not applicable to the State. Please see applicable footnotes.
+ Does not exceed 0.005 MMT CO2 Eq.
NO = Not occurring.
*Emissions from Wood Biomass, Ethanol, and Biodiesel Consumption are not included specifically in summing Energy sector totals. Net carbon fluxes from changes in biogenic carbon reservoirs are accounted for in the estimates for Land Use, Land-Use Change, and Forestry.
**Emissions from International Bunker Fuels are not included in the totals.
***LULUCF emissions of CH4 and N2O are reported separately from gross emissions totals. LULUCF emissions include the CH4, and N2O emissions from Peatlands Remaining Peatlands; CH4 and N2O emissions reported for Non-CO2 Emissions from Forest Fires, Non-CO2 Emissions from Grassland Fires, and Coastal Wetlands Remaining Coastal Wetlands; CH4 emissions from Land Converted to Coastal Wetlands; Flooded Land Remaining Flooded Land, and Land Converted to Flooded Land; and N2O emissions from Forest Soils and Settlement Soils.
****Small amounts of PFC emissions also result from this source.
***** LULUCF Carbon Stock Change is the net C stock change from the following categories: Forest Land Remaining Forest Land, Land Converted to Forest Land, Cropland Remaining Cropland, Land Converted to Cropland, Grassland Remaining Grassland, Land Converted to Grassland, Wetlands Remaining Wetlands, Land Converted to Wetlands, Settlements Remaining Settlements, and Land Converted to Settlements. Changes in carbon stocks from Croplands, Grasslands, Wetlands and Settlements in Alaska are currently not estimated in the LULUCF Sector Net Total, except for emissions estimated from Flooded Lands in Alaksa. Changes in carbon stocks from Forest Land and Wetlands in Hawaii are currently not estimated in the LULUCF Sector Net Total, except for emissions estimated from Flooded Lands in Hawaii. DC is currently included only for Coastal Wetlands, Land Converted to Flooded Land, Peatlands,

Landfilled Yard Trimmings and Food Scraps, and Settlement Trees. Puerto Rico is currently included only for Flooded Lands.
******The LULUCF Sector Net Total is the net sum of all CH4 and N2O emissions to the atmosphere plus net carbon stock changes.

Appendix B. Low-Income and Disadvantaged Communities (LIDAC) Census Block Groups

Table B-17. Census Block Group numbers identified as LIDAC.

County	Census Block Group GEOID Identified as LIDAC
Ada	160010001012, 160010001021, 160010001024, 160010003021, 160010003022, 160010004022, 160010008061, 160010008062, 160010008102, 160010009011, 160010009021, 160010009022, 160010010021, 160010010031, 160010011001, 160010011002, 160010011003, 160010011004, 160010012032, 160010012042, 160010012043, 160010014011, 160010014021, 160010014022, 160010017011, 160010017012, 160010017021, 160010017022, 160010017023, 160010018001, 160010018002, 160010018003, 160010020001, 160010020002, 160010020003, 160010022281, 160010023141, 160010023142, 160010023153, 160010023154, 160010023161, 160010023171, 160010023181, 160010023182, 160010023183, 160010023184, 160010023191, 160010023192, 160010023193, 160010024121, 160010024142, 160010103382, 160010103401, 160010103471, 160010103472, 160010103501, 160010103591, 160010103621, 160010103622, 160010103623, 160010103633, 160010103642, 160010103643, 160010103644, 160010103651, 160010103652, 160010103661, 160010103662, 160010103671, 160010103672, 160010103673, 160010103674, 160010103682, 160010103692, 160010103711
Adams	160039502001, 160039502002, 160039502003
Bannock	160050002003, 160050003011, 160050003023, 160050006001, 160050006002, 160050007001, 160050007002, 160050007003, 160050008001, 160050008002, 160050009001, 160050009002, 160050010001, 160050010002, 160050010003, 160050011023, 160050011042, 160050012001, 160050012002, 160050013001, 160050013002, 160050013003, 160050014001, 160050014002, 160050014003, 160050014004, 160050015001, 160050015002, 160050015003, 160050015004, 160050015005, 160050016011, 160050016012, 160050016021, 160050016022, 160050016023, 160050016031, 160050016032, 160050017001, 160050019004, 160059400001, 160059400002
Bear Lake	160079501001, 160079501002, 160079501003, 160079501004
Benewah	160099400001, 160099400002, 160099400003, 160099400004, 160099400005, 160099501001, 160099501002, 160099501003, 160099501004
Bingham	160119400001, 160119400002, 160119503001, 160119503002, 160119503003, 160119503004, 160119503005, 160119504001, 160119504002, 160119504003, 160119504004, 160119504005, 160119505021, 160119505022, 160119505023, 160119506004
Blaine	160139601011, 160139602011, 160139602012, 160139602013, 160139602021, 160139602022, 160139602023
Bonner	160179501001, 160179501002, 160179501003, 160179501004, 160179502012, 160179502032, 160179503001, 160179503002, 160179503003, 160179503004, 160179504011, 160179504021, 160179504022, 160179504023, 160179504031, 160179504032, 160179505001, 160179505002, 160179505003, 160179505004, 160179506001, 160179506002, 160179506003, 160179506004, 160179507011, 160179507012, 160179507013, 160179507021, 160179507022, 160179508013, 160179508021, 160179508022, 160179509011, 160179509021, 160179509022
Bonneville	160199704012, 160199704041, 160199704043, 160199704052, 160199705052, 160199706011, 160199706012, 160199706013, 160199706021, 160199706022, 160199706023, 160199706024, 160199707001, 160199707002, 160199707003, 160199707004, 160199708001, 160199708002, 160199708003, 160199708004, 160199709001, 160199710001, 160199710002, 160199710003, 160199710004, 160199711001, 160199711002, 160199711003, 160199711004, 160199712001, 160199712002, 160199712003, 160199712004, 160199713011, 160199713022
Boundary	160219701001, 160219701002, 160219701003, 160219701004, 160219702001, 160219702002, 160219702003, 160219702004, 160219702005

County	Census Block Group GEOID Identified as LIDAC
Butte	160239701001, 160239701002, 160239701003
Camas	160259701001
Canyon	160270201001, 160270202001, 160270202002, 160270203001, 160270203002, 160270204031, 160270204032, 160270204033, 160270204041, 160270204042, 160270204043, 160270204051, 160270204052, 160270204061, 160270204062, 160270205051, 160270205052, 160270205061, 160270205062, 160270206011, 160270206012, 160270206031, 160270206032, 160270206033, 160270206041, 160270206042, 160270209031, 160270209041, 160270209064, 160270210031, 160270210032, 160270210041, 160270210042, 160270210043, 160270210051, 160270210052, 160270210053, 160270210061, 160270210062, 160270210063, 160270210071, 160270210072, 160270210073, 160270210081, 160270210082, 160270210083, 160270211011, 160270211012, 160270211013, 160270211021, 160270211022, 160270211031, 160270211032, 160270211041, 160270211042, 160270211043, 160270211051, 160270211052, 160270211053, 160270212011, 160270212012, 160270212021, 160270212022, 160270213001, 160270213002, 160270215001, 160270215002, 160270215003, 160270216001, 160270216002, 160270216003, 160270217011, 160270217012, 160270217013, 160270217021, 160270217022, 160270217023, 160270218012, 160270218014, 160270219011, 160270219012, 160270219013, 160270219041, 160270219042, 160270221002, 160270221003, 160270222002, 160270223011, 160270223012, 160270223021, 160270223031
Caribou	160299601001, 160299601002, 160299601004, 160299601005, Cassia
Clark	160339501001
Clearwater	160359400011, 160359400012, 160359400021, 160359400022, 160359400023, 160359400024, 160359400025, 160359400026, 160359701001, 160359701003, 160359701004, 160359701005
Custer	160379602001, 160379602002, 160379602003, 160379602004
Elmore	160399601001, 160399601002, 160399602011, 160399602012, 160399602013, 160399602021, 160399602022, 160399603001, 160399603002, 160399603003, 160399603004, 160399604011, 160399604012, 160399604013, 160399604021, 160399604022, 160399605001, 160399605002, 160399605003
Franklin	160419701001, 160419701002, 160419701003, 160419701004, 160419701005, 160419702001
Fremont	160439702001, 160439702002, 160439702003, 160439702004, 160439703011, 160439703012
Gem	160459602001, 160459602002, 160459602003, 160459603011, 160459603012, 160459603021, 160459603022, 160459603023
Gooding	160479601011, 160479601012, 160479601013, 160479601021, 160479601022, 160479601023, 160479602012, 160479602013, 160479602014
Idaho	160499400001, 160499400002, 160499400003, 160499400004, 160499400005, 160499601001, 160499601002, 160499602011, 160499602021, 160499602022, 160499602023, 160499602024, 160499603001, 160499603002, 160499604001
Jefferson	160519601001, 160519601002, 160519601003
Jerome	160539701001, 160539702001, 160539702002, 160539702003, 160539702004, 160539703001, 160539703002, 160539703003, 160539703004, 160539704001, 160539704002, 160539704003, 160539705022
Kootenai	160550001021, 160550001022, 160550002031, 160550003011, 160550003013, 160550003031, 160550003032, 160550003041, 160550003042, 160550004011, 160550004012, 160550004013, 160550004014, 160550004022, 160550004024, 160550005011, 160550005012, 160550005013, 160550005014, 160550005021, 160550005022, 160550005031, 160550005032, 160550006011,

County	Census Block Group GEOID Identified as LIDAC
	160550006012, 160550006013, 160550006021, 160550006022, 160550006023, 160550006024, 160550007012, 160550007021, 160550007022, 160550007031, 160550007041, 160550007042, 160550008002, 160550009011, 160550009012, 160550009021, 160550009022, 160550010031, 160550010032, 160550010041, 160550010042, 160550012011, 160550012012, 160550012021, 160550012022, 160550012023, 160550013001, 160550013002, 160550013003, 160550014001, 160559400001, 160559400002, 160559400003
Latah	160570051023, 160570051024, 160570052004, 160570053021, 160570053022, 160570054003, 160570054004, 160570055001, 160570055002, 160570055003, 160570055004
Lemhi	160599702001, 160599702002, 160599702003, 160599703001, 160599703002, 160599703003
Lewis	160619400011, 160619400021, 160619400022, 160619400023, 160619503001
Lincoln	160639501001, 160639501002, 160639501003, 160639501004
Madison	160659502001, 160659502002, 160659503011, 160659503012, 160659503013, 160659503014, 160659503015, 160659503016, 160659503031, 160659503033, 160659503034, 160659503035, 160659503043
Minidoka	160679702002, 160679702003, 160679703001, 160679703003, 160679704001, 160679704002, 160679704003, 160679705001, 160679705002, 160679705003, 160679705004
Nez Perce	160699400001, 160699400002, 160699400003, 160699400004, 160699400005, 160699603001, 160699603002, 160699603003, 160699603004, 160699604001, 160699604002, 160699604003, 160699606001, 160699607005, 160699608001
Oneida	160719601001, 160719601002, 160719601003
Owyhee	160739501012, 160739501013, 160739501021, 160739501022, 160739502001, 160739502002, 160739502003, 160739502004
Payette	160759601001, 160759601002, 160759601003, 160759601004, 160759601005, 160759602001, 160759602002, 160759602003, 160759603011
Power	160779601001, 160779601002, 160779602002, 160779602004, 160779602005
Shoshone	160799602001, 160799602002, 160799602003, 160799602004, 160799602005, 160799602006, 160799603001, 160799603002, 160799603003, 160799603004, 160799603005, 160799604001, 160799604002, 160799604003, 160799604004, 160799604005, 160799604006,
Teton	160819601021, 160819601022, 160819601032, 160819601033, 160819601034, 160819601041, 160819601052, 160819601072
Twin Falls	160830002002, 160830004001, 160830004002, 160830004003, 160830004004, 160830005004, 160830005005, 160830007012, 160830007023, 160830008003, 160830008004, 160830008005, 160830010021, 160830011001, 160830011002, 160830011003, 160830012011, 160830012021, 160830012022, 160830012023, 160830013021, 160830016001, 160830016002, 160830016003
Valley	160859701001, 160859701002, 160859701003, 160859701004, 160859701005, 160859702001, 160859702002, 160859702003, 160859702004, 160859703021
Washington	160879701001, 160879701002, 160879702001, 160879702002, 160879702003, 160879702004, 160879703001, 160879703002, 160879703003, 160879703004,
	Census Tract

County	Census Block Group GEOID Identified as LIDAC
Ada	1600100010, 1600100030, 1600100040, 1600100080, 1600100081, 1600100090, 1600100100, 1600100110, 1600100120, 1600100140, 1600100170, 1600100180, 1600100200, 1600100222, 1600100231, 1600100241, 1600101033, 1600101034, 1600101035, 1600101036, 1600101037
Adams	1600395020
Bannock	1600500020, 1600500030, 1600500060, 1600500070, 1600500080, 1600500090, 1600500100, 1600500110, 1600500120, 1600500130, 1600500140, 1600500150, 1600500160, 1600500170, 1600500190, 1600594000
Bear Lake	1600795010
Benewah	1600994000, 1600995010
Bingham	1601194000, 1601195030, 1601195040, 1601195050, 1601195060
Blaine	1601396010, 1601396020
Bonner	1601795010, 1601795020, 1601795030, 1601795040, 1601795050, 1601795060, 1601795070, 1601795080, 1601795090
Bonneville	1601997040, 1601997050, 1601997060, 1601997070, 1601997080, 1601997090, 1601997100, 1601997110, 1601997120, 1601997130
Boundary	1602197010, 1602197020
Butte	1602397010
Camas	1602597010
Canyon	1602702010, 1602702020, 1602702030, 1602702040, 1602702050, 1602702060, 1602702090, 1602702100, 1602702110, 1602702120, 1602702130, 1602702150, 1602702160, 1602702170, 1602702180, 1602702190, 1602702210, 1602702220, 1602702230
Caribou	1602996010
Cassia	1603195010, 1603195020, 1603195030, 1603195040, 1603195050, 1603195060
Clark	1603395010
Clearwater	1603594000, 1603597010
Custer	1603796020
Elmore	1603996010, 1603996020, 1603996030, 1603996040, 1603996050
Franklin	1604197010, 1604197020
Fremont	1604397020, 1604397030
Gem	1604596020, 1604596030
Gooding	1604796010, 1604796020
Idaho	1604994000, 1604996010, 1604996020, 1604996030, 1604996040
Jefferson	1605196010

County	Census Block Group GEOID Identified as LIDAC
Jerome	1605397010, 1605397020, 1605397030, 1605397040, 1605397050
Kootenai	1605500010, 1605500020, 1605500030, 1605500040, 1605500050, 1605500060, 1605500070, 1605500080, 1605500090, 1605500100, 1605500120, 1605500130, 1605500140, 1605594000
Latah	1605700510, 1605700520, 1605700530, 1605700540, 1605700550,
Lemhi	1605997020, 1605997030
Lewis	1606194000, 1606195030
Lincoln	1606395010
Madison	1606595020, 1606595030
Minidoka	1606797020, 1606797030, 1606797040, 1606797050
Nez Perce	1606994000, 1606996030, 1606996040, 1606996060, 1606996070, 1606996080
Oneida	1607196010
Owyhee	1607395010, 1607395020
Payette	1607596010, 1607596020, 1607596030
Power	1607796010, 1607796020
Shoshone	1607996020, 1607996030, 1607996040
Teton	1608196010
Twin Falls	1608300020, 1608300040, 1608300050, 1608300070, 1608300080, 1608300100, 1608300110, 1608300120, 1608300130, 1608300160
Valley	1608597010, 1608597020, 1608597030
Washington	1608797010, 1608797020, 1608797030

Appendix C. Methodology for Quantification of Potential Emission Reductions and Cost-Effectiveness

DEQ contracted with Energy and Environmental Economics, Inc (E3) to quantify the potential greenhouse gas and co-pollutant emission reductions and cost effectiveness for the agriculture, buildings, power, natural and working lands, and waste sector measures, as well as the City of Pocatello specific transportation measure. DEQ quantified the potential emission reductions and cost-effectiveness for the remaining transportation sector measures.

E3 provided DEQ with Excel based calculation tools as well as a technical appendix describing their methodology. Table C-1 shows a high-level summary of the methodology and key sources of data used.

Table C-18. Summary of key sources and high-level methodology.

Sector	Measure	Example Programs	Key Data Sources and Models/Tools Used	Simplified GHG Benefits Calculation
Power	Support the adoption of solar energy	Solar and Storage	LBNL[1], AVERT[2]	*solar_installed * solar_capacity_factor * marginal_grid_emissions_per*
	Support the adoption of geothermal as a heat source	Geothermal Conversion	AVERT[2]	*heating_demand * natural_gas_efficiency * natural_gas_emissions*
	Support the transition of small equipment to cleaner fuels	Small Equipment Electrification	AVERT[2], CARB[3]	*annual_device_gasoline_emissions – (annual_device_electricity_usage * grid_emissions_factor)*
Buildings	Support energy efficiency improvements in building throughout Idaho	Electricity Energy Efficiency	NREL[4,5,] AEG PacifiCorp[6]	*electricity savings * n_ buildings * grid_emissions_factor*
		HVAC – Fuel Energy Efficiency	NREL[4,5]	*(existing fuel savings * electricity emission factor + natural gas use increase* natural gas emission factor) * n_buildings*
		HVAC – Building Electrification	NREL[4,5], Idaho Power[7]	*(existing fuel savings * fuel emission factor + electricity increase* electricity emission factor) * n_buildings*
		Weatherization	NREL[4,5], Idaho Power[7]	*(existing fuel savings * fuel emission factor + electricity savings * electricity emission factor) * n_buildings*
		LED Lighting Retrofit	DEQ	*electricity savings * n_buildings * emission factor*

Sector	Measure	Example Programs	Key Data Sources and Models/Tools Used	Simplified GHG Benefits Calculation
		Replacement of Inefficient Chillers	DEQ	*electricity savings * n_buildings * emission factor*
Agriculture	Support the use of climate smart agriculture practices	Manure Management	EPA[8,9] CARB[10,9]	*n_head_covered * GHG_avoided/head*
		Feed Management	EPA [14,15] CARB[10,16]	*n_head_covered * GHG_avoided/head*
		Soil Management	EPA[8,9] CARB[10,16]	*n_acre_covered * GHG_avoided/acre*
		Irrigation Pump Efficiency Improvement	EPA[8,9] CARB[10,16]	*n_pumps_installed * GHG_avoided/pump*
Waste	Support diversion of waste from landfills	Recycling	EPA WARM v16[17]	*tons_waste_diverted * (landfill_emissions_factor - recycling_emissions_factor)*
		Composting	EPA WARM v16[17]	*tons_waste_diverted * (landfill_emissions_factor - composing_emissions_factor)*
	Support landfill gas collection	Landfill Gas Collection installed	EPA LFG Energy Project Development Handbook[18], LFG Benefits Calculator[19]	*Tons waste with LFG capture installed (Idaho average direct and avoided emissions*
Natural and Working Lands	Support healthy lands through sustainable land management to manage wildfire risk, disease, and pest mitigation	Sustainable Land Management	EPA[20], Fargione et al. 2018[21]	*n_acres * ghg_mitigation_per_acre*
	Support conservation and restoration of Idaho's lands	Conservation and Restoration projects	EPA[20], Fargione et al. 2018[21]	*n_acres * ghg_mitigation_per_acre*
	Support community forestry, greenspaces, and urban gardens	Urban Forestry Grant program	Nowak et al. 2013	*Carbon sequestration rate per unit tree/ (average cover per tree*trees planted*tree population survival rate)*
Transportation	Support Sustainable Transportation Network	Active Transportation, traffic flow improvements, public transit	Defaults included in TEA-CART for Idaho	*DEQ used Version 1.8 of the Transportation Evaluation and Carbon Reduction Tool (TEA-CART) developed for Georgetown Climate Center.*
	Support the transition to sustainable cleaner fuels	EV charging infrastructure; Light-, medium-, and heavy-duty vehicle changeout	Defaults included in TEA-CART for Idaho	*DEQ used Version 1.8 of the Transportation Evaluation and Carbon Reduction Tool (TEA-CART) developed for Georgetown Climate Center.*

Sector	Measure	Example Programs	Key Data Sources and Models/Tools Used	Simplified GHG Benefits Calculation
	City of Pocatello	Intermodal Rail Transit Facility	City of Pocatello	*freight_tons_shifted * (heavy_truck_emissions_factor – rail_emissions_factor)*

1. *https://emp.lbl.gov/tracking-the-sun*
2. *https://www.epa.gov/avert*
3. *https://arb.ca.gov/emfac/offroad/emissions-inventory/3cc5260c577cb608fead466e0fe2ee81d96a9869*
4. *https://comstock.nrel.gov/*
5. *https://www.nrel.gov/buildings/resstock.html*
6. *https://www.pacificorp.com/energy/integrated-resource-plan/support.html*
7. *https://docs.idahopower.com/pdfs/EnergyEfficiency/Reports/2020TRM.pdf*
8. *https://www.epa.gov/agstar/practices-reduce-methane-emissions-livestock-manure-management*
9. *https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/carb_farmer_qm_draft_091923.pdf*
10. *https://www.epa.gov/agstar/practices-reduce-methane-emissions-livestock-manure-management*
11. *https://ww2.arb.ca.gov/resources/documents/cci-quantification-benefits-and-reporting-materials*
12. *https://www.epa.gov/agstar/practices-reduce-methane-emissions-livestock-manure-management*
13. *https://ww2.arb.ca.gov/sites/default/files/auction-proceeds/carb_farmer_qm_draft_091923.pdf*
14. *https://www.cdfa.ca.gov/oefi/ammp/docs/2018_AMMP_ProjectsAwarded.pdf*
15. *https://www.epa.gov/sites/default/files/2019-09/documents/nonco2_methodology_report.pdf*
16. *https://ww2.arb.ca.gov/resources/documents/cci-quantification-benefits-and-reporting-materials*
17. *https://www.epa.gov/warm/versions-waste-reduction-model#v16*
18. *https://www.epa.gov/lmop/landfill-gas-energy-project-development-handbook*
19. *https://www.epa.gov/lmop/landfill-gas-energy-benefits-calculator*
20. *https://www.epa.gov/system/files/documents/2023-04/US-GHG-Inventory-2023-Main-Text.pdf*
21. Fargione et al. 2018. Natural climate solutions for the United States. Available at: *https://doi.org/10.1126/sciadv.aat1869*
22. Nowak et al 2013