Oregon

OREGON DEPARTMENT OF ENERGY

KeepOregonCool
Oregon Global Warming Commission

From: Alan Zelenka, ODOE Assistant Director for Planning & Innovation

Re: Guide to the TIGHGER Actions Scoring and Ranking Spreadsheets

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In part one of the Transformational Integrated Greenhouse Gas Emissions Reduction (TIGHGER) project, we determined through the modeling of our consultant SSG that the programs and regulations already adopted by the state agencies put Oregon on track to achieve our 2035 GHG reduction goal assuming they are implemented as planned and fully funded. Given that encouraging news, the Oregon Global Warming Commission (OGWC) chose to investigate what actions it would take to meet the goal by 2030 instead of 2035. With input from the public, SSG's modeling identified a list of about two dozen actions the state could undertake to meet this accelerated goal. We call these actions the TIGHGER Actions.

The Commission chose to create two different pathways or scenarios to achieve the goal, one with "electrification" actions, and one with "alternative fuel" actions. However, because there were insufficient GHG reductions from alternative fuels (renewable natural gas and renewable hydrogen) the second scenario had to rely heavily on electrification actions, and thus it is called the "Hybrid" scenario. In fact, of the 26 actions to meet the goal in the Hybrid scenario, 21 of them are also common to the Electrification scenario. There were five actions that were unique to the Hybrid scenario, and seven that were unique to the Electrification scenario.

While we will need to implement all of the actions identified in either scenario to meet the accelerated goal, with limited resources making it unlikely that all of the over two dozen actions could be implemented at the same time - the question becomes which of the actions should be prioritized for implementation in the near-term? To figure that out, each action was scored using a common set of evaluation criteria and weighting approved by the OGWC. The purpose of the action scoring is to look at different ways that scenario actions could be prioritized. Some of the lenses, or criteria, that we could use to prioritize the scenario actions are:

1. The amount of GHG emissions each action reduces.
2. The cost-effectiveness of each action.
3. The total evaluation criteria score of each action.

The Scoring and Ranking spreadsheet was designed to distinguish the set of scenario actions from one another – ranking them from best to worst on how well they perform with respect to the selected criteria. By doing this systematically, we were able to calculate the score for each action and rank them.

There are three relevant spreadsheets documenting this process, one for each of the two scenarios: "Hybrid Scoring and Ranking", "Electrification Scoring and Ranking", and the spreadsheet containing the relevant data needed for scoring, "TIGHGER Scenario Actions Data FINAL".

The Scoring and Ranking spreadsheets are separated by colored tabs into three sections:

- The **blue tabs** are used for inputting the evaluation criteria and data.

- The **green tabs** are used for the overall scoring and showing the various lenses or criteria for ranking graphs.
- The **purple tabs** contain the "scoring bins" for each evaluation criterion, that feed into the green "Scoring" tab.

The data from the SSG modeling was summarized in the "TIGHGER Scenario Actions Data FINAL" spreadsheet and copied into the "Data" tab in the Scoring and Ranking spreadsheets.

The data is copied to the scoring bin tabs for each evaluation criterion. The purpose of the scoring bins is to rank the scenario actions from high-to-low based on each of the evaluation criterion. Some of the evaluation criteria are quantitative and some are qualitative. For the quantitative criteria the actions are sorted high-to-low and assigned scores 1-to-10. The actions are grouped together based on their relative performance so that similarly performing actions get the same score. For the qualitative criteria a low/medium-low/medium/medium-high/high scale is applied. The definitions of the qualitative evaluation criteria, developed by the OGWC, were applied to each action using the professional knowledge, experience, and judgement of ODOE staff in order to assign each action a score. Again, actions that had similar levels of ability to meet the definition of the criterion received the same score. These scores are entered in the "Final Score" column in the scoring bin tabs. These "Final Scores" are copied to the "Scoring" tab.

The "Scoring" tab is the engine or calculator of the Scoring and Ranking spreadsheet. All of the results from the Scoring Bin tabs are copied to the Scoring tab for each evaluation criterion and sub-criterion in columns C through N. The Scoring tab, in columns O through T, weights the 1-to-10 scoring bin score to reflect the weighting of the six evaluation criteria (and 10 sub-criteria) that were approved by the OGWC. In column U the overall weighted score for each action is tabulated. There is a possible total of 100 points, and the Electrification actions ranged from 85.5 to 26.1 points, and the Hybrid actions ranged from 82.5 to 33.7 points. The wide range of scoring provided a clear distinction among the actions.

The "Eval Criteria Ranking" tab shows these results in a table and bar graph. There are also ranking results based on other lenses or evaluation criteria. The "GHG Reduction Ranking" tab shows the actions ranked by the cumulative amount of GHG emissions they are predicted to reduce. The "C-E Ranking" tab shows the actions ranked by their cost-effectiveness or marginal abatement cost ($/MTCO2 reduced). The "Co-Benefits Ranking" tab shows the actions ranked by their scores of the three co-benefit evaluation criteria: Equity Co-Benefit, Health Co-benefit, Jobs and Economic Prosperity Co-Benefit. The definition used by ODOE staff to score these co-benefits and the other evaluation criteria are listed in the "Updated Proposal" tab, and underneath each of the scoring bins.

The "Ranking Comparison" tab shows how the rankings of the actions change depending on which lens or criterion is used. The tables from left to right show first the ranking of the scenario actions based on their cost-effectiveness, then how the ranking changes for their cost-effectiveness ranking if the actions are sorted by the amount of GHG reductions, then how the ranking changes if the actions are sorted by the evaluation criteria scores, and finally how the ranking changes if the actions are sorted by only the three co-benefit criteria. The colorful columns in the tables show the magnitude of the change from the cost-effectiveness ranking. The bigger the positive movement the greener the color gets, the bigger the negative movement the redder the color gets, and if the movement is modest or neutral the color turns yellow. The green, red, and yellow arrows are added to aide in showing the direction of the change. Clearly which lens or criterion one views the results changes the prioritization order of the actions.

It is possible to model one's own weighting of the evaluation criteria. In the "Eval Crit List" tab the OGWC approved weightings are inputted on row 4. One could enter a different set of weightings, so long

as they also total 100 points. The sub-criteria can also be modified in row 6, so long as the total of the sub-criteria total 100%. The spreadsheet will automatically recalculate the action scores.

Staff is making these documents available to help inform comments on the scoring results and action prioritization. Staff is particularly interested specific comments on:

- Which lens(es) (e.g., GHG reduction, cost-effectiveness, total evaluation score) should the Commission use to prioritize actions? How should the lenses be used?
- Are the draft recommendations in Slides 53 and 54 of the December meeting presentation regarding the scoring results on target?

Written comments are due by January 5, 2023.