

SB270-HB674.Pavlak.FWA

Full Costs and Benefits Analysis of Sources of Electricity Generation

Written testimony

[My latest OpEd](#) in the Baltimore Sun argues that Maryland needs a vision of net-zero. The classic strategic planning process is a sequence that 1) starts with a goal, 2) quantifies factual options, then 3) makes the political value choice of which option serves as a vision. This bill tackles task #2.

To create a vision (not a system design) the level of analysis is called concept modeling, what engineers sometimes call “toy models.” It focusses on those parameters that have a first order impact on the relationship between components (wind and PV for example) and ignores parameters that do not affect relationships, like transmission. The map in the adjacent figure concludes that the configuration of a minimum cost wind + PV + storage (only) system that satisfied Maryland’s 2021 load profile would consist of 400 GW PV, 8700 GW onshore wind and 1,460 GWh storage.

		PV nameplate (GW)										
OnSW\PV		0	100	200	300	400	500	600	700	800	900	1000
OnSW nameplate (GW)	0											141
	100		OnSW + PV + Li 400 GW PV 800 GW OnSW \$321/MWh Storage 1,460 GWh Curtailed 1,900 TWh									
	200									550	487	46
	300					487	435	422	413	408	409	
	400				402	394	394	393	393	393	393	394
	500		424	365	364	363	363	363	364	365	366	
	600	519	400	350	348	348	349	349	350	351	356	
	700	888	479	382	335	334	334	335	336	344	359	374
	800	672	452	365	329	321	323	334	349	364	379	394
	900	565	438	364	334	327	340	355	369	384	399	415
	1000	548	430	369	346	347	360	375	389	405		
	1100	549	432	376	361	367	381	395	410			\$/MWh
1200	500	437	391	377	387	401	415					

100% Wind + PV (2021)

The bill needs more specificity to task concept modeling and avoid the unnecessary system design details.

Amendments

CHANGE THE TITLE TO ENGINEERING SPEAK - A “Cost benefit analysis” often includes subjective measures of cost and benefits such as the social cost of carbon. The sequential strategic planning process separates the objective definition of fact from subjective choice.

Replace the title:

~~Full Costs and Benefits Analysis of Sources of Electricity Generation~~

With:

System cost analysis of alternative electricity generation technologies

Replace:

~~SECTION 1. (a) The Public Service Commission shall conduct a full costs and benefits analysis of sources of electricity generation in the State.~~

With:

SECTION 1. (a) The Public Service Commission shall conduct a system cost analysis of alternative electricity generation technologies in the State using historical data, hourly dispatch, perfect transmission (no cost, no loss), and no imports/exports. Its purpose is to provide factual options and constraints, technology proportions and generation costs, for reliable clean electricity generation technologies in the State.



February 17, 2026

Replace:

~~SECTION 1. (b) (3) (i) only natural gas energy and energy storage;~~

With:

SECTION 1. (b) (3) (i) only natural gas energy, a optimal cost combination of combustion turbines and combined cycle plants, this is the baseline;

New task:

SECTION 1. (b) (3) (iv) identify the optimal cost combination of OSW, OnSW, PV, Li battery storage, and new nuclear (large). Explore the cost impact of up to 5% natural gas generation. Explore cost sensitivity using 2050 NREL/ATB cost projections. Rank the best net-zero system configuration options.

Replace:

~~SECTION 1. (b) (4) identify the costs for natural gas energy, nuclear energy, and offshore wind energy if energy storage is available to offset reliability and intermittency issues; and~~

With:

SECTION 1. (b) (4) All of the Levelized System Cost studies under SECTION 1. (b) (3) (I-iv) shall assume all new construction; unit technology costs from NREL/ATB.v2 2024 cost projections for 2024, R&D case, no subsidies; perfect transmission, no cost, no loss; closed state borders, no imports, exports to PJM; simple hourly dispatch of metered load and renewable resource data for 30 years to capture the impact of renewable energy droughts. Wind and solar production to be based on reanalyzed wind and insolation solar data filtered through turbine and PV module models.

