Cascade Policy Institute
OREGON

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Docket No: UM 2033 re PGE Transportation Electrification Plan

INTRODUCTION

Please accept this submission on behalf of the Cascade Policy Institute (CPI),[1] to the Oregon Public Utility Commission (OPUC).[2] This submission is regarding *Docket No: UM 2033*, with Staff and stakeholder comments due by 7/13/2023 as per the Schedule tab of the docket website.[3] This docket is entitled *2023 Transportation Electrification Plan* (TEP), which was authored by Portland General Electric (PGE).[4]

The focus of this submission is on sub-chapter 8.5 of the PGE TEP regarding Cost Benefit Analysis (CBA). In particular, the further focus, at this stage of the public process, is on practice and procedure, especially methodology and transparency, not on directly addressing the CBA numbers derived in sub-chapters 8.6 and 8.7.

The structure of this submission is: *first* highlighting the most relevant CBA frameworks in terms of law, economics and policy; and *second* making comments on PGE's TEP CBA sub-chapter in light of these frameworks.

FRAMEWORKS

Law

It is understood that the OR state statute of most relevance to this CBA is as follows **below**:

> *Deploying transportation electrification and electric vehicles creates the opportunity for an electric company to propose, to the [Public Utility] commission, that a net benefit for the customers of the electric company is attainable;*[5]

It is understood that the OPUC order of most relevance to this CBA is as follows **below**:

> *At this time, Staff will not use benefit/cost analysis as the basis for recommending whether the Commission should approve a TE Budget. Public review of utility benefit/cost analysis in the 2022-2025 TE Plans will enhance an ongoing discussion about how this analysis will*

later serve in budget development. Staff will hold workshops on the development of a jurisdiction-specific test that aligns best practices in benefit/cost analysis with Oregon-specific policy requirements and goals. Staff envisions this benefit/cost test will replace the current budget approach as the required mechanism for developing and evaluating TE Budgets. Staff envisions collaboratively developing this benefit-cost framework for review of 2026-2028 TE Plans and Budgets.[6]

Economics

The following extract **below** from the book *Ten Principles of Regulation & Reform* summarizes CBA best practice, based on the author's experience from 1997 to 2017 in Australia, New Zealand (NZ), the United Kingdom (UK) and the United States of America (USA):

1) defining & deciding:

a) the goals of the situation or action (X) of concern (e.g., outputs/outcomes sought from policy or investment project); b) on none, one or more 'counter-factual' alternatives (Y) to the policy or investment project; c) from who's viewpoint/s will benefits and costs be analyzed (i.e., standing); d) on one or more CBA 'success' decision criteria such as net present value (NPV), benefit cost ratio (BCR), internal rate of return (IRR), net benefit investment ratio (NBIR) &/or social return on investment (SROI);

2) identifying & quantifying:

e) non-money impacts or quantities (Q) of the policy or investment project (e.g., outputs/outcomes achieved); f) money values or prices ($P) of the benefits & costs (e.g., social = external + private); g) risk & uncertainty (R&U) … directly into impacts or values, or indirectly into the discount rate; h) inflation (I) … directly into values, or indirectly into the discount rate;

3) calculating & comparing:

i) aggregate benefits ($B) less aggregate costs ($C) – i.e., net benefits or costs ($NBC = $B - $C); j) discounted net benefits or costs ($DNBC), at one or more discount rates (DR%); k) decision criteria (DC) such as NPV of project X > $0 &/or NPV of project X > NPV of project Y; l) distributions of $B, $C & $DNBC (e.g., at least, those with CBA standing); m) sensitivities of DR and I, as well as the key Ps, Qs & R&Us (e.g., at least, best-case, worst-case & most-likely-case).[7]

Policy

American best practice policy regarding CBA largely started as follows **below**:

One of the most famous and serious attempted applications of a proper CBA system came in February 1981 as a result of Executive Order 12291 by President Ronald Reagan. Amongst other things, it aimed to: reduce the burdens of existing and future regulations; increase agency accountability for regulatory actions; provide for presidential oversight of the

regulatory process; minimize duplication and conflict of regulations; and insure well-reasoned regulations.[8]

Australia has been a world leader since the 1990s in best practice CBA, utility regulation (e.g., CPI-X[9]) and policy, using an Evidence Based Policy (EBP) approach as summarized **below**:

Most evidence-based methodologies fit broadly within a cost-benefit (or at least cost effectiveness) framework, designed to determine an estimated (net) payoff to society. It is a robust framework that provides for explicit recognition of costs and benefits, and requires the policy maker to consider the full range of potential impacts. But it hasn't been all that commonly or well used, even in relatively straightforward tasks such as infrastructure project evaluation.[10]

COMMENTS

8.5 Transportation Electrification-Related Costs and Benefits

Generally, the introduction of transportation electrification and other decarbonization goals across the economy are requiring changes to be made to legacy decision-making tools such as cost-effectiveness. OPUC Order 22-314 highlights the importance of transparent cost and benefit analysis to inform discussion and prioritization of utility investments in the TE space, while making clear that budget approvals for this TE Plan are not conditioned upon an investment in TE infrastructure or programs being cost-effective under current tests.[11]

The **above** approach appears to be inconsistent with the spirit, if not the letter, of the relevant CBA law.[12] [13] [14] It is certainly not consistent with best practice CBA or EBP. Even if a CBA doesn't determine the PGE's TEP, it should heavily inform and guide it. Cost Effectiveness Analysis (CEA) should, and can, always be done even when economic, social and environmental benefits are not readily quantifiable, so that consumers, especially under-served ones, face paying for the investment option that meets the objective (e.g., EVs uptake) but at the lowest cost. Anything less than this incentivizes 'gold plating' which is both inefficient and inequitable.

In developing our assessment of the costs and benefits of TE activity, we first reviewed the literature and engaged expert consultants to understand the range of thinking in this area and seek emerging best practices.[15]

Regarding **above**, it is standard practice in other English-speaking countries, like Australia, NZ and the UK, for utility regulators to publish online for the public all supporting materials especially expert CBA reports[16] as well as financial models (e.g., price, demand, opex, capex, depreciation, discount rate, WACC/CAPM, profit/return, risk/uncertainty, sensitivities, distribution, etc).[17] CPI urges that this also be done in this case by say August 1, 2023.[18]

8.5.1 Literature Review and Policy Background

California's Standard Practice Manual (SPM) has been used for decades to inform and steer

approaches to evaluating utility demand-side management programs, such as energy efficiency and demand response. Although it was primarily developed for demand reduction programs, it was also intended for applications that add load, such as fuel switching or electrification.[19] [20]

Regarding **above**, the SPM should be revisited as part of this investment review process[21] as well as the subsequent review process regarding CBA, CEA and a jurisdiction-specific cost test. Regarding SPM, it appears to:

- *be* decades old and thus at least in need of an update if not replacement;
- *not be* an official OR state government nor OPUC document, but only an official CA PUC one;[22]
- *be* too narrowly inspired in terms of Demand Side Management (DSM); and
- *not be* a value-free economics approach, but instead biased regarding political ideology.

The main test perspectives of the SPM are:

• Utility Cost Test (UCT), alternatively referred to as the Program Administrator Cost Test (PACT), aims to reflect the perspective of the utility. The UCT includes costs and benefits pertaining to the utility system.

• Total Resource Cost (TRC) Test attempts to broaden the perspective to consider a more holistic view of the resource costs and benefits. Therefore, the TRC includes costs and benefits experienced by the utility system, plus costs and benefits to host customers.

• Societal Cost Test (SCT) takes the broadest view and includes the costs and benefits experienced by society.

• Participant Cost Test (PCT) includes costs and benefits experienced by host customers (i.e., participants).

• Ratepayer Impact Measure (RIM) Test aims to assess potential rate impacts resulting from DER investment applicable to both participants and non-participants.[23]

Regarding **above**, these tests need to be at least supplemented with, and transparently mapped back to, benefit and net benefit/cost (NBC) ones to be more in line with sound economics as well as independent CBA principles and practice. In this regard, note the following **below**:

- The key to CBA is identifying and quantifying all of the relevant impacts of a given policy or investment (versus other scarce choices) as both benefits and costs, from one or more viewpoints, in terms of money, and discounted for time.[24]
- There are always alternative government policies or investments so there are always decisions to be made … even if the choice is to do nothing. This is the essence of resource allocation efficiency – i.e., that scarce resources go to their most highly valued uses over time.[25]

- Money is considered the best numeraire to use in CBA (and many other circumstances) because it is the only objective measure of value (or more technically correct, price) that allows convenient comparisons between benefits and costs of vastly different situations and actions, many of which have already been valued in private markets or in government budgets.[26]
- Government-related CBAs are usually undertaken from a social viewpoint (i.e., standing) such as that of a disadvantaged group of persons, a region or a government – i.e., a social and/or external CBA. However, CBA is more often done outside of government from a business entity's viewpoint but goes under the name of profitability, investment or asset value analysis – i.e., a private CBA.[27]
- To make benefits and costs comparable over time (especially over two or more years) requires discounting at some rate. The discount rate can determine the acceptance or rejection of a given alternative and alter the ranking of two or more alternatives.[28]
- Risk refers to situations in which the outcome of an event is unknown, but the decision-maker knows the range of possible outcomes and the probabilities of each, such that anyone with the same information and beliefs would make the same prediction.[29]
- Uncertainty, by contrast, characterizes situations in which the range of possible outcomes, let alone the relevant probabilities, is unknown. In this case the decision maker cannot follow a formal decision rule but must rely on an intuitive understanding of the situation – 'judgment' – to anticipate what may occur.[30]

> *In 2019, EPRI conducted a review of the California SPM and its various test perspectives to identify major critiques of the traditional tests and their applications, with particular attention to the suitability of applying the SPM to transportation electrification programs. Their research found that the traditional SPM tests were still relevant and applicable to evaluating TE programs, but that "several refinements and additions to the SPM methodologies can improve its application to electrification projects." This is especially true, the authors argue, due to the newness and associated uncertainties of TE programs stemming from, for example, long-term customer behavior, rapid technological change, amid other factors.*[31] [32]

Regarding **above**, utility regulation in the USA, and around the world, has not and cannot address long-term customer behavior, rapid technological change and other key factors in an efficient and equitable way like private entrepreneurs in competitive markets can. Not to mention, that it is a historical myth of economics and politics that utilities are so called natural monopolies.[33]

> *EPRI proposes development of a new test, the "Total Value Test", for beneficial electrification, that seeks to amend the traditional SPM test perspectives for use in evaluating TE investments.*[34] [35]

Regarding **above**, EPRI's TVT seems to be a positive step in the right direction and CPI suggests this be further explored along with CBA approaches around the country and world. The latter

should include learning from Australia's world-best reforms of *National Competition Policy* (NCP), which was aimed largely at utility/infrastructure industries, regulation and policy.[36]

> *Other recent efforts have similarly sought to modernize or supplement the SPM, most notably the National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources (NSPM for DERs) developed by the National Energy Screening Project. ... One of the most relevant takeaways from the NSPM for DERS regarding electrification is that the traditional SPM tests do not explicitly contain any treatment of the policy objectives that regulators are inherently aiming to balance in reviewing utility proposals.*[37] [38]

Regarding **above**, explicit treatment of the policy objectives is in line with best practice CBA. In particular, with step 1a) as set out earlier in the Economics sub-heading under the Frameworks heading. However, step 1b) and 1c) are also important.

> *Common among these publications is the notion that many perspectives need to be taken into consideration when evaluating the costs and benefits of TE programs, and there are several methods to demonstrate and understand costs and benefits. According to a 2018 report sponsored by the US DOE's Future Electric Utility Regulation series, the significant benefits of TE that li.e., outside of the typical utility system purview motivate a broadening of the perspectives used to judge TE investments, especially as early pilot programs begin to scale up.*[39]

Regarding methods to demonstrate and understand costs and benefits **above**, note the following **below**:

- Two key CBA steps (from above) where outcomes meet CBA values are: 2e) the identification and quantification of non-money outcomes (Q), known as impacts analysis; and 2f) the identification and quantification of money benefits ($B) and money costs ($C), known as values or pricing analysis ($P). Values or prices are either market or shadow. Market prices are observed. Shadow prices are derived using stated or revealed preference methods, or (more typically) from existing plug-in studies of these methods.[40]
- Benefits, costs and NBC [Net Benefits-Costs] need to be analyzed in a qualitative and/or quantitative sense – preferably the latter. Determination is the first major step in CBA which starts to distinguish it from other forms of analysis of a situation or activity. Determination in CBA includes both the qualitative identification (and documenting/listing and manipulating/categorizing) of physical impacts and economic values and the quantitative measurement of these.[41]
- Before a situation or activity can be valued its physical presence or impact must first be analysed. A situation or activity always has some sort of presence (e.g., a quantity of a good or service) or impact (e.g., pollution) in the physical world. This both requires establishing a cause-and-effect relationship and measurement.[42]
- To have economic meaning and comparability, physical impacts (e.g., the quantity of some good or service) must be determined in terms of its economic benefits and costs – i.e., valued. This is the first uniquely CBA step – particularly valuing both benefits and costs

and both private and external ones. The benefits and costs associated with the physical impacts of a situation or activity are valued in terms of one quantitative measure – i.e., money. However, those that cannot be valued as such should still be identified, documented, categorized and listed in a qualitative way.[43]

- Identifying benefits and costs is not as easy as one might think. Firstly, they depend on point of view. Secondly, different types of benefits and costs can be aggregated and disaggregated many times (e.g., IT investment). Thirdly, the same type of benefit or cost (e.g., IT investment) can be categorised in many ways. Fourthly, there is the issue of causality between say an output benefit and its input cost.[44]
- Many benefits and costs will have monetary prices determined in markets. Although not all of these prices will be determined in [free and competitive or F&C] markets. In addition, there will be benefits and costs for which there are no market prices. In these latter two situations, there may be a need to shadow price in a CBA. Shadow pricing involves many techniques based on revealed or stated preferences and indirect sources of information such as related markets and studies. Using raw market prices from [F&C] markets is the ultimate form of direct revealed preferences.[45]
- Shadow pricing is adjusting prices for, or creating prices from, failed or non-existent markets. Shadow pricing involves many techniques based on direct sources of information such as revealed (or observed) or stated (or extracted) preferences and indirect sources of information such as related markets and studies (which are in turn based on direct sources).[46]
- Note that there is a danger in evaluating government intervention in terms of ideal or perfect government versus imperfect or failed markets. Instead the comparison should be either between imperfect markets and imperfect government intervention (e.g., government failure).[47]

Staff will not use benefit/cost analysis as the basis for recommending Commission approval of TE Budgets in the current planning cycle. Rather, Staff's intent in requiring standard cost tests in the current TE Plan is to enhance ongoing discussion about the role of this analysis in later budget development for subsequent TE Plan cycles. PGE looks forward to actively participating in workshops on this topic as Staff leads development of a jurisdiction-specific cost test for use in developing and evaluating TE Budgets in the future.[48]

Regarding **above**, CPI contests the Staff position to not use CBA as the basis for recommending Commission approval of TE Budgets in the current planning cycle. In addition, CPI contends that Staff should lead development of a jurisdiction-specific cost test for use in developing and evaluating TE Budgets in the current planning cycle. A jurisdiction-specific CBA approach should also be concurrently developed in the current planning cycle including workshops. The two should be consistent with each other, but with CBA as the superior test. Although the Ratepayer Impact in sub-chapter 8.7 indicate relatively small increases (of 0.08% in 2023, 0.13% in 2024 and 0.15% in 2025), nevertheless this is on top of already high national[49] and regional inflation. [50] [51] [52] [53]

8.6.2 Total Resource Cost Test

> *PGE added the net economic benefit of EV ownership. Although this helps us better evaluate the monetary benefits of this activity compared to the cost, it is important to note that it does not suggest that the program administrator–in this case the utility–has a positive economic case for the activity; rather, it simply means that benefits (and costs) exist and that the economic impact of the activity is felt by parties other than the administrator.*[54]

Regarding **above**, the Institute of Economic Affairs (IEA) summarized the problem with this sort of arrangement (of favoring rich EV-owning early adapters over not-so-rich electricity bill payers) in terms of *The Tyranny of the Minorities* as follows **below**:

> *Under [governmental processes], not only can the majority exploit the minority: it is even possible for small, organized minorities to get together and impose their will on the broad, unorganized majority. ... The result is that small groups with concentrated interests may be much more active, vocal and effective participants in collective decision-making than much larger groups with only diffused interests.*[55]

8.6.3 Societal Cost Test

> *Our approach to account for the cost of carbon in the SCT is to use the Social Cost of Carbon (SCC) and a reduced discount rate, consistent with the recommendations to the Oregon Global Warming Commission by the Oregon DOE. The SCC is a widely used metric and a popular method to quantify externalities associated with carbon release or sequestration.*[56] [57]

Regarding **above**, the Competitive Enterprise Institute (CEI) recently criticized SCC as follows **below**:

> *The social cost of carbon (SCC) quantifies the economic damage associated with emitting a ton of carbon dioxide into the atmosphere. ... SCC estimates are calculated using Integrated Assessment Models (IAMs), economic growth models that incorporate a range of assumptions that carry significant uncertainty. ... SCC models [have an] unsuitability for use in [CBA, because] these models rely on an arbitrary social welfare function methodology instead of calculating the costs and benefits associated with CO2 emissions exclusively in monetary terms, which is what standard [CBA] requires.*[58]

<u>CONCLUSION</u>

In conclusion, the key takeaways are as follows below:

1. **The law suggests CBA is important now, and should focus on customer net benefits.**[59]
2. **World best practice CBA and EBP should guide this and future TEPs, not SPMs.**[60]
3. **CEA and cost tests should be subsidiary to, and consistent with, CBA.**[61]

4. **All supporting CBA studies, models and other evidence should be provided to stakeholders.**[62] [63]
5. **America's late 19th century approach to utility regulation needs to be modernized to CPI-X incentive regulation.**[64]
6. **America's early 20th century assumptions about natural monopoly need to also be modernized to competition, contestability and light-touch regulation.**[65]
7. **America's current 21st century ideology that CO_2 is a net cost needs post-modernization to the real possibility it is a net benefit even that which is anthropogenic and increasing.**[66]

> *The term 'evidence-based policy making' [was] popularized by the [UK's] Blair Government [in 1999], which was elected on a platform of 'what matters is what works'. Blair spoke of ending ideologically-based decision making and 'questioning inherited ways of doing things'.*[67]

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