Solar for the Environment Toolkit

The benefits our natural environment reaps from the adoption of solar energy on the local level are plentiful. Implementing solar energy can reduce greenhouse gas emissions and help protect communities from the potential adverse effects of climate change. Many regional councils and their local governments have taken steps to become stewards of their surrounding environment by incorporating environmental sustainability into comprehensive plans or policies. Others are required to meet certain goals and standards established by the state to reduce their carbon footprints and improve the overall quality of life for the community. Incorporating solar energy into these plans can augment all of these efforts and the subsequent benefits.

The *Solar for the Environment Toolkit* provides regional councils with the foundation to integrate solar energy into existing energy or sustainability plans or develop their own. The toolkit presents basic information concerning solar energy adoption's environmental benefits and then explores different ways a regional council and/or local government can finance, plan, and implement solar energy in their community.

Additionally, the *Solar for the Environment Toolkit* is meant to be used as a compendium to the National Association of Regional Councils' *Regional Solar Deployment Handbook*. For general resources on how your region can go solar, including myths and misconceptions of solar, information about the current solar market, financing tools, and regional solar best practices, please see the handbook.

THE CASE FOR SOLAR

The first step in including solar energy in your region's environmental portfolio is garnering support. Solar energy is a resourceful and intuitive way for regional councils to achieve their energy and environment goals. The following resources serve as an introductory guide to the environmental benefits of solar energy, including how regions can use solar energy to reduce greenhouse gas emissions, mitigate climate change, improve public health, and address other environmental issues.

The Case for Expanding Solar Energy in America
Solar Energy Industries Association
This report details how the adoption of solar energy can assist regional councils and local governments in fulfilling the requirements of the *Clean Air Act*.

Shining Cities: At the Forefront of America's Solar Energy Revolution
Environment America Research and Policy Center
This report examines the growth of solar energy in America, demonstrates why solar energy is becoming a mainstream source of electricity, and explains the benefits of solar energy for American cities' health and natural environment.

Solar Energy and Climate Change
Solar Energy Industries Association
This brief explains solar energy's role in reducing greenhouse gas emissions from America's top economic sectors.

Solar Energy and Resilience Planning: A Practical Guide for Local Governments
ICLEI-Local Governments for Sustainability USA
This guide provides a comprehensive look at the benefits of solar power in mitigating and adapting to climate change.

Energy, Economic, and Environmental Benefits of the Solar America Initiative
National Renewable Energy Laboratory
This report discusses the environmental benefits of increased solar energy capacity, including the reduction of greenhouse gas emissions.

FINANCING

Now that your regional council understands the environmental benefits of solar energy and has gained interest in bringing solar energy to its communities, the next step is to determine the best way to finance a proposed project. The resources found in this section of the toolkit provide an overview of the options available to regions exploring ways to finance environmentally-focused solar energy projects. It includes several links to government funding sources and programs, as well as examples of how regions have funded their own solar energy initiatives.

Guide to Federal Financing for Energy Efficiency and Clean Energy Deployment
U.S. Department of Energy
This resource lists a multitude of federal financing programs for state, local, and tribal leaders to fund solar energy and other renewable energy projects.

Database of State Incentives for Renewables and Efficiency
U.S. Department of Energy
This database provides information on state, local, utility, and federal incentives that promote solar and other sources of renewable energy.

Office of Energy Efficiency and Renewable Energy (EERE)
U.S. Department of Energy
EERE provides funding opportunities to advance America's renewable energy agenda and make renewable electricity generation cost-competitive with other traditional sources.

U.S. Environmental Protection Agency's (EPA) Green Power Partnership
Metropolitan Washington Council of Governments (MWCOG)
With support from EPA's Green Power Partnership, MWCOG created a collaborative solar procurement initiative. The initiative aims to replicate the benefits seen in Silicon Valley, such as lower installation costs.

Renewable Energy Certificates
National Association of Regional Councils
A Renewable Energy Certificate (REC) is a tradable certificate representing the generation of one megawatt hour of electricity from a renewable energy source. In this podcast, Calor Energy and Shift Equity explain how local governments can use RECs.

Solar Energy and Resilience Planning: A Practical Guide for Local Governments
ICLEI-Local Governments for Sustainability USA
This guide takes a comprehensive look at the benefits of solar power in mitigating and adapting to climate change. Chapter five focuses on project financing for solar energy.

Integrating Solar PV into Energy Services Performance Contracts: Options for Local Governments Nationwide

The North Carolina Clean Energy Technology Center

This report explains how local governments can afford to meet goals to reduce energy costs and increase sustainability through a finance method known as a energy services performance contract.

A Solar Leader in the Capitol Region

The SunShot Solar Outreach Partnership

Prince George's County, Maryland is meeting ambitious energy efficiency, climate change, and renewable energy goals by incorporating solar energy into its Smart Energy Communities Program. This case study highlights several examples the region used to finance its solar energy projects and plan updates.

After determining how a project will be financed, a regional council needs to look at how it will incorporate solar energy into its existing plans or how it will create a new plan for solar energy in the community. The resources found in this section demonstrate the different ways regional councils can approach planning for solar energy development, including working with stakeholders and existing environmental working groups, using planning tools, and learning from examples of solar energy in sustainability or energy plans.

Regional Solar Initiative

National Association of Regional Councils

Through its Regional Solar Initiative, the Metropolitan Area Planning Council (MAPC) brings together communities to assess their solar potential and plan for renewable energy development in order to reduce greenhouse gas emissions and dependence on fossil fuels. MAPC's initiative assists communities with planning for solar by using solar energy management services to explore and advance local solar projects.

Solar Mapping

National Association of Regional Councils

Solar mapping can be used as an effective tool to raise awareness and educate communities and citizens about the benefits of solar energy. Maps can estimate the generating capacity and cost of a solar installation by neighborhood, block, or even building. This toolkit provides step-by-step instructions on setting up solar mapping in your region.

Alternative Energy Ordinance Framework

National Association of Regional Councils

As solar energy development increases, regions realize the need for consistent guidance around constructing renewable energy ordinances. Learn how regions, like the Merrimack Valley Planning Commission and the Delaware Valley Regional Planning Commission, are developing model ordinances and frameworks to provide guidance and sample language for photovoltaic system (PV) installations that promote safe and sound community development.

Solar in Climate Action Plans

National Association of Regional Councils

The Metropolitan Washington Council of Governments developed a *Climate Action Plan* to support the region's reduction of greenhouse gas emissions through the increase of renewable energy production, including solar PV.

Solar Energy and Resilience Planning: A Practical Guide for Local Governments

ICLEI-Local Governments for Sustainability USA

This guide includes methods for integrating solar energy into current environmental comprehensive plans.

Maximum Solar at the Heart of Urban Forests

The SunShot Solar Outreach Partnership

This webinar discusses the potential conflicts between urban forestry and solar energy, and recommends solutions that enable communities to plan for solar energy growth in the heart of urban forests.

AVoided Emissions and geneRation Tool (AVERT)

U.S. Environmental Protection Agency

EPA's State and Local Climate and Energy Program has a tool that estimates the emissions benefits of energy efficiency and renewable energy policies and programs. The free AVERT tool is designed to meet the needs of state air quality planners and other interested users. However, non-experts can easily use AVERT to evaluate county-level reductions of electric power plant emissions due to energy efficiency and renewable energy policies and programs.

Profile of Clean Energy Investment Potential: Los Angeles County

Environmental Defense Fund and the UCLA Luskin Center for Innovation

This report presents research on the impacts of climate change in the Los Angeles region and discusses how community leaders can identify areas for solar energy investments to mitigate the adverse impacts.

There are multiple ways a regional council can implement solar energy into existing safety and resiliency efforts, whether the focus is on using solar to provide reliable energy to remote areas, providing firefighter safety guidelines for installing solar, or promoting disaster resiliency by integrating solar into evacuation routes and on critical facilities. This section of the toolkit provides several examples of how to successfully integrate solar into these types of initiatives.

Solar Case Study: Franklin, TN
The SunShot Solar Outreach Partnership
This case study examines how the City of Franklin, Tennesee created sustainability goals that focused on adopting solar energy on the city's wastewater treatment facility and combining its historic preservation guidelines with sustainability and solar energy.

A Solar Leader in the Capitol Region
The SunShot Solar Outreach Partnership
This case study highlights how Prince George's County, Maryland is meeting its ambitious energy efficiency, climate change, and renewable energy goals by incorporating solar energy into its Smart Energy Communities Program. The case study includes several examples of how solar energy was implemented throughout the county.

Solar, Sustainability, and Energy Efficiency in Columbia, MO
International City/County Management Association
The City of Columbia, Missouri and Columbia Water and Light discuss the city's solar initiatives and how they tie in with other energy efficiency and sustainability programs underway in the community.

Solar Case Study: Lancaster, CA
The SunShot Solar Outreach Partnership
This case study explores the City of Lancaster, California's ambitious renewable energy goals. Learn how the city is using solar energy to become the "Alternative Energy Capital of the World" and to be a net-zero city for electrical use by 2020.

Recycling Land for Solar Energy Development
American Planning Association
This briefing paper provides planners with guidance on promoting solar energy use in their communities to help meet local energy and sustainability goals.

Solar Case Study: Chapel Hill, NC
The SunShot Solar Outreach Partnership
This case study focuses on how the City of Chapel Hill, North Carolina is incorporating solar energy in new development and redevelopment projects to progress its environmental sustainability goals.

Balancing Solar and Other Potential Competing Interests in Communities

The SunShot Solar Outreach Partnership

This webinar discusses how planners can help communities balance the competing interests and tradeoffs associated with solar energy development. A portion of the webinar focuses on tree preservation.

Solar Case Study: Barnstable, MA

The SunShot Solar Outreach Partnership

Reducing the City of Barnstable, Massachusetts's greenhouse gas emissions and mitigating the adverse effects of climate change through renewable energy adoption has always been a focal piece of the city's development strategy. This case study explains how the Barnstable became a regional leader in solar energy through its various solar initiatives.

Solar Case Study: Reno, NV

The SunShot Solar Outreach Partnership

This case study highlights how the City of Reno, Nevada implemented solar energy to counter the closure of coal-fired power plants and transmission issues during an energy crisis.

Using the *Solar in the Environment Toolkit*, your region can discover a multitude of ways to address environmental issues through the adoption of solar energy. The reports, fact sheets, case studies, and other resources compiled in this toolkit will guide your region to environmental sustainability. For more information on implementing solar in your region, see the ***Regional Solar Deployment Handbook***. This comprehensive resource provides an overview of solar technology and the solar market. It identifies seven actions regional councils can take to promote solar energy adoption in their region.

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