



Sustainable Energy Advantage, LLC

"Developing Sustainable Energy Solutions"

4 Lodge Lane, Natick, MA 01760 • Tel: 508.653.6737 • Fax: 508.653.6443 • e-mail: bgrace@seadvantage.com • www.seadvantage.com

Memorandum

From: Bob Grace and Ryan Wiser
To: Rhode Island Greenhouse Gas Stakeholders Group
Date: March 14, 2003
Re: Comparison of House Bill 5533 to the GHG Working Group Recommended RPS Design

On February 6, 2003 Representatives Moura, Long, Ajello, Palumbo, and Naughton introduced legislation to the Rhode Island House of Representatives to establish a Renewable Energy Portfolio Standard (RPS) and source disclosure requirements. The purpose of this memo is to compare the characteristics of the RI Greenhouse Gas Stakeholder Group's recommended RPS design ("Recommendation") with the RPS reflected in this bill, HB 5533. The memo is organized in parallel to the "Recommendations for Design of Rhode Island Renewable Portfolio Standard" memorandum from the Rhode Island Renewable Portfolio Standard Working Group to the Rhode Island Greenhouse Gas Stakeholder Group, dated February 12, 2003. It identified key differences in HB 5533, as well as qualitative and directional implications of differences. It does not address the source disclosure standards raised in HB 5533.

Summary:

While there are numerous similarities, HB 5533 differs from the Stakeholder Group RPS Design Recommendation in a number of substantive dimensions. The most important implications include:

- **Structure: Tiers & Vintage, Percentage Targets:** Unlike the 2-tier structure of the Recommendation, which identifies a new/incremental vintage requirement and limits existing renewables to no more than 2% of the total standard, HB5533 has no distinction between new and existing renewables. As a result, the HB5533 results are far less certain than under the Recommendation. While HB5533 provides no explicit minimum protection for existing renewables, neither is there an upper limit to eligible existing resources. Existing eligible biomass or hydro could comprise all, or a substantial fraction of, the total standard, even though compliance costs might still be dictated by new resources.

In addition, HB 5533's total percentage target is somewhat more aggressive over time, but it never stops growing at 15% or 20% as does the Recommendation. The amount of new renewables that would result from HB5533 largely depends on whether other states implement or fix RPS standards for existing renewables. At one extreme, RI would not be able to quickly absorb eligible existing renewables, so existing renewables would dominate compliance. If substantial mandates for existing renewables are implemented elsewhere in the region, however, then HB5533 might prove to be far more aggressive than the Recommendation in terms of total new renewables required in the long run. As a result, HB5533 could either have much higher cost and impact, or much lower cost and impact than Recommendation. It is unclear if or when any new renewable would result, and therefore HB 5533 leaves great uncertainty as to the extent of verifiable GHG reductions, and provides a less stable and predictable market (where predictability and stability are necessary to support investment in new renewables).

- **Duration, Termination, and Changes to the RPS Standard:** The HB5533 target percentages never stop increasing. The implication is that, without legislative intervention, the targets would become the highest in the nation (an unrealistic prospect). While HB5533's rate cap is intended to provide for a safety-valve on cost and quantity of required renewables, and the structure is unlikely to ever be triggered.
- **Geographic Scope/Accounting & Verification:** HB5533 limits eligibility to generation with NEPOOL GIS certificates, omitting the additional basis for verification, TRCs from eligible plants in New York (without requiring the costly energy import required under GIS rules), provided for under the Recommendation. Omission of NY TRCs under HB5533 restricts access to a wider pool of lower-cost new renewable resources, implying higher cost, all else equal.
- **Hydro Eligibility, Biomass Eligibility:** HB5533 narrows the eligibility of hydro resources (by restricting to those receiving Low Impact Hydro Institute certification), biomass resources (by introducing an emissions cap), and landfill gas resources (by introducing both an emission cap and requirement that methane would otherwise be vented).
- **Cost Caps and Penalties:** In contrast to the alternative compliance mechanism (5¢/kwh payment to the renewable fund) provided for in the Recommendation, HB5533 has a rate impact cap (rather than a cost cap) that is defined in a manner that we believe it would never come into play. So under HB5533 there appears to be no effective cap other than that provided by a financial non-compliance penalty. HB5533's penalty – 200% of the PUC-estimated cost of certificates – results in a magnitude that is unspecified, a moving target, and administratively burdensome and difficult for PUC to determine.
- **Contracting standards:** Because HB5533's rate cap (which would trigger some requirements on the utility provider) is never expected to come into play, there are no provisions for establishing long-term contracting standards for default service or standard offer supply.
- **Treatment of emission credits:** Under HB5533, generators could sell off emission rights and still be eligible, undermining GHG and other emission reductions expected, causing the policy to fail to meet objectives.

Several other differences of moderate or minor significance were also identified. These are summarized in Tables 1 through 5.

As a result of the differences identified between the Recommendation and HB5533, we conclude that HB5533 provides less stability and predictability as to the demand for new renewables, undermining the ability to finance new plants; leaves RI dependent on what other states in the region do to create markets for existing renewables; and as a result, introduces far less certainty than the Recommendation as to the ultimate impact (in new renewables and GHG reductions) and costs of the RPS. If other states fail to soak up existing renewables, the quantity of new renewables (through 2020) may be far less under HB5533, with correspondingly lower GHG impacts and possibly lower costs. If other states do create markets for a substantial fraction of existing NE renewables, however, HB5533's tighter eligibility standards (hydro, biomass, geographic eligibility, etc.) and higher percentage targets (through 2020, and continuing indefinitely beyond) would result in far higher costs and greater GHG reductions than under the Recommendation.

Detailed Analysis:

The specific distinctions between the two proposals are summarized in the attached Tables 1 through 5 by major categories of design features: the RPS standard and structure, eligibility, administrative issues, and interaction with other policies. Specific issues are identified as major, moderate or minor in importance.

Table 1: Differences in RPS Standard and Structure

Design Feature	RPS Recommendation	GHG Stakeholder Design	HB5533	Implications of Differences between RI Recommendation and HB5533 (assuming RPS Design Recommendation as baseline)
<i>Obligated Entities</i>	Initially exempt self-generators, but provide PUC latitude to revisit if substantial self-generation	Self-generators would be exempt.	Potential for bypass appears higher in HB5533 (minor)	
<i>Structure: Tiers & vintage Percentage Targets</i>	2-tier, growth (1% to either 13% or 18%) and maintenance (2%); Existing renewables eligible for maintenance tier, but are subject to competition from new renewables which are eligible for meeting the entire standard Total starts at 3% in 2005 and ramps up slowly at first and then more rapidly to either 15% or 20%	Single tier, no vintage distinction and no vintage requirement Total starts at 1% in 2005 and ramps up rapidly, passing 16% in 2015, 21% in 2020, 26% in 2026, and continuing to increase indefinitely	HB5533 results are far less certain than under Recommendation. While no explicit minimum protection for existing renewables, no upper limit to eligible existing resources either. Existing eligible biomass or hydro could comprise all, or substantial fraction of, the total standard, while costs might still be dictated by new. HB5533's total % target is somewhat more aggressive over time, and never stops growing. See Table 2 for comparison.	The amount of new renewables that would result from HB5533 largely depends on whether other states implement or fix RPS standards for existing renewables. At one extreme, RI would not be able to quickly absorb eligible existing renewables. If substantial mandates for existing renewables are implemented elsewhere in the region, then HB5533 might be far more aggressive than the Recommendation.
<i>Start Date</i>	2005, or later if rules not in place by late 2003	2005, with rules established and enforced by 6/1/04	HB5533 timetable provides less lead time for development, but eligibility of existing renewables mitigates. (minor)	As a result, HB5533 could either have much higher cost and impact, or much lower cost and impact than Recommendation. It is unclear if or when any new renewable would result, and therefore HB 5533 leaves great uncertainty as to the extent of verifiable GHG reductions, and provides a less stable and predictable market (where predictability and stability are necessary to support investment in new renewables). (major)

Table 1: Differences in RPS Standard and Structure

Design Feature	RPS RI GHG Stakeholder Recommendation	HB5533	Implications of Differences between RI GHG RPS Design Recommendation and HB5533 (assuming RPS Design Recommendation as baseline)
<i>Duration, Termination, and Changes to the RPS Standard</i>	Target reached in 2020, with some latitude after 2010 for administrator to accelerate or decelerate percentage increases Once target reached, maintained indefinitely, although PUC may eventually eliminate standard only after investment amortization and subsequent demonstration of market transformation making RPS unnecessary.	Target continues to rise over time indefinitely, with no latitude for PUC to ever alter the glide path Silent on duration, but since it never stops increasing, implication is indefinite	The HB5533 ultimate percentage would be highest in nation, eventually reaching 100%. While HB5533's rate cap is intended to provide for a safety-valve on cost and quantity of required renewables, the language is vague, and the structure is unlikely to ever be triggered. In the long run targets and costs are much higher in HB5533. (major) HB5533 would require additional legislation to ever cap it or alter the glide path.

Table 2: Comparison of Annual RPS Targets

Year	Working Group RPS Design Recommendation		HB5533	
	Total Target (20% option)	Total Target (15% option)	Not-to-exceed percentage of "existing" generation	
2005	3%	3%	2.0%	1%
2006	4%	3.5%	2.0%	2.5%
2007	5%	4%	2.0%	4%
2008	6%	4.75%	2.0%	5.5%
2009	7%	5.5%	2.0%	7%
2010	8%	6.25%	2.0%	8.5%
2011	9%	7%	2.0%	10%
2012	10%	7.75%	2.0%	11.5%
2013	11%	8.5%	2.0%	13%
2014	12%	9.25%	2.0%	14.5%
2015	13%	10%	2.0%	16%
2016	14%	11%	2.0%	17%
2017	15.5%	12%	2.0%	18%
2018	17%	13%	2.0%	19%
2019	18.5%	14%	2.0%	20%
2020	20%	15%	2.0%	21%
2021	20%	15%	2.0%	22%
2022	20%	15%	2.0%	23%
2023	20%	15%	2.0%	24%
2024	20%	15%	2.0%	25%
2025	20%	15%	2.0%	26%

(continues
increasing
indefinitely)

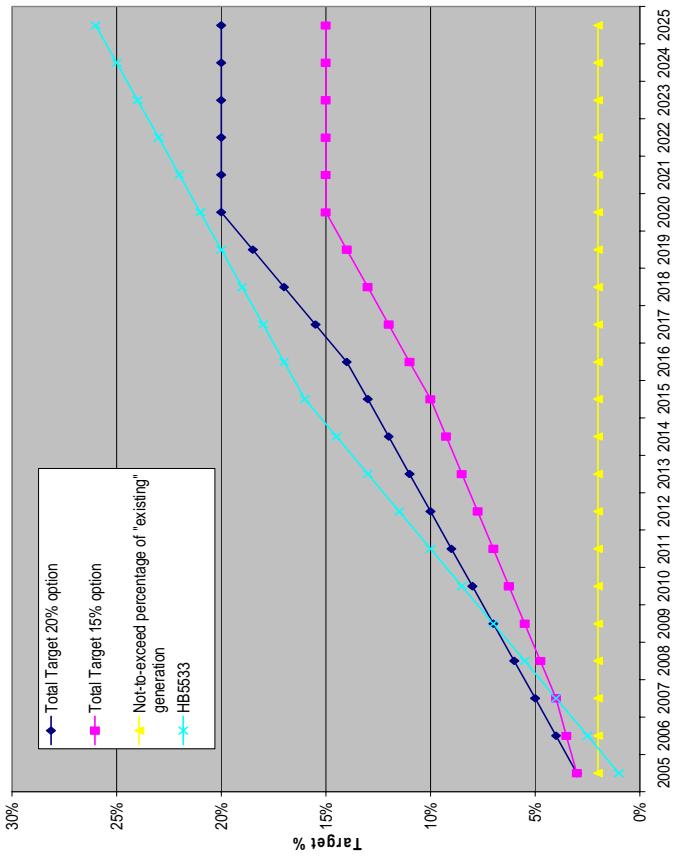


Table 3: Differences in Eligibility

Design Feature	RPS Recommendation	RI GHG Stakeholder Design	HB5533	Implications of Recommendation and HB5533 (assuming RPS Design as baseline)
<i>Geographic Scope</i>	Certificates from NE GIS (allows imports if energy imported), plus TRCs ¹ from eligible plants in New York without energy import, once NY implements an acceptable verification regime (not in existence today but expected in the future)	Certificates from NE GIS	More limited scope of HB5533 (omission of NY TRCs) restricts access to wider pool of lower-cost resources, implying higher cost, all else equal. (major)	
<i>Vintage</i>	For all but maintenance tier, must be “incremental renewable generation” (plants on-line after 1997, or incremental generation over 1995-97 average from older plants) to produce verifiably incremental GHG reductions	No requirement generation be new	With potential for sufficient existing renewable biomass and hydro to meet much of the HB5533 standard (depending on what other NE states do), unclear how much if any incremental renewable generation and GHG reductions would result. If other NE states establish significant existing renewables mandates, then impact of this difference may be minimized. (major)	
<i>Eligible Resource</i> <i>Type - ocean</i>		Plants generating electricity from (a) direct use of latent heat of the oceans and (b) movement of waters with average salinity of ≥ 20 ppt, not necessitating new artificial bays, new jetties, or other impediments to the general flow of these waters	HB appears more environmentally sensitive and therefore restrictive than the Recommendation, resulting in potentially somewhat higher cost. (minor)	

¹ Tradable renewable energy certificates

Table 3: Differences in Eligibility

Design Feature	RPS Recommendation	GHG Stakeholder Design	HB5533	Implications of Recommendation and HB5533 (assuming RPS Design Recommendation as baseline)
<i>Eligible Resource Type – hydro</i>	Plants may not exceed 30 MW installed capacity, and Growth tier eligibility is limited to incremental hydroelectric generation as long as it does not require any new impoundment	Hydroelectric facilities that have achieved Low Impact Hydro Institute (LIHI) certification	The HB5533 standard is far more restrictive for existing and new supply. However, while today there is 1 small hydro plant in NE with LIHI certification, and no further applications pending, there may at least 70 MW of LIHI-certifiable hydro supply in NE (according to the Low Impact Hydro Institute), and maybe considerably more. If these resources successfully secure certification, much of the HB5533 target might be met by existing supply (due to the lack of a percentage cap on existing renewables). As a result, the HB5533 quantity of new renewables, GHG reductions, and cost impact are therefore far less certain than under the Recommendation. (major)	

Table 3: Differences in Eligibility

Design Feature	RPS Recommendation	GHG Stakeholder Design	HB5533	Implications of Differences between RI Recommendation and HB5533 (assuming RPS Design Recommendation as baseline)
<i>Eligible Resource Type biomass</i>	Facilities using eligible fuels, and with valid air permits. ² Waste-to-energy incineration excluded.	Eligible fuels include: brush, stumps, lumber ends & trimmings, wood pallets, bark, wood chips, shavings, slash and other clean wood not mixed with other solid wastes; agricultural waste, food material and vegetative material; energy crops; biogas; organic refuse-derived fuel that is collected and managed separately from municipal solid waste; biodiesel and other liquid fuels derived from such fuel sources.	Waste wood (including construction debris that does not contain any painted, treated, or pressurized wood); agricultural crops, waste or by-products including plant oils; animal and other organic waste; digester gas; and landfill gas, and Avg. weighted NOx emissions limit on biomass facilities < 2.5 lbs/MWh, landfill gas facilities < 3.5 lbs/MWh	RI DEM was uncomfortable imposing emission standards on biomass in other states and rejected imposing emission caps in group recommendation, whereas HB5533 sought to use more stringent standards by imposing an emission cap. The emission caps are not likely to make a difference for new generation. However, the HB5533 emission limit restricts eligible supply somewhat more than the Recommendation. (medium) For landfill gas, the HB5533 venting restriction's likely impact is exclude eligibility for methane that would otherwise be flared. This would severely restrict a source of low-cost landfill gas generation, raising costs. (as noted above, HB5533 does not cap the percentage limit on existing renewables, so existing renewables could comprise a large and unpredictable fraction of compliance, resulting in uncertain but potentially lower GHG reductions than the recommendation).
<i>Multi-Fuel Resources</i>	co-firing of biomass with fossil fuels is allowed, and counted on a pro-rata basis to fuel input, as supported by the NEPOOL GIS system	Silent on this issue	The implication of HB5533 is that the biomass fraction of co-firing plants may be eligible, but that the emission limitation on biomass facilities may result in HB5533 being more restrictive (proposed emission limit may preclude much of potential). (minor?)	

² Stakeholder group added preference for administrator to evolve the standard towards “sustainable biomass” when such a standard becomes feasible.

Table 3: Differences in Eligibility

Design Feature	RPS Recommendation	RI Stakeholder Design	HB5533	Implications of Recommendation and HB5533 (assuming RPS Design Recommendation as baseline)
<i>Off-Grid and Behind-the-Meter Generators</i>	Such facilities otherwise meeting eligibility requirements are eligible, as long as physically located in RI and supported by the NEPOOL GIS.	Silent on whether intention is to include or exclude.	Block Island proposed treatment of customer-sited net-metered appears to give title to utility (minor)	HB, outside of Block Island, unclear and thus casts uncertainty. If excluded, HB5533 is more restructure, and less potential generation in RI would be supported If included, then these resource types would qualify throughout New England as long as in the NEPOOL GIS, resulting in potential for RI ratepayer funds supporting homeowner or off-grid systems in other states (politically troubling?)

Table 4: Differences in Administrative Issues

Design Feature	RPS Recommendation	RI	GHG	Stakeholder	Design	HB5533	Implications of Differences between RI GHG RPS Design Recommendation and HB5533 (assuming RPS Recommendation as baseline)
Accounting & Verification (other than Block Island)	Rely on NEPOOL GIS and, when present, a NY TRC registry or compatible GIS			Rely on NEPOOL GIS			Lack of access to NY TRCs implies higher cost of new renewables for HB5533, all else equal (major)
Cost Caps and Penalties	<i>Alternative Compliance Mechanism (ACM) serves as de facto cost cap: in lieu of providing GIS certificate or New York TRC, obligated entities may comply by making an ACM payment of 5¢/kWh (esc. with inflation) to RI Renewable Energy Fund, dedicated to purchasing GIS certificates to maximize amount of new renewable energy added to the grid.</i> <i>For those failing to comply with even the ACM payments, the PUC should develop sanctions designed to ensure compliance, including potential retail electricity license suspension or revocation; and require compliance plans in the future.</i>			Establishes a <i>rate impact cap</i> of 1% of over previous year. If a supplier shows costs exceed this cap and PUC concurs with conclusion, obligation is adjusted so that rate impact is 1%. PUC would also make prudence review if rate cap exceeded (including long-term contracting): if imprudent, PUC may impose penalties as below.	Establishes automatic penalties for non-compliance of (at minimum) 200% of PUC-estimated cost of compliance based on TRC prices. Funds to be spent on retiring certificates Non-complying entities must also file compliance plans to demonstrate prudent measures in future.	HB5533's rate cap language is somewhat ambiguous and administratively cumbersome. More importantly, it is unlikely to ever come into play as it is higher than the non-compliance penalty. (major)	HB5533's penalty magnitude is unspecific and a moving target; would likely differ from the MA 5¢ ACM, resulting in arbitrage between states in tight markets. Also administratively burdensome and difficult for PUC to determine accurate costs of compliance. In contrast, Recommendation's ACM allows those not cost-effectively able to buy certificates to comply with payment; HB puts them in non-compliance, penalizing parties in event of shortage. (medium)

Table 4: Differences in Administrative Issues

Design Feature	RPS Recommendation	RI Recommendation	GHG Stakeholder	Design HB5533	Implications of Differences between RI GHG RPS Design Recommendation and RPS (assuming HB5533 Design Recommendation as baseline)
<i>Flexibility Mechanisms</i>	Annual settlement period; banking of excess (up to 30% of current requirement) for up to 2 years; early compliance in 2004		No early compliance or banking		HB5533 less flexible for new renewables. If existing eligible renewables are scarce due to other states' mandates, the result is higher costs and higher incidence of non-compliance. However, if existing renewables are ample, HB5533's lack of percentage caps on the contribution of existing renewables mitigates this concern. (medium)
<i>Contracting Standards for Standard Offer (SO) and Last Resort Service (LRS) Providers</i>	PUC should hold a proceeding to develop contracting standards for SO and LRS supply to support financing of new renewable projects, and assure ratepayers bear the minimum cost of compliance, while minimizing interference with emerging competitive market opportunities. They should address contract duration(s) and quantities associated with SO and LRS service, either independently or in aggregate, appropriate in the prevailing market conditions. Such standards should only be maintained until there is a showing that they are not necessary support financing.	See above in cost-caps and penalties – compliance plan and consideration of prudence w/r/t long-term contracting only comes into play in judging prudence <i>if</i> 1% rate cap exceeded.	HB5533's approach unlikely to come into play as 1% rate cap is unlikely to ever be triggered. Therefore, HB5533 has no contracting standards and risks higher rates and more difficult financing. (possibly major)		SO/LRS provider required to submit annual compliance/procurement plan to the PUC. Cost recovery by SO/LRS supplier allowed to the extent purchases fully consistent with approved compliance plan and contracting standards.

Table 4: Differences in Administrative Issues

Design Feature	RPS Recommendation	RI Recommendation	GHG Recommendation	Stakeholder	Design	HB5533	Implications of Differences between RI GHG RPS Design Recommendation and HB5533 (assuming RPS Design Recommendation as baseline)
<i>Implementing Future Administrative Changes to RPS Rules</i>	Some specific changes allowed within limited bounds and with substantial notice and hearings for any changes that would impact project financing and contracting.	Silent					HB5533 provides administrators no real possibility that legislative change modest adjustments, creating uncertainty hinders financing. In contrast, the RI leaves a greater chance that the implementation changes that the legislature (minor)
Block Island	Compliance may be demonstrated by way of (a) purchasing GIS certificates and transferring them to a specially designated reserve certificate account, per GIS Operating Rules, or (b) purchase and retirement of RECs from New York	Allows eligible renewable fuel use in Block Island fossil generators to count; Allows customer-sited generation (net- or reverse-metered if full retail rate is credited) to be applied towards standard, if customer signs written agreement ceding rights.					Under HB5533, conflicting title to attributes for customer-sited generation may be disincentive for additional self-generation. The utility only gets title to attributes if (1) net metering, (2) customer signs form ceding their rights. It is unclear what happens if a customer does not cede their rights: can they then use TRCs, or sell them? (minor)

Table 5: Interaction with Other Policies

Design Feature	RPS RI GHG Stakeholder Design Recommendation	HB5533	Implications of Differences between RI GHG RPS Design Recommendation and HB5533 (assuming RPS Design Recommendation as baseline)
<i>Interaction with Rhode Island's System-Benefits Charge for Renewable Energy</i>	Requires coordination between PUC and RIREF; recommends RIREF target funds towards renewable projects and endeavors not expected to thrive under the state's RPS. PUC given the authority to exclude new renewable facilities receiving certain kinds of SBC support ineligible for RPS. This authority should only be used prospectively and with substantial advance notice, and should only be invoked if the RPS administrator, in consultation with the SBC administrator, believes that substantial double dipping or inefficiencies are involved.	No guidance	HB5533 has potential for allowing or creating funding decisions that alter the competitive balance, or that double-dipping or inefficiencies could result. The Recommendation gives the PUC more authority, with offsetting regulatory uncertainty. (minor)
<i>Treatment of Emissions Credits</i>	Clearly state that the objectives of the RPS include reduction in GHG and air pollutant emissions; require that production from generators upon whom tradable emission rights have been conferred is not eligible for RPS compliance to the extent that emission rights have been sold to third parties. Requires supporting documentation and attestations.	Silent	Under HB5533, generators could sell off emission rights and still be eligible, undermining GHG and other emission reductions expected, causing policy to fail to meet objectives. (major)