# USING MULTI-ATTRIBUTE ANALYSIS TO EVALUATE UTILITY RENEWABLE ENERGY PERFORMANCE IN WISCONSIN

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ABSTRACT

RENEW Wisconsin developed a renewable energy grading system based on six common attributes to assess Wisconsin's largest utilities' performance in renewable energy activities and policies in 2011. The attributes included renewable electric standard compliance, green energy program performance, buyback prices, net metering policies, legislative positions, and extra programs offered. Metrics were established and a point system developed for each attribute. RENEW totaled the points and a Wisconsin utility report card was issued for Wisconsin's five largest utilities in September, 2012. This paper will describe the objectives of the report card, the process and the data sources used to develop the report card, and the impact that the report card had on the relationship between RENEW and the state's utilities that were graded.

## 1. INTRODUCTION

RENEW Wisconsin (RENEW), is a 22 year old 501 c 3 nonprofit renewable energy advocacy organization located in Wisconsin. RENEW's mission is to lead and organize businesses, organizations, and individuals that seek more clean, renewable energy in Wisconsin.

Consistent with that mission, RENEW held a renewable energy policy "summit" in January of 2012, called "Retaking the Initiative". The summit was intended to organize Wisconsin's renewable energy stakeholders to reverse the renewable energy backsliding that had gripped the state since a conservative majority came into power in 2011. Renewable energy setbacks included:

- Suspension of a wind siting rule that was to become law;
- Suspension of Focus on Energy renewable energy incentives and program support;
- An effort to weaken Wisconsin's renewable electric standard;
- PSC and utility anti-renewable decisions.

RENEW is involved in addressing all of these issues and more. This analysis describes one part of the strategy to evaluate and improve utility performance in regards to renewable energy.

The assessment of utilities' support for renewable energy (or lack of) is an unexplored area in the literature. It can also be a complicated question, which involves many technical and policy topics that can be interpreted differently depending on access to data, bias, and other circumstances. For instance there are 123 utilities in Wisconsin and they each

have slightly different and changing renewable policies.

To begin to tackle this question, RENEW decided to analyze and report on how well Wisconsin utilities had supported renewables (or not), by creating a report card for 2011, the most recent year that data was becoming available.

## 1.1    Report Card Objectives

A utility renewable energy report card has three vital objectives

1. Lets the utilities know that someone is watching and assessing their performance;
2. Gives the utilities third party feedback on renewable topics in which they are doing well and not so well;
3. Allows comparison between utilities, which may inspire competition and compel improvement..


## 2.    METHODOLOGY

Typical report cards give grades for various "subjects" rated on an "A" to "F" scale.  These grades are usually based on a point system that includes a number of performance metrics.

Although there is no shortage of report cards assessing for environmental performance in the US and elsewhere, there does not appear to be any previous report cards evaluating statewide utility renewable energy support.

The authors decided to utilize a simplified multi-attribute approach for the report card assessment. Multi-attribute assessments allow a way to define and value key, renewable support-indicative attributes, as well as a way to be as analytic as possible.   Since developing a utility statewide renewable energy report card had not been done before, there is likely to be uncertainty in the final report card grades.

## 2.1    Defining Attributes

The RENEW report card consisted of six attributes that were identified to indicate Wisconsin utility renewable energy support in 2011.

1. Compliance with the state's renewable electricity standard.
2. Performance of voluntary green energy programs.
3. Net metering policies.
4. Buyback rates.
5. Positions on legislation.
6. Participation in additional programs.

The first four attributes were considered the most important in 2011 and were each given a weight of 20%, while the last two were considered less important and each given a weight of 10%.

## 2.2    Grading Point System

In order to be as objective as possible, each of these six renewable energy attributes were then assessed using a grading point system.

Renewable Portfolio Standard (RPS) - 20%
- Met the 2010 standard: 1.5 points
- Met the 2015 standard: 1 point
- Exceeded the 2015 standard: 0.5
- Generation is in Wisconsin: 1 point
- Generation complies with the WI energy hierarchy law: 1 point

Green Program – 20%
- Utility actively promotes program: 1 point
- Generation is in state: 1 point
- Price premium is modest (current range is 1.1 cents/kWh to 2.5 cents/kWh): 1 point
- Program is ranked high nationally: 1 point
- % of utility sales met by green program (current range is 0.3 to 4.2 %): 1 point

Buy-back purchases – 20%
- Has a policy to support higher prices for renewable purchases: 1 point
- Has a policy to support combustible resources: 1 point
- Has a policy to support non-combustible resources: 1 point
- Prices are at the higher end of WI scale: 2 points

Net Metering – 20%
- 100 kW net metering policy: 1 point
- Retail price purchase: 1 point
- Performs true-ups on a 12 month basis: 1 point
- No system cap: 1 point

- Renewable energy credits are owned by customers: 1 point

Renewable Energy Credits (REC's) Extension Legislative Position (AB 146) – 10%
- Registered against the extension bill: 5 points
- Registered as neutral in the extension bill: 2.5 points
- Registered in support of the extension bill: 0 points

Extra Programs – 10%
- Participates in the WI Distributed Resource Collaborative: 1 point
- Offers education and/or monitoring information: 1 point
- Installs systems or cost shares system installations: 1 point
- Manages a multi-faceted renewable energy development program: 2 points.

Primary data sources used were the 2011 RPS Compliance Reports submitted to the Public Service Commission of Wisconsin, utility green program descriptions on web sites, tariff sheets, the Government Accounting Board lobbying report, and personal communication with renewable lead utility staff .

The treatment of defining and scoring attributes was an evolving process during the project assessment, which occurred from approximately April 2012 to

September 2012.  The authors were repeatedly reassessed which data was readily available, the data's reliability, and fairness in assigning points.

3.  WHICH UTILTIES TO GRADE?

RENEW did not have the staff capability to rate all 123 utilities. Therefore, staff opted  to concentrate on doing analysis and a report card score for the five major investor owned utilities (IOU's).  These five utilities, which provide over 80% of Wisconsin's electricity, are listed below (report card name in parenthesis):

- Wisconsin Electric Power Co (We Energies)
- Wisconsin Power & Light (Alliant-WPL)
- Wisconsin Public Service Corp. (WPSC)
- Northern States Power of WI (Excel Energy)
- Madison Gas & Electric (MG&E)

Three additional municipal and cooperative associations were also initially considered:

- Municipal Electric Association of WI (MEUW) representing 82 municipal utilities;
- Wisconsin Public Power Inc (WPPI) representing 32 Wisconsin municipal utilities;
- Dairyland Cooperative (Dairyland) representing all 23 Wisconsin cooperative utilities.

However, these three utility associations were dropped in the 2011 final report card because report card metrics could not be easily obtained or were not available.

4.  RESULTS

The five Wisconsin IOU's were then assessed for the six attributes described previously.  The scores for each utility were tabulated in a scorecard as shown in Figure 2.

### 2011 WI Utility Renewable Energy Report Card -  September 2012

| Utility | RPS | Green Program | Buy-back purchases | Net metering | RECS ext. Position | Extra program | Total | Grade |
|---|---|---|---|---|---|---|---|---|
| | | | Attribute Weights & Scores | | | | | |
| | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 1 | |
| Alliant | 4.4 | 2.1 | 3.5 | 2.5 | 0 | 1 | 2.6 | C |
| MGE | 3.7 | 3.4 | 2 | 5 | 0 | 2.1 | 3.0 | B/C |
| WE | 3.8 | 3.2 | 0 | 3.75 | 0 | 2.1 | 2.4 | C |
| WPSC | 4 | 2.4 | 2.5 | 2 | 2.5 | 2.5 | 2.7 | C |
| Xcel | 4.1 | 1.5 | 4 | 5 | 0 | 1 | 3.0 | B/C |
| Average | 4.0 | 2.5 | 2.4 | 3.7 | 0.5 | 1.7 | 2.7 | C |

Fig. 1.  Utility Renewable Energy Scorecard worksheet

RENEW converted the scores to letter grades to simplify reporting the results. However, an important consideration is assigning a letter grade to the values shown in Fig. 1.  After several iterations the following benchmark point system was used :

1 point:  F/D
2 points: D/C
3 points: C/B
4 points: B/A

Point scores outside these values had the grades adjusted as shown in this example for a C grade: 2.1 point would be a C-, 2.2 to 2.8 points a C, 2.9 points a C+.

These grades were then converted to a 2011 Renewable Energy Performance Report Card as shown in Fig. 2 below.  Letter grade were given for each utility attribute, overall for each utility, and for the state as a whole.

report card could attract the press as well as RENEW's members and other renewable energy stakeholders, such as advocates, utility stockholders, households and businesses in green energy programs, and perhaps others.

### 5.1  Interaction with Utilities

Wisconsin's administrative rules require that each utility have a designated point person assigned to renewable energy activities. Each of these people were contacted and provided with drafts of the analysis before the final results were tabulated. Four of the five utilities responded with suggested changes in the draft scoring.  In almost all cases, scores and grades were increased after interaction with utility renewable energy staff.  In addition, each of the five utilities graded were provided with the final



**2011 Renewable Energy Performance Report Card**

| Subject | Alliant (WPL) | MG&E | We Energies | WPSC | Xcel Energy |
|---|---|---|---|---|---|
| Renewable Portfolio Standard | A | B | B | A/B | A- |
| Green Program | C- | B | B | C | D |
| Buy-back Purchases | B | C/D | F | C | A/B |
| Net Metering | C | A | B | C/D | A |
| REC Extension Position | F | F | F | C | F |
| Extra Programs | D/F | C- | C- | C | D/F |
| **Overall Grade:** | **C** | **B/C** | **C** | **C** | **B/C** |

**Average Letter Grade:**

**C**

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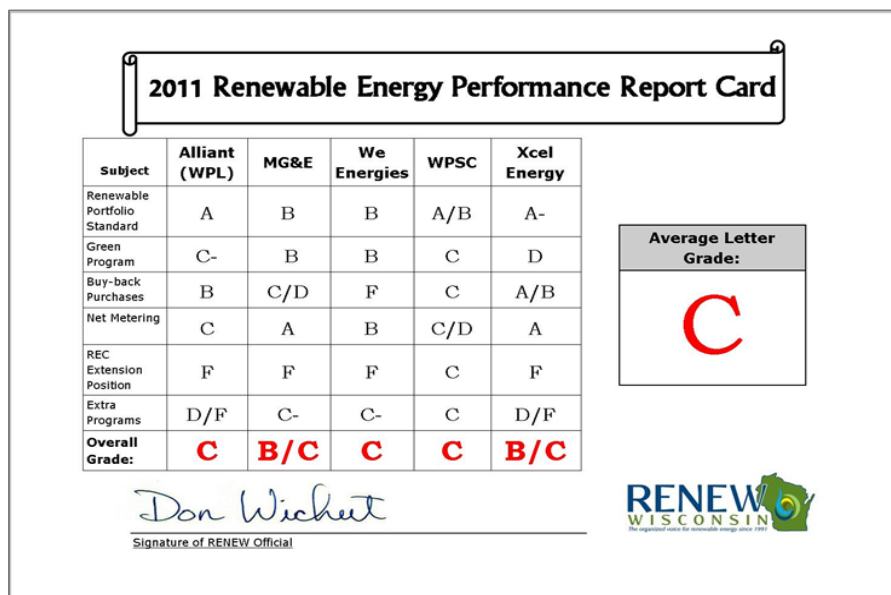Signature of RENEW Official

**RENEW WISCONSIN**

Fig. 2.  Final Statewide Utility Report Card.

### 5.  DISSEMINATION OF RESULTS

As mentioned previously, the major reasons to do a report card is to remind the utilities that they are being evaluated, to provide feedback to utilities on the specific performance metrics, and to create competition to do better.  In addition, the RENEW executive director thought the report card could be used as a public relations and organizing tool.  The

assessment and report card before the report was released, in order to give them time to consider a response to the report card, if asked.

### 5.2  Releasing the Results

A press release was prepared and a press event was set up at a Milwaukee church on September 11, 2012. The church had previously installed a solar electric

system on the church facility with the help of a We Energies program, which had been eliminated in 2011. This venue served a double purpose. It served as a way to release the state wide utility report card and also drew attention to a broken agreement with RENEW by We Energies for an extra program. The title of the press release was "We-Energies get's lowest score on the Utilities Renewable Energy Report Card" .[i] Focusing on We Energies was important because the press event was held in We Energies territory, because We Energies is the largest utility in Wisconsin, and because We Energies was covered by the state's largest newspaper with the best energy reporter.

RENEW had the report card printed on a three foot by four foot poster board, which was to be put on an easel during the press event as a visual aid. Besides distributing the press release to a statewide media sources, RENEW announced the press event to their members and Wisconsin's renewable energy industry though list serves.

Only three RENEW members that belonged to the church and one reporter, came to the press event. However, the one reporter worked for the largest publication in the state, the Milwaukee Journal Sentinel, and an article was covered in the paper and electronic additions of the paper next day: (http://www.jsonline.com/business/utilitys-renewables-program-judged-average-we-energies-disputes-c-grade-jf6rfd1-169561946.html).

The report card poster board and the results of the report card were later used in local meetings presented by the executive director in October and November 2012 and at RENEW's Energy Policy Summit in January 2013.

## 6. REACTION OF UTILTIES TO THE REPORT CARD

RENEW received very little response from any utility from being graded. Only one utility provided any reaction and that was by a utility executive who was a friend of a RENEW consultant and who was speaking off the record. This feedback was unfavorable because, according to the utility executive, most utilities are not comfortable with any assessment they cannot control. Second, and somewhat surprising, the utility executive said that no utility wanted to be compared to others, even if that utility received higher grades because they did not want to show up their peers. This remark suggests that utilities do not want any attention to anything affecting electrical rates, which have been rising consistently in Wisconsin.

## 7. LESSONS LEARNED

Report cards are universally understood as a way to assess performance. Everyone over 6 years old has received one. Therefore report cards can be a good way to convey very complex renewable energy performance down to one symbol.

RENEW's report card was developed to provide analysis on utility performance in 2011 to determine if Wisconsin utilities were backsliding. Unfortunately, it is impossible to determine trends with one year's worth of data, so this objective was not met.

We also learned that it can be difficult to provide a completely empirical review of performance. Weighing the first four attributes at 20% and the last at 10% is an oversimplification and is subjective based on the author's opinion. Obtaining empirical data on all the variables can be difficult and allocating these variables within each attribute is prone to subjective bias as well.

However, we are satisfied with the results as a first attempt at assessing renewable energy performance by utilities. This assessment was a combination of developing an analytical (multi-attribute) process and by "learning by doing". The 2011 Wisconsin Utility Renewable Energy Report Card:

- Established a defined way to grade utility performance;
- Described the data acquisition pathways and timelines that are needed to do an assessment;
- Gave direction on how the results can be disseminated for the biggest impact;
- Can be improved in subsequent years.

8.  SUGGESTIONS FOR FUTURE REPORT
    CARDS

Developing the initial report card and data sources took a considerable amount of effort by the authors. This project was not supported by any outside grants or contracts and was paid by RENEW members (who provide about 25% of RENEW's $200,000 annual budget). Future utility report cards need to be much easier to develop and should be because the pathways and availability to the data are now known. However, some attributes, like positions on renewable energy legislation, may not be available to evaluate if no relevant legislation is proposed. Other attributes, like net metering and buyback rates, are typically determined in rate cases, which may not occur every year.

There also needs to be one person assigned to the task of collecting the data and arranging it in the proper way. RENEW likely needs special funding to be able to hire a graduate student or equivalent to do this work.

It would also be useful to provide a white paper to go along with the report card, which would describe the goals, methodology, and results, much like this paper. The likelihood of this happening is a resource question that will be made in early summer of 2013, when the 2012 data becomes available and after a new RENEW executive director is in place.

9.  REFERENCES

(1) Kelly Osborn, Grading the Process – The Process of Grading, A Case Study of RENEW Wisconsin's Utility Score Card, Urban & Regional Planning Professional Project, November, 2012.

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[i] http://renewmediacenter.blogspot.com/2012/09/we-energies-gets-lowest-score-on.html