

Photovoltaic panels and rainwater ditch construction



Overview

Researchers are studying new ways to plan and deploy large-scale solar farms to inhibit runoff generation and mitigate erosion — challenges that, if solved, could make solar farms a more attractive and versatile option for sustainable energy. Removing native vegetation or increasing the amount of impervious surface (roofs, parking, streets) in a watershed significantly changes how the watershed functions. Increased surface flow and decreased infiltration. Over the last decade, large-scale solar electric generation installations have grown by a factor of more than 250 in the United States, according to Solar Energy Industry Association data—from just 266 megawatts of utility and non-residential capacity to more than 75,000 megawatts by the end of. Most stormwater management ordinances adopted by Authorities Having Jurisdiction (AHJ) were written largely to address more traditional development with the understanding that the soils beneath these improvements are unable to infiltrate the rainwater shed from such impervious surfaces. For example, Virginia passed the Clean Economy Act in 2020, mandating a transition to 100% renewable energy by 2050, requiring the construction of as many as 65,155 ha (161,000 ac) of new solar farms.

Photovoltaic panels and rainwater ditch construction



A Rainy Day at a Solar Farm

We also have experience in erosion and sedimentation controls during solar PV construction activities and in site-stabilization/restoration after construction activities are completed. ...

[Learn More](#)

Solar farms with stormwater controls mitigate runoff, erosion, study

Solar panels are impervious to water, and vast arrays of them, it was feared, could increase the volume and velocity of stormwater runoff similar to concrete and asphalt.

[Learn More](#)



A study of stormwater regulations for solar site development

Ground-mount solar arrays allow for rainwater below the raised panels. This raises questions from solar developers and stormwater reviewers.

[Learn More](#)



How a photovoltaic panel impacts

rainfall-runoff and soil erosion

Photovoltaic (PV) power plants are fast growing worldwide due to the environmental benefit of solar power generation and the development of photovoltaic technology. However, the ...

[Learn More](#)



Solar and Stormwater

In this article, we will discuss projects we've worked on to illustrate some of the challenges and solutions associated with the stormwater management of solar array developments both during and after the ...

[Learn More](#)

Preventing and Mitigating Flood Damage to Solar Photovoltaic Systems

Discusses the importance of proactive measures, including site assessment, flood level considerations, and various engineering approaches to prevent and mitigate flood damage to solar photovoltaic ...

[Learn More](#)



Designing Drainage Systems for Renewable Energy Sites

A crucial part of the drainage systems design process is ensuring that water, in

any scenario, can flow smoothly across the site without causing any damage or flooding to critical ...

[Learn More](#)



Fact sheet on stormwater guidance for solar farm projects

This configuration raises challenges when addressing stormwater runoff and the design and construction of a permanent stormwater management system due to the relationship with the solar panel and ...

[Learn More](#)



Managing Runoff on Solar Farms

In Minnesota, for example, solar panels are classified as a disconnected impervious surface. The panels themselves are impervious material, but as stormwater flows off, it is discharged to a pervious ...

[Learn More](#)



Photovoltaic Stormwater Management Research and Testing (PV ...

The PV-SMaRT field testing and modeling identified four key elements of solar

development that have a large impact on managing stormwater and improving water quality outcomes:

[Learn More](#)



Contact Us

For catalog requests, pricing, or partnerships, please visit:
<https://v4venison.co.za>

