Office of Regulatory Management

Economic Review Form

Agency name	Department of Environmental Quality
Virginia Administrative Code (VAC) Chapter citation(s)	9 VAC15-60
VAC Chapter title(s)	Small Renewable Energy Projects (Solar) Permit by Rule (PBR)
Action title	Amend 9VAC15-60 to comport with the requirements of Chapter 688 of the 2022 Acts of Assembly
Date this document prepared	May 9, 2024
Regulatory Stage (including Issuance of Guidance Documents)	Proposed and Periodic Review

Cost Benefit Analysis

Complete Tables 1a and 1b for all regulatory actions. You do not need to complete Table 1c if the regulatory action is required by state statute or federal statute or regulation and leaves no discretion in its implementation.

Table 1a should provide analysis for the regulatory approach you are taking. Table 1b should provide analysis for the approach of leaving the current regulations intact (i.e., no further change is implemented). Table 1c should provide analysis for at least one alternative approach. You should not limit yourself to one alternative, however, and can add additional charts as needed.

Report both direct and indirect costs and benefits that can be monetized in Boxes 1 and 2. Report direct and indirect costs and benefits that cannot be monetized in Box 4. See the ORM Regulatory Economic Analysis Manual for additional guidance.

Omitted Table 1c pursuant to ORM Regulatory Economic Analysis Manual. Chapter 688 amended and reenacted § 10.1-1197.6 of the Code of Virginia, mandating DEQ to develop mitigation measures for impacts to prime agricultural soils and contiguous forest lands.

Table 1a: Costs and Benefits of the Proposed Changes (Primary Option)

(1) Direct & Indirect Costs & Benefits (Monetized)	Direct Costs: Describe the direct costs of this proposed change here. **Background of proposed regulatory changes:** § 10.1-1197.6 of the Code of Virginia and the current solar PBR regulation requires a mitigation plan for any project with significant adverse impacts to natural or historic resources. In 2022, Chapter 688 amended and reenacted § 10.1-1197.6 of the Code by adding the following language: *A project will be deemed to have a **significant adverse impact** if it would disturb more than **10 acres of prime agricultural soils** or **50 acres of contiguous forest lands**, or if it would disturb **forest lands enrolled in a program for forestry preservation** pursuant to subdivision 2 of § 58.1-323.* The addition of this language in the statute **requires** DEQ to develop mitigation for impacts to prime agricultural soils and forest land. DEQ is proposing **two types** of mitigation for impacts to prime agricultural soils, contiguous forest lands or C1 or C2 ecological cores: **1. Conservation Easement or Easements:** Conservation easements will require direct protection of land by acquisition of a conservation easement or easements. The following mitigation ratios* are proposed: • 1:1 mitigation ratio for disturbance of more than 10 acres of prime agricultural soils • 1:1 mitigation ratio for disturbance of more than 50 acres of contiguous forest lands • 1:1 mitigation ratio for disturbance of forest lands enrolled in a program for forestry preservation • 7:1 mitigation ratio for disturbance of forest land categorized as Ecological Core C1 • 2:1 mitigation ratio for disturbance of forest land categorized as Ecological Core C2 *Mitigation ratio means the ratio of the area conserved to the area disturbed. For example, a ratio of 1:2 would require one-half acre conserved for each acre of disturbance. **2. In-Lieu Fees:**

	"In-lieu" of the applicant acquiring conservation easements, the applicant pays a fee to a third party designated by DEQ. The in-lieu fee will be used to acquire a conservation easement. The amount of the in-lieu fee is calculated to approximately equal the cost to the applicant of acquiring the required conservation easements. Direct Costs: Direct costs such as permit application fees, survey requirements for natural and historic resources, and Coastal Avian Protection Zone mitigation fees are omitted from this analysis because they will not change under the proposed regulation or the status quo alternative. Direct cost of a conservation easement or in-lieu fee fund payment are omitted from this analysis because they are transfer payments. **1. Increased cost for preparing the application.** Determining the direct costs for a conservation easement or in-lieu fee payment will depend on the number and type of acres impacted. All applicants will incur additional direct costs to map and calculate the impact of their proposed development on prime agricultural soils, contiguous forest lands and C1 and C2 ecological cores. The regulations identify geographic information system (GIS) resources that may be used to identify these resources without physical surveys. Based on informal interviews of consultants, the additional time required to map and calculate the impacts on these resources may average approximately 8 hours. Assuming a rate of $100/ hour for consultant time, this increased cost per application may be $800. Indirect Costs: Describe the indirect costs of the proposed change. The indirect costs of mitigation for significant adverse impacts to prime agricultural soils, contiguous forest lands and C1, C2 ecological cores cannot be quantified by DEQ. It is possible the mitigation requirements could slow the development of utility scale solar development in the commonwealth. It is also possible the mitigation requirements could result in increased consumer costs for electricity. Direct Benefits: Describe the direct benefits of this proposed change here.

	The new mitigation ratios will provide protections for Virginia's farms and forest lands. The new mitigation ratios will allow developers to determine the up-front costs associated with utility scale solar projects. Value of conserved forest lands: The total annual financial contribution of forest products in Virginia has been estimated at $23,600,000,000. There are 13,107,486 acres of privately owned forest land in Virginia. Therefore, the annual per acre financial contribution of private forest land is approximately $1,800. The total annual loss of forest land due to land use conversion is 59,782 acres. This means the probability of conversion of any acre of forest in any given year is 0.46%. The annual value of protecting an acre of forest land (per acre financial contribution times probability of loss) equal $8.21. The present discounted value of protecting an acre of forest land in perpetuity (annual value divided by 3% discount rate) equals $273.73. Value of conserved prime agricultural soils: The total annual financial contribution of agricultural products in Virginia has been estimated at $82,329,000,000. There are 7,309,687 acres of farmland in Virginia. Therefore, the annual per acre financial contribution of agricultural land is approximately $6,281. The total annual loss of farmland due to land use conversion is 97,600 acres. This means the probability of conversion of any acre of forest in any given year is 0.74%. The annual value of protecting an acre of farmland (per acre financial contribution times probability of loss) equal $46.77. The present discounted value of protecting an acre of farmland in perpetuity (annual value divided by 3% discount rate) equals $1,558.99. Value of conserved prime agricultural soils: Calculating the value of preserving C1 and C2 ecological cores requires determining the value of ecosystem services and non-use values (such as biodiversity preservation). Although we know these lands have value, DEQ is unable to calculate their economic value. There are approximately 2,926,000 acres of C1 ecological cores and 2,288,000 acres of C1 ecological cores. We do not have direct data on the rate of loss of these cores but since these are forests can estimate the annual probability of conversion is approximately 0.74%. Indirect Benefits: Describe the indirect benefits of the proposed change. Small solar projects are beneficial to the environment because they generate electricity that might otherwise be generated by facilities that rely on the combustion of fossil fuels. Public health and welfare and thus protected. Solar generation of electricity also helps reduce our country's dependence on foreign oil and helps increase jobs and

	economic development related to construction and operation of these projects.	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) (a) See Tables 1 and 2 above	(b) b) Fiscal estimates are indeterminate
(3) Net Monetized Benefit	NA	
(4) Other Costs & Benefits (Non-Monetized)	NA	
(5) Information Sources	Fiscal analysis statements prepared by legislature in support of HB206 promulgation and Economic Impact Analysis prepared by the VA Dept. of Planning and Budget; previously prepared regulatory development documents; industry contacts; The Economic Impact of Virginia's Agriculture and Forest Industries, Weldon Cooper Center for Public Service, University of Virginia (2021); "USDA Forest Service. 2022. Forests of Virginia, 2020. Resource Update FS-395. Asheville, NC: U.S. Department of Agriculture, Forest Service."; and 2022 Census of Agriculture, USDA, National Agricultural Statistics Service.	

Table 1b: Costs and Benefits under the Status Quo (No change to the regulation)

(1) Direct & Indirect Costs & Benefits (Monetized)	Direct Costs: Describe the direct costs of this proposed change here. The following direct costs are incurred when permitting a solar project with a rated capacity greater than five megawatts and a disturbance zone greater than 10 acres through the current PBR process:

1. **Permit application fee based on project MW:**

Table 3

Type of Action	Fee
Application: >5 MW to 25 MW	$8,000
Application: >25 MW to 50 MW	$10,000
Application: >50 MW to 75 MW	$12,000
Application: >75 MW to 150 MW	$14,000

2. **Survey requirements for natural and historic resources:**

Table 4

Rated Capacity/ Disturbance Zone Acreage	Non-Fee Requirements	Estimated Cost of Non-Fee Requirements
Greater than 5 MW and greater than 10 acres	desktop and field surveys for both wildlife and cultural resources*	$50,000 - $70,000

*These cost estimates include reporting, recordkeeping, and administrative costs.

3. Coastal Avian Protection Zone mitigation fee **if required:**

Projects located in part or in whole within zones 1, 2, 3, 4, 5, 10, 11, 12, or 14 on the Coastal Avian Protection Zones (CAPZ) map must pay a mitigation fee of $1,000.00 per megawatt MW of rated capacity.

Indirect Costs: Describe the indirect costs of the proposed change.

Fiscal estimates are indeterminate.

Direct Benefits: Describe the direct benefits of this proposed change here.

No direct benefits would be realized by not amending the regulation in accordance with state law. Currently realized benefits would continue in the absence of amendment.

Indirect Benefits: Describe the indirect benefits of the proposed change.

No indirect benefits would be realized by not amending the regulation in accordance with state law. Currently realized benefits would continue in the absence of amendment.

(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a) See Tables 3 and 4 above	(b) Fiscal estimates are indeterminate
(3) Net Monetized Benefit	NA	
(4) Other Costs & Benefits (Non-Monetized)	NA	

(5) Information Sources	Economic Impact Analysis from the VA Dept. of Planning and Budget; previously prepared regulatory development documents; industry contacts.

Impact on Local Partners

Use this chart to describe impacts on local partners. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

Table 2: Impact on Local Partners

(1) Direct & Indirect Costs & Benefits (Monetized)	Direct Costs: Describe the direct costs of this proposed change here. Fiscal estimates are indeterminate; however, the Solar PBR is not expected to create costs for localities, unless a locality itself chooses to develop a solar energy project, in which case the locality's costs will be similar to the costs of any other permit applicant. Indirect Costs: Describe the indirect costs of the proposed change. Fiscal estimates are indeterminate; however, there might be potential costs to a locality if a project is developed within its jurisdiction. These indirect costs could occur because of the existence of the project (with potential access or road construction issues, for example) but not because of the solar PBR regulation. The locality, pursuant to its land-use authority, has the power to determine whether or not a project can be located within its jurisdiction. A locality's decisions in this regard are separate from the operation of the regulations. DEQ only requires that the local government certify that the applicant has met all local land-use ordinances. Direct Benefits: Describe the direct benefits of this proposed change here. The purpose of a Permit by Rule is to provide expedited, simplified permitting as mandated by state law; this provides a measure of regulatory relief. The small solar energy permit by rule framework eliminates uncertainty in the permitting process because the 14 criteria which much be met to receive a permit to construct and operate are set forth in §§ 10.1-1197.6 (B) of the Code of Virginia. Further, the regulation specifies that DEQ must render a decision concerning the permit application within 90 days. This significant reduction in uncertainty is in itself beneficial and will increase the likelihood that net beneficial projects will go forward. Indirect Benefits: Describe the indirect benefits of the proposed change. Generally, solar energy projects are beneficial to the environment because they generate electricity that would otherwise be generated by highly polluting fossil fuel facilities.

(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits
	(a)) Fiscal estimates are indeterminate	(b)) Fiscal estimates are indeterminate
(3) Other Costs & Benefits (Non-Monetized)	NA	
(4) Assistance	NA	
(5) Information Sources	Economic Impact Analysis prepared by the VA Dept. of Planning and Budget; previously prepared regulatory development documents; locality contacts.	

Impacts on Families

Use this chart to describe impacts on families. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

Table 3: Impact on Families

(1) Direct & Indirect Costs & Benefits (Monetized)	Direct Costs: Describe the direct costs of this proposed change here. Fiscal estimates are indeterminate. Indirect Costs: Describe the indirect costs of the proposed change. An indirect cost to families could be the inability to lease or sell property for solar development that is classified as a C1 or C2 ecological core due to the high cost of mitigation. Direct Benefits: Describe the direct benefits of this proposed change here. No direct benefits to families are anticipated beyond those discussed in Table 1a. Indirect Benefits: Describe the indirect benefits of the proposed change. No indirect benefits to families are anticipated beyond those discussed in Table 1a.	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits

	(a) Fiscal estimates are indeterminate.	(b) Fiscal estimates are indeterminate.
(3) Other Costs & Benefits (Non-Monetized)	NA	
(4) Information Sources	Economic Impact Analysis from the VA Dept. of Planning and Budget; previously prepared regulatory development documents.	

Impacts on Small Businesses

Use this chart to describe impacts on small businesses. See Part 8 of the ORM Cost Impact Analysis Guidance for additional guidance.

Table 4: Impact on Small Businesses

(1) Direct & Indirect Costs & Benefits (Monetized)	Direct Costs: Describe the direct costs of this proposed change here. Developers of utility scale solar projects could be classified as small businesses. For developers in this category, the increased cost of mitigation as detailed in Table 1a could potentially limit solar development in Virginia. Indirect Costs: Describe the indirect costs of the proposed change. Fiscal estimates are indeterminate. Direct Benefits: Describe the direct benefits of this proposed change here. For any individual or company wishing to develop a solar energy project, the regulation provides certain, consistent and reasonable standards for obtaining a permit to construct and operate. Furthermore, the regulation mandates that DEQ process permit applications in no more than 90 days – a timeframe that should help developers in their planning and may also assist in obtaining project financing. Providing the new mitigation ratios for impacts to prime agricultural soils, forest lands and C1 and C2 ecological cores will allow the developer to determine the up-front costs of mitigation and evaluate project feasibility. Indirect Benefits: Describe the indirect benefits of the proposed change. No indirect benefits to small businesses beyond those identified in Table 1a are anticipated.	
(2) Present Monetized Values	Direct & Indirect Costs	Direct & Indirect Benefits

	(a) Fiscal estimates are indeterminate.	(b) Fiscal estimates are indeterminate.
(3) Other Costs & Benefits (Non-Monetized)	NA Economic Impact Analysis prepared by the VA Dept. of Planning and Budget; previously prepared regulatory development documents; industry contacts.	
(4) Alternatives	NA-Mandated by Chapter 688.	
(5) Information Sources	Economic Impact Analysis prepared by the VA Dept. of Planning and Budget; previously prepared regulatory development documents; industry contacts.	

Changes to Number of Regulatory Requirements

Table 5: Regulatory Reduction

For each individual action, please fill out the appropriate chart to reflect any change in regulatory requirements, costs, regulatory stringency, or the overall length of any guidance documents.

Change in Regulatory Requirements

VAC Section(s) Involved*	Authority of Change	Initial Count	Additions	Subtractions	Total Net Change in Requirements
9VAC5-15-10 through 160	**(M/A):**	9	7	0	+7
	(D/A):	7	1	0	+1
	(M/R):	49	64	0	+64
	(D/R):	5	10	0	+10
				Grand Total of Changes in Requirements:	**(M/A): +7**
					(D/A): +1
					(M/R): +64
					(D/R): +10

Key:
Please use the following coding if change is mandatory or discretionary and whether it affects externally regulated parties or only the agency itself:
(M/A): Mandatory requirements mandated by federal and/or state statute affecting the agency itself
(D/A): Discretionary requirements affecting agency itself
(M/R): Mandatory requirements mandated by federal and/or state statute affecting external parties, including other agencies
(D/R): Discretionary requirements affecting external parties, including other agencies

Cost Reductions or Increases (if applicable)

VAC Section(s) Involved*	Description of Regulatory Requirement	Initial Cost	New Cost	Overall Cost Savings/Increases
9VAC15-60-40 D	Preconstruction mapping of prime agricultural soils	NA	Will vary on a case-by-case basis.	See Table 1a.
9VAC15-60-40 E	Preconstruction mapping of forest land	NA	Will vary on a case-by-case basis.	See Table 1a.
9VAC15-60-60 D, E, F, G	Mitigation/conservation easements	NA	Will vary on a case-by-case basis.	See Table 1a.

Other Decreases or Increases in Regulatory Stringency (if applicable)

VAC Section(s) Involved*	**Description of Regulatory Change**	**Overview of How It Reduces or Increases Regulatory Burden**
N/A		

Length of Guidance Documents (only applicable if guidance document is being revised)

Title of Guidance Document	**Original Word Count**	**New Word Count**	**Net Change in Word Count**
N/A			

*If the agency is modifying a guidance document that has regulatory requirements, it should report any change in requirements in the appropriate chart(s).