Renewables, Energy Efficiency, and Grid Modernization

PROGRAMS INCLUDED

1. Energy Efficiency and Building Retrofits
2. Residential Solar
3. Offshore Wind
4. Battery Storage
5. Transmission Infrastructure Upgrades
6. Community Microgrids
7. Broadband Connectivity

DESCRIPTION

Renewables, Energy Efficiency, and Grid Modernization investments reduce energy consumption in buildings, increase renewable energy generation, and make vital upgrades to the energy grid and transmission infrastructure.

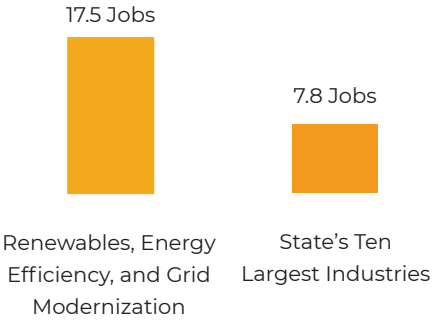
BENEFITS

Public spending on renewable energy and energy efficiency spurs new workforce opportunities for contractors and engineers, and it creates an even greater number of jobs in the broader economy by reducing utility costs for households and businesses. The transition away from natural gas heating and power plants also reduces significant sources of indoor and outdoor air pollution.

RESULTS

Each dollar invested supports more than **twice as many jobs per dollar than the state's ten largest industries**. Additionally, **every dollar invested returns double the benefits** in the form of fuel savings, improved public health, and climate benefits.

JOBS PER MILLION INVESTED



INVESTMENT SCALE

Moderate $ $ $

DEPLOYMENT SPEED

Moderate to Fast

BENEFITS PER MILLION INVESTED

Energy Cost Savings
$1,538,900
Costs avoided by reducing energy use or switching to renewable sources

Climate Benefits
$299,800
Avoided future damages of climate change from greenhouse gas pollution

Air Pollution Health Benefits
$191,900
Saved lives and avoided illnesses from improved air quality

Total
$2,030,600

These findings are an excerpt from *Investing in a Better Massachusetts: An Analysis of Jobs and Community Benefits from Green Investments*. Read the full report here.

Energy Efficiency and Building Retrofits

Spray foam insulation installation. Photo: dunktanktechnician

INVESTMENT SCALE

High $ $ $

DEPLOYMENT SPEED

Fast

DESCRIPTION

Energy Efficiency and Building Retrofits offers financial assistance, technical support, and education services to reduce energy use in residential, commercial, and industrial buildings. Energy Efficiency and Retrofits also provides building energy assessments, funds workforce development and training, and supports research and development programs.

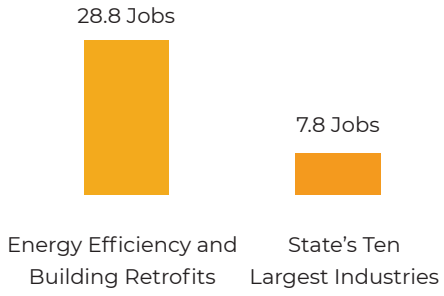
BENEFITS

Electrifying buildings and installing energy efficient appliances has the potential to unlock major new employment opportunities and savings for the Commonwealth. Investments in *Energy Efficiency and Building Retrofits* develop new workforce opportunities for construction workers, electricians, and engineers, and creates an even greater number of jobs in the broader economy by reducing household and business utility costs. The transition away from natural gas, propane, and oil heating also significantly reduces indoor and outdoor air pollution.

RESULTS

Supports 3.5 times as many jobs per dollar as the state's ten largest industries. Additionally, every dollar invested **saves $4.18 in fuel costs, improved public health, and climate benefits**.

JOBS PER MILLION INVESTED



TOP OCCUPATIONS

1. Sales Representatives of Services
2. Construction Laborers
3. General and Operations Managers
4. Carpenters
5. Electricians

BENEFITS PER MILLION INVESTED

Energy Cost Savings
$3,084,000

Utility costs avoided by reducing energy use and electrifying homes

Climate Benefits
$564,800

Avoided future damages of climate change from greenhouse gas pollution

Air Pollution Health Benefits
$532,000

Saved lives and avoided illnesses from improved air quality

Total
$4,181,000

These findings are an excerpt from *Investing in a Better Massachusetts: An Analysis of Jobs and Community Benefits from Green Investments*. Read the full report here.

Residential Solar

PV panel installation. Photo: Team Massachusetts 4D Home

INVESTMENT SCALE

Moderate $ $ $

DEPLOYMENT SPEED

Moderate to Fast

DESCRIPTION

Residential Solar provides technical assistance and funding for the installation of solar photovoltaic (PV) panels on single family homes and multi-family residential buildings in Massachusetts.

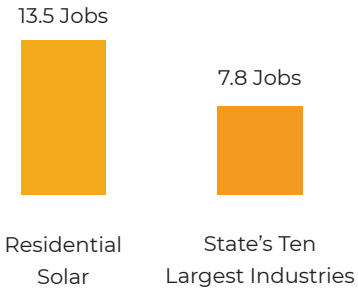
BENEFITS

Rooftop or other residential solar PV panels will make electricity more affordable and has the potential to unlock major new employment opportunities. Investments in *Residential Solar* develop new workforce opportunities for construction workers, electricians, and engineers, and also create a significant number of jobs long-term in the broader economy by reducing household utility costs. The transition away from fossil fuel-intensive electricity also reduces outdoor air pollution.

RESULTS

Each dollar invested **supports 75 percent more jobs than a dollar invested in the state's ten largest industries**. Additionally, every dollar invested **saves $1.23 in household energy savings, improved public health, and climate benefits**.

JOBS PER MILLION INVESTED



TOP OCCUPATIONS

1. General and Operations Managers
2. Management Analysts
3. Electrical, Electronic, and Electromechanical Assemblers
4. Customer Service Representatives
5. Office Administrators

BENEFITS PER MILLION INVESTED

Energy Cost Savings
$907,000

Utility costs avoided by reducing grid reliance

Climate Benefits
$279,700

Avoided future damages of climate change from greenhouse gas pollution

Air Pollution Health Benefits
$45,900

Saved lives and avoided illnesses from improved air quality

Total
$1,233,000

These findings are an excerpt from *Investing in a Better Massachusetts: An Analysis of Jobs and Community Benefits from Green Investments*. Read the full report here.

Offshore Wind


First offshore wind farm in the U.S. off Block Island. Photo: Ionna22

INVESTMENT SCALE

High $ $ $

DEPLOYMENT SPEED

Slow

DESCRIPTION

Offshore Wind funds the development of large-scale offshore wind projects in Massachusetts. This program focuses specifically on the planning, design, and construction phases of offshore wind expansion.

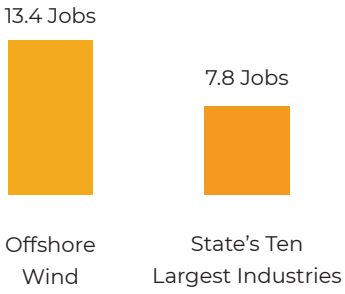
BENEFITS

The development of offshore wind is a crucial component of the Commonwealth's pathway to a decarbonized energy system. Investing in offshore wind infrastructure will create jobs in the construction, engineering, and contracting industries, and long-term savings on electricity costs will support a substantial number of jobs in the broader economy as well.

RESULTS

Each dollar invested **supports 75 percent more jobs than a dollar invested in the state's ten largest industries**. Additionally, every dollar invested **saves $1.37 in energy cost savings, improved public health, and climate benefits**.

JOBS PER MILLION INVESTED



TOP OCCUPATIONS

1. General and Operations Managers
2. Construction Laborers
3. Freight, Stock, and Material Movers
4. Office Administrators
5. Customer Service Representatives

BENEFITS PER MILLION INVESTED

Energy Cost Savings
$926,000

Energy costs avoided by deploying renewable sources

Climate Benefits
$385,800

Avoided future damages of climate change from greenhouse gas pollution

Air Pollution Health Benefits
$56,700

Saved lives and avoided illnesses from improved air quality

Total
$1,368,600

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Battery Storage

Battery storage facility. Photo: UniEnergy Technologies

INVESTMENT SCALE

Low $ $ $

DEPLOYMENT SPEED

Slow to Moderate

DESCRIPTION

Battery Storage deploys battery storage technology to store excess energy and facilitate renewable energy growth in Massachusetts. This includes both large-scale battery storage projects for utilities and Municipal Light Plants, as well as small-scale projects for residential, commercial, and industrial buildings.

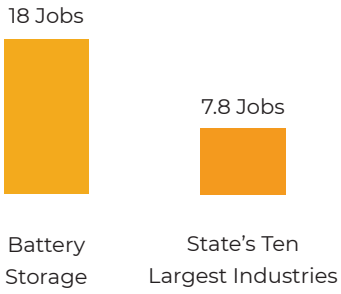
BENEFITS

As Massachusetts builds out its wind and solar energy capacity, battery storage will play a key role in ensuring renewable electricity remains reliable, affordable, and efficient. Investments in *Battery Storage* develop new workforce opportunities in battery and electrical component manufacturing, construction, and engineering, and create an even greater number of jobs in the broader economy by reducing utility costs for households and businesses.

RESULTS

Each dollar invested **supports more than twice as many jobs as the state's ten largest industries**. Additionally, every dollar invested **saves $1.80 in energy cost savings, improved public health, and climate benefits**.

JOBS PER MILLION INVESTED



TOP OCCUPATIONS

1. Electrical, Electronic, and Electromechanical Assemblers
2. Miscellaneous Assemblers and Fabricators
3. General and Operations Managers
4. Lawyers
5. Freight, Stock, and Material Movers

BENEFITS PER MILLION INVESTED

Energy Cost Savings
$1,734,500
Energy grid costs avoided by storing renewable electricity

Climate Benefits
$44,500
Avoided future damages of climate change from greenhouse gas pollution

Air Pollution Health Benefits
$18,100
Saved lives and avoided illnesses from improved air quality

Total
$1,797,100

These findings are an excerpt from *Investing in a Better Massachusetts: An Analysis of Jobs and Community Benefits from Green Investments*. Read the full report here.

Transmission Infrastructure Upgrades


Transmission lines. Photo: Todd Lappin

INVESTMENT SCALE

Moderate $ $ $

DEPLOYMENT SPEED

Moderate

DESCRIPTION

Transmission Infrastructure Upgrades expands high-voltage transmission lines needed to support increased renewable energy generation in Massachusetts. The program focuses on capital costs of building the new grid infrastructure.

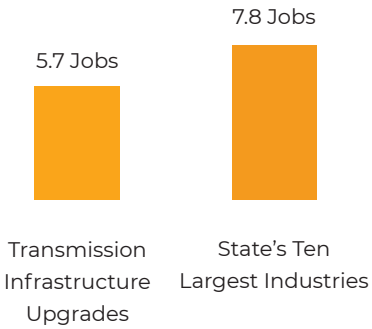
BENEFITS

A significant buildout of high voltage transmission infrastructure is needed to reliably operate and efficiently deliver clean electricity in Massachusetts. Investments in transmission infrastructure can lower energy costs for households and businesses, and facilitate greenhouse gas emissions reductions by providing greater access to low-cost renewable energy in the state.

RESULTS

Supports 5.7 jobs per million dollars invested.

JOBS PER MILLION INVESTED



TOP OCCUPATIONS

1. Electrical, Electronic, and Electromechanical Assemblers
2. Miscellaneous Assemblers and Fabricators
3. General and Operations Managers
4. Construction Laborers
5. Wholesale Manufacturing Sales Representatives

ADDITIONAL BENEFITS

Transmission Infrastructure **Upgrades would increase**

- Resiliency
- Efficiency

While reducing

- Energy costs
- Greenhouse gas emissions

These findings are an excerpt from *Investing in a Better Massachusetts: An Analysis of Jobs and Community Benefits from Green Investments*. Read the full report here.

Community Microgrids

Solar panels on a small farm. Photo: Christine

INVESTMENT SCALE

Low $ $ $

DEPLOYMENT SPEED

Moderate

DESCRIPTION

Community Microgrids develops microgrid systems throughout Massachusetts for a mix of residential, commercial, and institutional consumers. These microgrid systems consist of distributed energy generation sources, including solar photovoltaics, battery storage technology, combined heat and power (CHP) plants, hydrogen fuel cells, and backup generators.

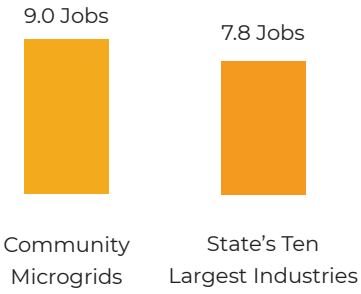
BENEFITS

Microgrids generate clean and reliable energy to households and businesses, make the grid more resilient, and increase energy security. Investments in *Community Microgrids* develop new workforce opportunities in battery and electrical component manufacturing, construction, and engineering, and support jobs in the broader economy in the long-term by lowering utility costs for households and businesses.

RESULTS

Supports 9.0 jobs per million dollars invested, compared to 7.8 jobs per million dollars in the state's ten largest industries. Lower fossil fuel consumption from *Community Microgrids* investments creates nearly $660,000 in energy cost savings, improved public health, and climate benefits per million dollars invested.

JOBS PER MILLION INVESTED



TOP OCCUPATIONS

1. Electrical, Electronic, and Electromechanical Assemblers
2. General and Operations Managers
3. Miscellaneous Assemblers and Fabricators
4. Freight, Stock, and Material Movers
5. Wholesale Manufacturing Sales Representatives

BENEFITS PER MILLION INVESTED

Energy Cost Savings
$443,100

Energy costs avoided by reducing grid reliance

Climate Benefits
$114,300

Avoided future damages of climate change from greenhouse gas pollution

Air Pollution Health Benefits
$101,300

Saved lives and avoided illnesses from improved air quality

Total
$658,700

These findings are an excerpt from *Investing in a Better Massachusetts: An Analysis of Jobs and Community Benefits from Green Investments*. Read the full report here.

Broadband Connectivity

Broadband installation. Photo: David Clow

INVESTMENT SCALE

Moderate $ $ $

DEPLOYMENT SPEED

Moderate

DESCRIPTION

Broadband Connectivity expands access to high-speed broadband through municipal-owned fiber optic networks. This includes networks that serve only municipal buildings, such as government buildings, schools, and libraries, as well as networks that are available to all residents, businesses, and institutions in a municipality.

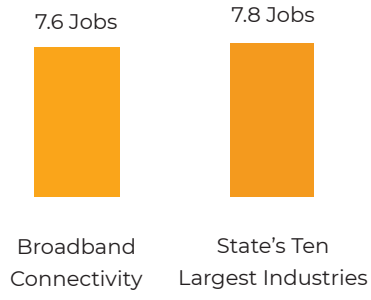
BENEFITS

The COVID-19 pandemic and the transition to remote work and learning has shown that access to high-speed broadband is essential for learning, working, and socializing, yet many households lack adequate access or cannot afford broadband. Investments in *Broadband Connectivity* can ensure entire communities have access to reliable, high-speed, and affordable broadband in Massachusetts. These investments support jobs in construction, engineering, and manufacturing, and may create additional jobs in the broader economy if future telework reduces personal vehicle use.

RESULTS

Supports 7.6 jobs per million dollars invested in fiber optic infrastructure, nearly equal to the number of jobs supported per million dollars invested in the state's ten largest industries.

JOBS PER MILLION INVESTED



TOP OCCUPATIONS

1. Construction Laborers
2. Carpenters
3. Electricians
4. First-Line Construction Supervisors
5. General and Operations Managers

ADDITIONAL BENEFITS

***Broadband Connectivity* would increase**

- Reliability
- Affordability
- Economic opportunity

While reducing

- Household and business costs

These findings are an excerpt from *Investing in a Better Massachusetts: An Analysis of Jobs and Community Benefits from Green Investments*. Read the full report here.