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Stormwater Considerations for Solar Development in New York State: Where Are We Headed?

CDRPC Conference
October 18, 2024

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Division of Water
NYSDEC

Agenda

- What initiatives are driving renewable energy trends in New York State?
- What approval processes progress renewable energy projects?
- What is the Green Energy Management Section?
  - Technical Guidance
- Where are we headed?
  - Lessons Learned

What initiatives are driving renewable energy trends in New York State?

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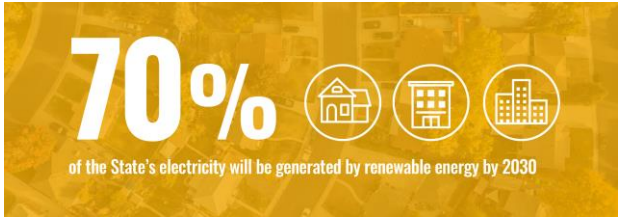
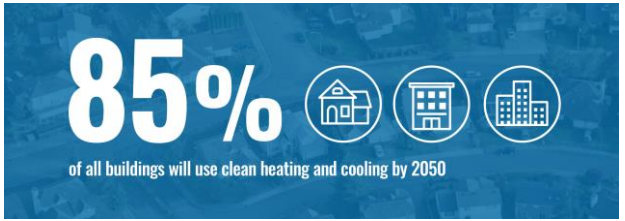
Climate Leadership and Community Protection Act (Climate Act)





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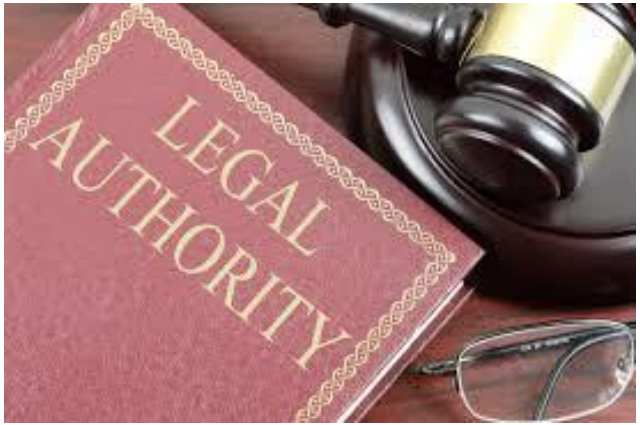
Renewable Action through Project Interconnection and Deployment (RAPID) Act

What is the RAPID Act?

- In order to meet Climate Leadership and Community Protection Act (CLCPA) goals, maintain the reliability of NY's electric transmission system and expedite review of major renewable energy facilities, bulk and local transmission facilities need to be upgraded to deliver renewable energy.
- Office of Renewable Energy Siting (ORES) oversees approvals

What approval processes progress renewable energy projects?

- State Environmental Quality Review Act (SEQR)
- Article VII: Major transmission facility siting
- Article 10: New and repowered or modified major electric generating facilities
- Section 94-c: Major renewable energy facilities
- Article VIII (RAPID Act): Major renewable energy generation & transmission



Permitting Differences

	Article 10, Article VII, {*Article 8*}, Section 94-c Certificates	SEQR
Law	Public Service	Environmental Conservation
Administered by	DPS – Department of Public Service ORES – Office of Renewable Energy Siting	DEC
DEC involvement	Consulted during pre-application and application phases Review required plans and provide suggested comments CGP permitting – SWPPP reviews	Final decisionmaker throughout the whole process, e.g., application, permit drafting, plan review
Who else is involved?	Statutory Parties: State agencies, municipalities, public interest groups, etc.	Interested parties: State agencies, municipalities, public interest groups, etc.

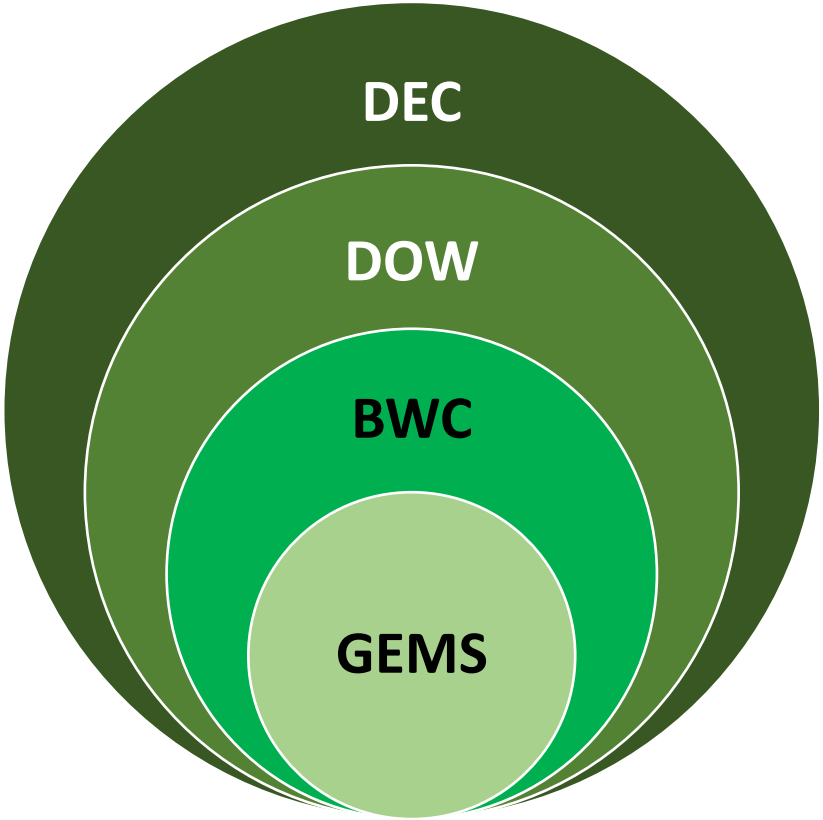
What is Considered Large-Scale Renewable?

- No official definition of "large-scale renewable"
- Prior to the implementation of 94-c renewable energy projects;
  - 25 MW or larger were reviewed under Article 10
  - Less than 25 MW were reviewed pursuant to SEQR
- After 94-c the same was true, except for projects between 20 MW and 25 MW, where the project sponsor had the option of having the project reviewed either under 94-c or SEQR.
- Now with Article VIII, only projects 25 MW or larger will be reviewed under Article VIII. Any project smaller than 25 MW are reviewed pursuant to SEQR

What Constitutes a Major Electric Transmission Facility?

- Lines 125kV (kilovolts) or more that are 1 mile or more
- Lines 100kV or more that are 10 miles or more
- Except for:
  - Underground lines in cities with a population >125,000
  - Lines to FERC (Federal Energy Regulatory Commission) hydroelectric facilities

What is the Green Energy Management Section?



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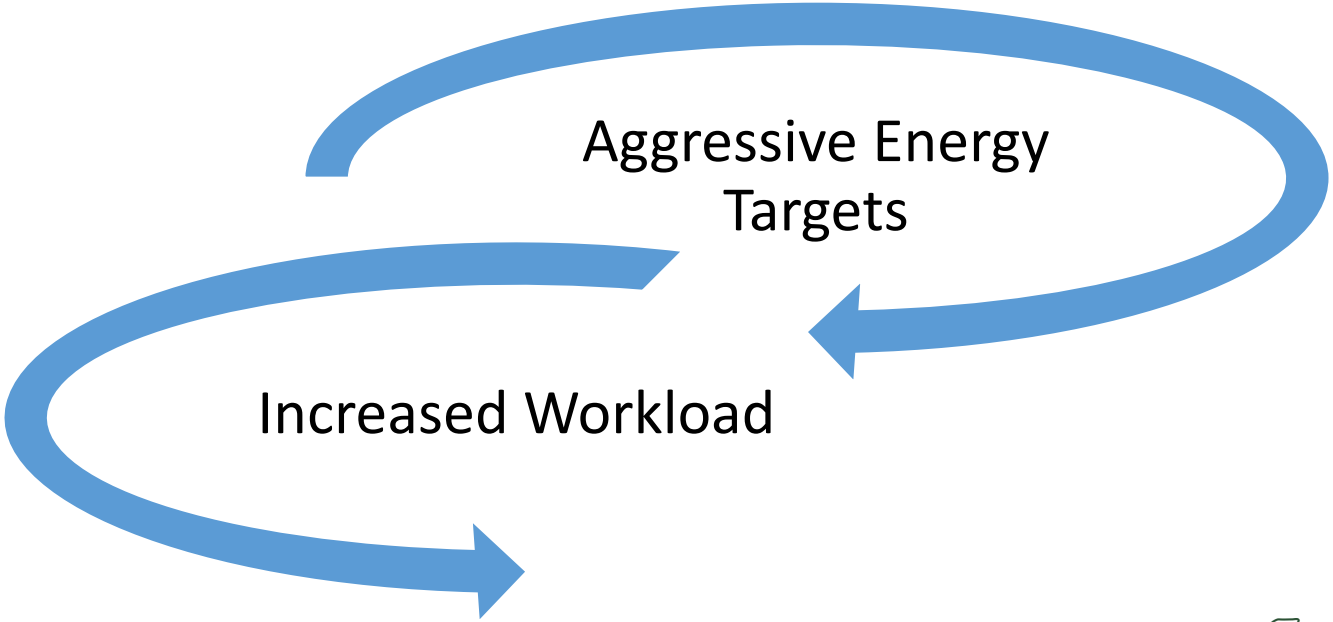
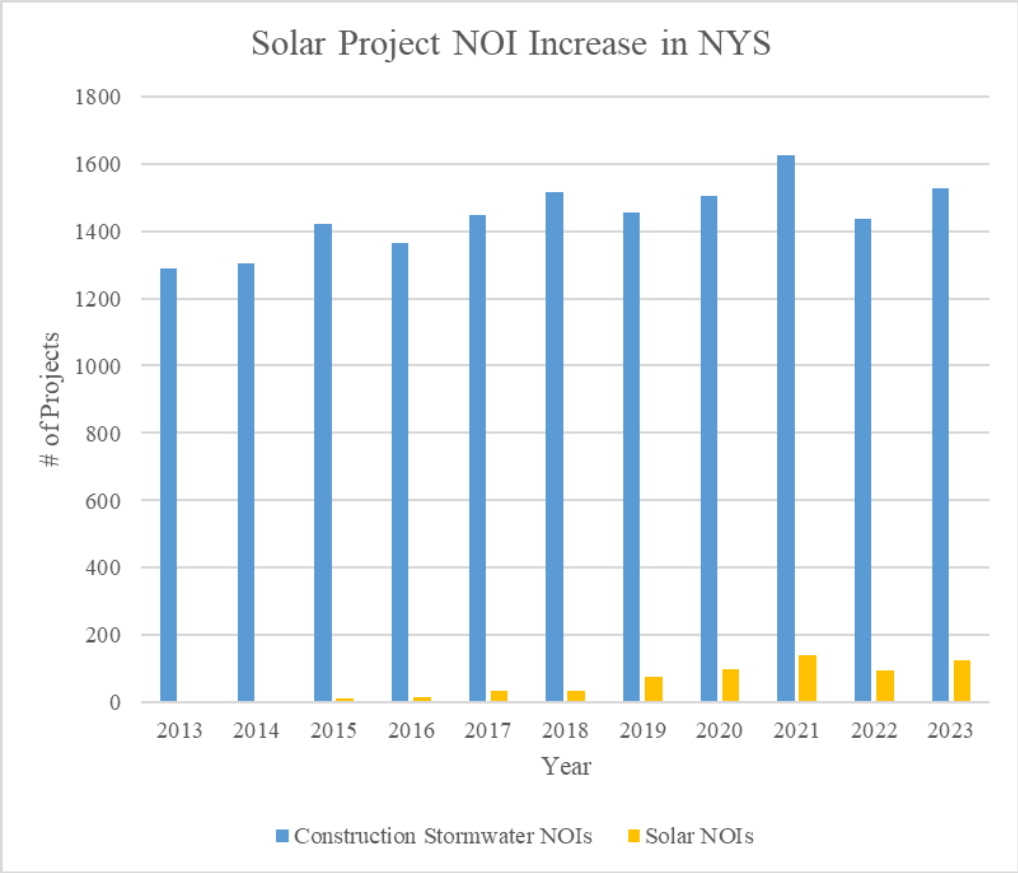
Why do we need GEMS?



Permitting Trends



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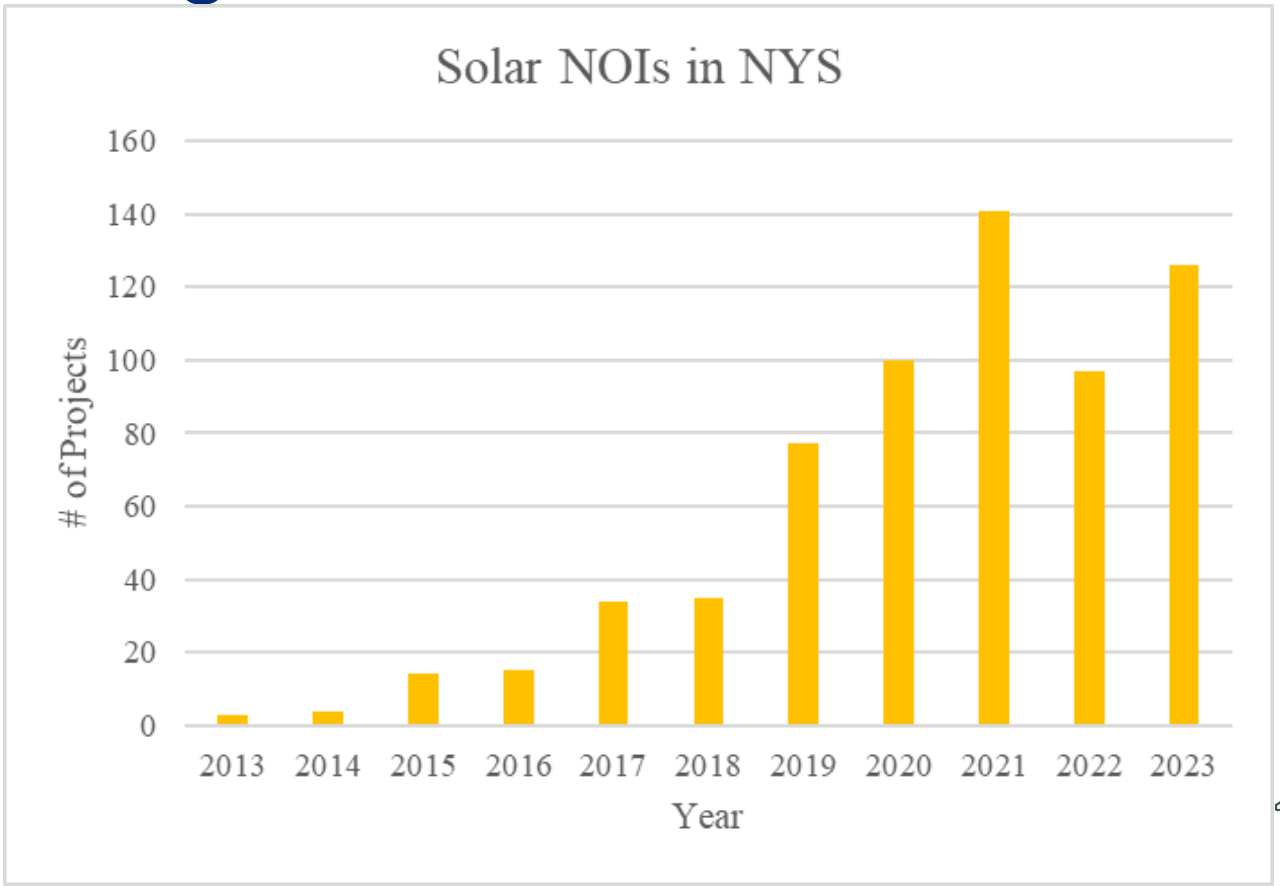
Permitting Trends



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What is GEMS responsible for?

- Revise renewable energy program guidance
- Develop standard operating procedures
- Establish project tracking mechanisms
- Coordinate project reviews, inspections, and enforcement across the Regions

What is GEMS responsible for?

- GEMS serves as a clearinghouse for renewable energy policies, SOPs, and technical standards.
- GEMS will provide education and outreach for these areas to DEC regions, applicants, designers, municipalities, outside agencies, and the general public.
- In the future, GEMS will serve as a “relief valve” in cases where regional staff is temporarily unavailable to perform these duties.

Takeaway

- GEMS was developed to meet rising project needs associated with renewable energy projects across the state
- GEMS helps facilitate renewable energy project reviews and approvals for the Division of Water
- GEMS helps DOW staff and their partners with technical resources

SWPPP Preparation Guidance

NYSDEC April 5, 2018 Memorandum:

Solar Panel Construction Stormwater Permitting/ SWPPP Guidance

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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MEMORANDUM

TO: Regional Water Engineers

FROM: Robert Wither, Chief, South Permit Section

SUBJECT: Solar Panel Construction Stormwater Permitting/SWPPP Guidance

DATE: April 5, 2018

Issue

The Department is seeing an increase in the number of solar panel construction projects across New York State. This has resulted in an increase in the number of questions on Construction General Permit (CGP) and Stormwater Pollution Prevention Plan (SWPPP) requirements from design professionals because the current CGP (GP-0-15-002) does not include a specific reference to the SWPPP requirements for solar panel projects in Tables 1 and 2 of Appendix B. To address this issue, the Division of Water (DOW) has developed the following guidance on CGP/SWPPP requirements for the different types of solar panel projects.

Scenario 1

The DOW considers solar panel projects designed and constructed in accordance with the following criteria to be a "*Land clearing and grading for the purposes of creating vegetated open space (i.e. recreational parks, lawns, meadows, fields)*" type project as listed in Table 1, Appendix B of the CGP. Therefore, the SWPPP for this type of project will typically just need to address erosion and sediment controls.

1. Solar panels are constructed on post or rack systems and elevated off the ground surface,
2. The panels are spaced apart so that rain water can flow off the down gradient side of the panel and continue as sheet flow across the ground surface*,
3. For solar panels constructed on slopes, the individual rows of solar panels are generally installed along the contour so rain water sheet flows down slope*,
4. The ground surface below the panels consist of a well-established vegetative cover (see "Final Stabilization" definition in Appendix A of the CGP),
5. The project does not include the construction of any traditional impervious areas (i.e. buildings, substation pads, gravel access roads or parking areas, etc.),
6. Construction of the solar panels will not alter the hydrology from pre-to post development conditions (see Appendix A of the CGP, for definition of "Alter the hydrology…"). Note: The design professional shall perform the necessary site assessment/hydrology analysis to make this determination.

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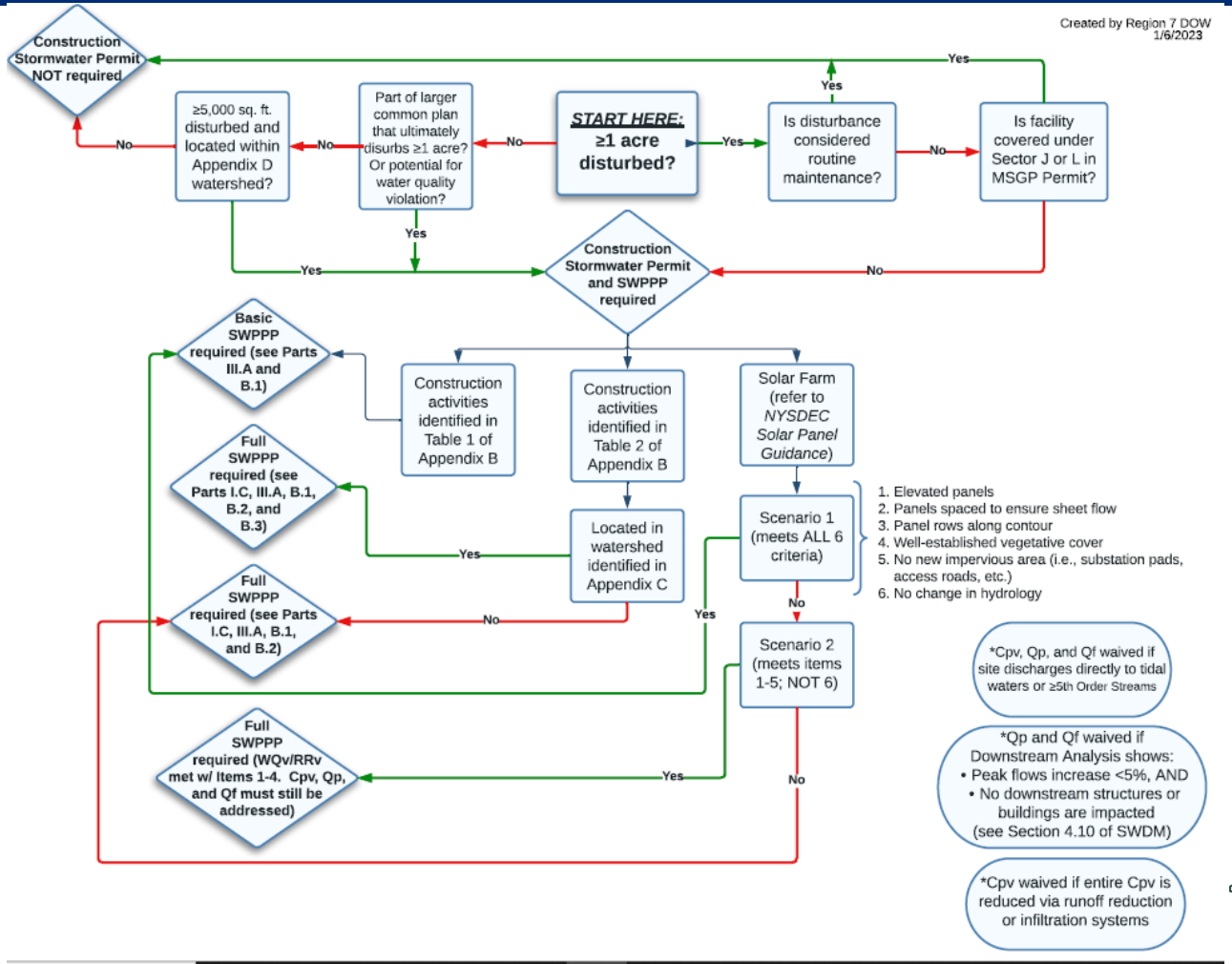

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Lessons Learned

Industry Concerns

1. Panels are not truly impervious in the traditional sense
2. Panels are not generally placed along the contour
3. Slope limitations and need for “engineered plans”
4. Rotating panels not considered
5. Limitations for placement of pervious access roads and use during construction

Local Concerns

1. Number of projects proposed in the municipality
2. Siting concerns
   - Visual impacts, farmland use
3. Safety
   - Battery storage, transformer safety, emergency personnel safety
4. Decommissioning
5. Dual uses

DEC Lessons Learned

- Steep slope development is an issue
- Maintaining sheet flow is essential to managing stormwater flows in a non-erosive manner
- Out of state designers sometimes struggle to meet or understand New York's design considerations

DEC Lessons Learned

- Opening large tracts of soil is sometimes necessary
  - Lack of Winter Stabilization Plan
  - Phase construction & stabilization
  - Additional ESC measures required or not in conformance with Blue Book

DEC Lessons Learned

- Directional Drilling
  - Detailed frac-out plan
  - Adequate storage for excess drilling fluid

Path Forward

What does this mean for the Capital District?

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How Do We Pivot?

- Clarification of guidance
- Construction General Permit revisions
- Research
- Partnerships

Solar Memo Update

- 2025 Solar Guidance
- Based on lessons learned
- Ties things back to the NYS Stormwater management Design Manual and NY Standards and Specifications for Erosion and Sediment Control

Construction General Permit Update

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DRAFT Construction General Permit Appendix B, Table 1

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a *SWPPP* That Only Includes Erosion and Sediment Controls

- Solar array field areas that have tables elevated off the ground, spaced one table width apart, do not *alter hydrology from pre- to post-development conditions*, and address water quality volume and runoff reduction volume by maintaining sheet flow on slopes less than 8%.

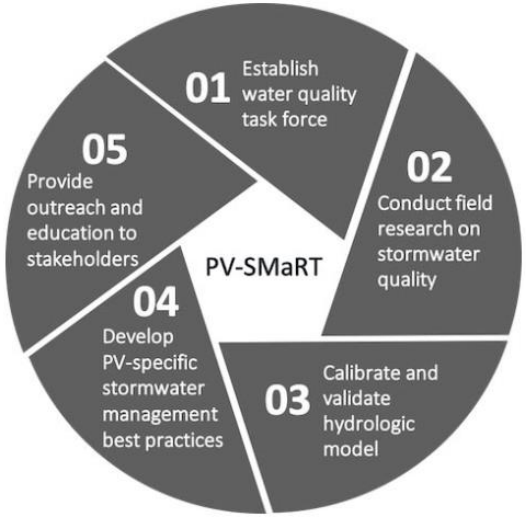
DRAFT Construction General Permit Appendix B, Table 2

Table 2
***CONSTRUCTION ACTIVITIES* THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES (SMPS)**

- Solar array field areas on slopes greater than 8% that cannot maintain sheet flow using management practices identified in the BB or the DM
- Solar array field areas on slopes less than 8% that will *alter the hydrology from pre- to post-development* conditions
- Solar array field areas with ground-mounted tables
- Traditional *impervious areas* associated with solar development (e.g. roads, buildings, transformers)

Research

- PV-SMaRT
  - https://www.nrel.gov/solar/market-research-analysis/pv-smart.html
  - Research findings
  - Runoff calculator
  - Field research sites
  - Water Quality Task Force



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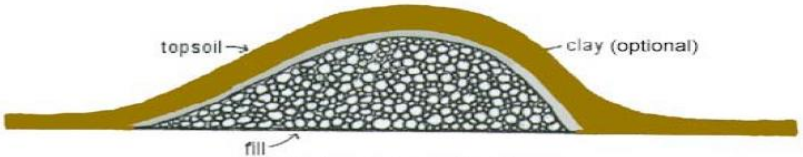
Research

- Best management practices from other states

BMP 6.4.10: Infiltration Berm & Retentive Grading



ideal substrate layers for a berm

An Infiltration Berm is a mound of compacted earth with sloping sides that is usually located along a contour on relatively gently sloping sites. Berms can also be created through excavation/removal of upslope material, effectively creating a Berm with the original grade. Berms may serve various stormwater drainage functions including: creating a barrier to flow, retaining flow and allowing infiltration for volume control, and directing flows. Grading may be designed in some cases to prevent rather than promote stormwater flows, through creation of "saucers" or "lips" in site yard areas where temporary retention of stormwater does not interfere with use.

Partnerships

- NYSERDA
- NYSEIA
- Department of Ag & Markets
- Department of Public Service (DPS)
- Office of Renewable Energy Siting (ORES)
- DEC Divisions

Thank You

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