Vermont Legislative Joint Fiscal Office

One Baldwin Street • Montpelier, VT 05633-5701 • (802) 828-2295 • Fax: (802) 828-2483

FISCAL NOTE

Date: March 22, 2018
Prepared by: Neil Schickner

S.271 An act relating to electric vehicles – As Introduced *S.271 As Introduced*

As relevant to this fiscal note, S.271:

(1) Exempts from the Motor Vehicle Purchase and Use Tax the first $30,000 of the taxable cost of an all-electric vehicle (ZEV = zero emission vehicle);
(2) Exempts from the Motor Vehicle Purchase and Use Tax the first $15,000 of the taxable cost of a plug-in hybrid electric vehicle (PHEV);
(3) Imposes a supplemental annual registration fee of $100 on all-electric vehicles; and
(4) Imposes a supplemental annual registration fee of $50 on plug-in hybrid electric vehicles.

S.271 Fiscal Analysis - Vermont Comprehensive Energy Plan Scenario					
Fiscal Year	**2019**	**2020**	**2021**	**2022**	**2023**
ZEV = All-electric vehicle sales	219	285	370	481	625
PHEV = Plug-in hybrid electric vehicle sales	514	668	869	1,130	1,468
Motor Vehicle P&U Tax revenue - Curr Law	$1,080,972	$1,405,264	$1,826,843	$2,374,896	$3,087,364
Motor Vehicle P&U Tax revenue - S.271	$224,142	$291,384	$378,799	$492,439	$640,171
Difference in P&U Tax revenue	-$856,831	-$1,113,880	-$1,448,044	-$1,882,457	-$2,447,194
Transportation Fund share	-$571,249	-$742,624	-$965,411	-$1,255,034	-$1,631,544
Education Fund share	-$285,582	-$371,256	-$482,633	-$627,423	-$815,650
S.271 supp. registration fee revenue	$47,602	$61,882	$80,447	$104,581	$135,955
Transportation Fund share	$9,520	$18,565	$32,179	$52,290	$81,573
Clean Energy Development Fund share	$38,081	$43,318	$48,268	$52,290	$54,382
Net impact on revenue of the State	-$809,229	-$1,051,998	-$1,367,597	-$1,777,876	-$2,311,239
Net impact on Transportation Fund	-$561,729	-$724,059	-$933,232	-$1,202,743	-$1,549,971
Net impact on Education Fund	-$285,582	-$371,256	-$482,633	-$627,423	-$815,650
Net impact on DEDV Fund	$38,081	$43,318	$48,268	$52,290	$54,382

Assumptions

The analysis is based on four assumptions:

(1) ZEV and PHEV sales

The analysis assumes that annual ZEV and PHEV sales will grow at a rate consistent with the goals adopted in Vermont's 2016 Comprehensive Energy Plan (CEP)[1]. One goal of the CEP is that ZEV and PHEV annual sales will reach a level of 4,600 in calendar year 2025. Working backwards and assuming a constant sales growth rate of 30%, calendar year 2018 (FY 2019 in

[1] 2016 Vermont Comprehensive Energy Plan , see p. 163.

the table) sales would be 733 ZEVs and PHEVs. The model apportions the total to 219 ZEVs and 514 PHEVs in accordance with the December 2017 ratio of Vermont registered ZEVs and PHEVs. Sales in the following years are based on the same calculations.

The point here is that the sales numbers are not a market forecast. Rather they are simply a path of sales that would hit the state's CEP goal. That said, the limited evidence available does confirm that Vermont ZEV and PHEV sales have been healthy under the current federal and state tax structure. In the 21 month period between October 2015 and July 2017, Vermont registered ZEVs grew at a 32% per annum rate and PHEVs at a 36% per annum rate; and for the 26 month period through December 2017 (thus including the Nissan Leaf promotional sale last fall) Vermont registered ZEV's grew at a 65% per annum rate and PHEVs at a 38% per annum rate.

There are sound reasons, however, to be skeptical of a simple projection of a geometric growth rate from a very low base. The CEP was selected as a benchmark for this analysis because (1) it is state policy and (2) it entails an aggressive path itself. From a registration base of 2,327 ZEVs and PHEVs as of December 2017, an annual sales growth rate of 30% over 8 years to 2025 would increase the number of registered ZEVs and PHEVs by a factor of 8.5 to 19,817.

(2) Current law revenues

The same point applies to the calculations of current law Motor Vehicle Purchase and Use (P&U) Tax revenue, i.e. it simply states that if these ZEV and PHEV sales occurred under the current state tax structure, the revenue would be as shown in the table.

(3) Vehicle Prices

The P&U tax revenue generated by ZEV and PHEV sales depends on the breakdown of sales between ZEVs and PHEVs and the further breakdown of the sales by model and price. The analysis assumes that the ratio of ZEV and PHEV sales going forward will equal the ratio of registered ZEVs and PHEVs as of December 2017 (ZEVs = 29.9% of the total). Instead of projecting sales of particular models, separately for ZEVs and PHEVs, the analysis uses an average price in which the current MSRP (Manufacturer's Suggested Retail Price) of different models is weighted by the number count of the model relative to the total number of ZEVs and PHEVs registered as of February 2018.

(4) Trade-in value

The P&U tax is levied on the "taxable cost" of a vehicle which is essentially the vehicle's price after deducting the value of any trade-in. Note that a trade-in with a new car dealer is not required. An owner can sell an old car directly, before or after buying a new car (within certain time limits) and still get the trade-in deducted for purposes of the P&U tax. The $10,000 figure used in the analysis is DMV's educated guess as to the average trade-in value. Because of the weighted average prices used and S.271's tax exemption figures for ZEVs and PHEVs, while the current law and S.271 P&U revenue varies, the difference between the two remains constant when the trade-in value is set anywhere between $0 and $11,000. At a trade-in value of $12,000 and higher the negative revenue impact of S.271 becomes smaller.

Sensitivity

The analysis is only marginally sensitive to changes in the average weighted prices of ZEVs and PHEVs; i.e. the benchmark case prices have to be off by 20% to 30% before the net revenue results change significantly. The most sensitive variable is the number of ZEVs and PHEVs that

are sold. To the extent actual sales exceed the numbers assumed, the negative revenue impact will be greater and vice-versa.

Interpretation

The obvious objective of S.271 is to stimulate sales of ZEVs and PHEVs to levels over and above what they would be absent the incentives in the bill. Two points are worth noting. First, the question is not whether S.271 will stimulate sales higher than the path assumed in the analysis. Because the sales assumed in the analysis achieve the goals adopted in the State's 2016 CEP, the key question is whether the incentives in S.271 are necessary to reach those sale levels (and, of course, whether the costs are acceptable). Second, in evaluating the incentive effects of S.271, one must consider the value of the incentive per purchase. The value of the incentives consist of (1) the average P&U tax savings per purchase which, in turn, is offset in part by (2) the present value of the annual supplemental registration fee which is imposed. For the benchmark case these figures are:

Value of incentive to purchaser	ZEV	PHEV
Avg P&U tax savings per purchase	$1,800	$900
PV annual supplemental registration fees*	-$723	-$362
Net incentive	$1,077	$538
*Keep vehicle for 8 years, discount rate 3.0%		

Other considerations

California Rules

Another important variable is the operation of the California "ZEV Regulation" which Vermont has adopted along with 8 other states under Sec. 177 of the federal Clean Air Act. Under this regulatory scheme vehicle manufacturers earn "ZEV Credits" by delivering for sale within a state a ZEV or other qualifying near ZEV. A qualified vehicle typically generates multiple credits with a true ZEV earning up to 9 credits and near ZEVs fewer credits (e.g. early in the decade when there were few true ZEVs in the market the original non-plug-in Prius generated ZEV credits). As a condition to doing business, the rules require manufacturers to earn ZEV credits in a certain proportion to the total number of vehicles they deliver for sale within a state.

The current rules were initially adopted in 2012 with several scheduled phases in which the overall credit percentage requirement as well as a ZEV credit percentage minimum was increased over time. The latest phase of the regime went into effect on January 1, 2018 with three important changes. First, for years the vast majority of ZEV sales in the U.S. were in California and prior to 2018, a ZEV sold in California generated ZEV Credits for the manufacturer in California as well as in every other Sec. 177 state. Starting January 1, 2018 that double counting of California sales no longer applies, i.e. going forward a manufacturer receives ZEV Credits in a state only for the delivery for sale of a ZEV in that state. Second, starting January 1, 2018 ZEV credits are limited to ZEVs and PHEVs – other near ZEVs no longer generate credits. Third, both the overall credit percentage requirement and the ZEV credit pecentage minimum has been tightened. Each year from 2018 through 2025 manufacturers must meet a certain fixed total credit percentage requirement of which a certain minimum must be generated by zero emission vehicles as opposed to plug-in hybrids with each requirement increasing year by year.

As during the earlier phases, the 2018-2025 rules include a number of provisions and qualifications intended to provide vehicle manufacturers with the flexibility to respond to changing circumstances without losing compliance (e.g. optional calculation methods; the ability to bank and use excess pre-2018 credits at a discounted value; to transfer certain excess credits between regions at a discounted value and to buy excess credits from another manufacturer). Nevertheless, the rules will exert considerable pressure on manufacturers to increase their sales of ZEVs and PHEVs. It should be noted this does not necessarily mean that manufacturers will have to increase their sales of ZEVs or PHEVs in Vermont. A manufacturer could concentrate its efforts in the large urban markets in the "Eastern Region" (all the Section 177 states east of the Mississippi river) and rely on generating excess credits in those states which could then be transferred at full value to cover any shortfall in Vermont. Whatever strategy manufacturers choose, however, there will be increased marketing efforts which will, directly or indirectly, filter through to Vermont consumers.

Leasing

A large proportion of ZEVs and PHEVs are leased as opposed to being sold to consumers. One reason for this is that leasing companies, as opposed to many consumers, are able to take full advantage of the non-refundable federal income tax credit for clean cars (up to $7,500). The benefit of the tax credit lowers the company's cost basis in its vehicles which allows it, or through competition from other lessors, forces it, to pass on those savings to customers in the form of lower lease rates. A number of vehicle manufacturers have leasing operations precisely because it is a cost effective way to generate ZEV credits. Lessors operating in Vermont pay Vermont P&U tax and the S.271 incentives would likewise lower their cost basis and give them room to reduce their lease rates.