

BEFORE THE PUBLIC SERVICE COMMISSION OF WYOMING


IN THE MATTER OF THE APPLICATION)	
OF ROCKY MOUNTAIN POWER FOR A)	DOCKET NO. 20000-545-ET-18
MODIFICATION OF AVOIDED COST)	
METHODOLOGY AND REDUCED TERM)	RECORD NO. 15133
OF PURPA POWER PURCHASE)	
AGREEMENTS)	

DIRECT TESTIMONY OF TED SORENSON ON BEHALF OF RENEWABLE ENERGY COALITION

Renewable Energy Coalition (“REC”) submits the Prefiled Direct Testimony of Ted Sorenson in this docket.

Dated this 19th day of April, 2019.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 19th day of April, 2019, the **DIRECT TESTIMONY OF TED SORENSON ON BEHALF OF RENEWABLE ENERGY COALITION** was e-filed with the Wyoming Public Service Commission and a true and correct copy was sent via electronic mail addressed to the following:

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REC Exhibit 602

Ted Sorenson, Direct Testimony
Renewable Energy Coalition
Docket No. 2000-545-ET-18

IN THE MATTER OF THE APPLICATION)	
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Direct Testimony of Ted Sorenson

On Behalf of

Renewable Energy Coalition

April 19, 2019

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IN THE MATTER OF THE APPLICATION)
OF ROCKY MOUNTAIN POWER FOR)
A MODIFICATION OF AVOIDED COST)
METHODOLOGY AND REDUCED TERM)
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AGREEMENTS)


Docket No. 20000-545-ET-18
(Record No. 15133)

AFFIDAVIT, OATH AND VERIFICATION FOR DIRECT TESTIMONY


STATE OF UTAH)
) SS:
COUNTY OF WASHINGTON)

Ted Sorenson, being fast duly sworn, on his oath states:

1. My name is Ted Sorenson. I am the Founder and Principal of Sorenson Engineering. I have been asked by the Renewable Energy Coalition to testify on its behalf.
2. Attached hereto and made a part hereof for all purposes is my Direct Testimony, which has been prepared in written form for introduction into evidence in Docket No. 20000-545-EA-18.
3. I hereby swear and affirm that my answers contained in the testimony are true and correct.
4. Further Affiant sayeth not.


 Ted Sorenson
 Sorenson Engineering
 1633 Lake Blaine Drive
 Kalispell, Montana 59901

Subscribed and sworn to before me this 18th day of April, 2019.


 Notary Public

My Commission Expires: 2/10/20



1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is Ted Sorenson. My business address is 1633 Lake Blaine Drive, Kalispell,
4 Montana, 59901.

5 **Q. By whom are you employed and in what capacity?**

6 A. I am Founder and Principal of Sorenson Engineering. I am also a licensed professional
7 engineer.

8 **Q. On whose behalf are you testifying in this proceeding?**

9 A. While I am employed by Sorenson Engineering, I am not submitting testimony on behalf
10 of that company. Instead, my testimony in this docket is sponsored by the Renewable
11 Energy Coalition (“REC”).

12 REC is an unincorporated trade association that is comprised of nearly 40
13 members who own and operate nearly fifty qualifying facilities or are attempting to
14 develop new qualifying facilities under PURPA in Oregon, Idaho, Washington, Utah,
15 Montana and Wyoming. REC’s members include irrigation districts, water and waste
16 management districts, corporations, small utilities, and individuals with an interest in
17 selling renewable energy to utilities – who, absent PURPA, may have no viable
18 mechanism to develop and sell the output of renewable energy projects. Sorenson
19 Engineering is a founding member of REC.

20 **Q. Please provide a brief summary of your background and experience.**

21 A. Sorenson Engineering specializes in hydroelectric solutions, and develops, permits,
22 designs, constructs, owns, and operates projects. Sorenson Engineering designs not only

23 as an engineer but also as a contractor and as an owner. Years of experience have taught
24 me how to achieve long-term revenue and low cost operations and maintenance through
25 optimized economical designs. During thirty years, Sorenson Engineering has designed
26 more than forty power plants across the United States and Belize. All are still in operation
27 today, and I own or lease and operate twenty-one projects myself. Additional
28 information about Sorenson Engineering can be found at:

29 <http://www.sorensonengineeringinc.com>.

30 **Q. Please provide a brief summary of your testimony.**

31 A. My testimony is divided into three parts.

32 First, I summarize the opportunities and special challenges associated with
33 developing small, community-based hydro-electric projects, especially as focused on the
34 state of Wyoming. The Public Utility Regulatory Policies Act (“PURPA”) remains the
35 only viable opportunity for irrigation and water control districts, municipalities and small
36 hydro developers to be able to sell power to utilities like Rocky Mountain Power.

37 Second, I address Rocky Mountain Power’s proposal to lower the fixed price
38 contract term from twenty years to seven years. Based on my years of experience, seven
39 years of fixed prices is inadequate to allow a small hydroelectric project to obtain the
40 necessary financing to be constructed and operate. My recommendation is that the
41 Commission retain twenty-year fixed price terms.

42 Third, I address Rocky Mountain Power’s “like-for-like” proposal that has the
43 practical impact of not paying hydroelectric projects for capacity payments when the
44 Company is planning or actually acquiring new wind resources. Regardless of the

45 contract term, projects cannot be constructed if prices are too low and fail to accurately
46 reflect the cost to Rocky Mountain Power of electric energy or capacity which, but for the
47 purchase from the qualifying facility, Rocky Mountain Power would generate itself or
48 purchase from another source. My recommendation is that all qualifying facilities,
49 especially hydroelectric resources, should be paid based on the highest capacity cost
50 resource that Rocky Mountain Power will acquire next.

51 **II. WYOMING IS AN UNTAPPED OPPORTUNITY FOR THE DEVELOPMENT**
52 **OF SMALL SCALE HYDRO ELECTRIC PROJECTS THAT WILL BENEFIT**
53 **THE STATE AND LOCAL COMMUNITIES**

54 **Q. Please summarize your practical experience working with small scale hydro-electric**
55 **projects, especially irrigation districts.**

56 A. Although I began my career in the late 1970s working with small communities in
57 designing their sewer systems, I got into the hydroelectric business in 1984. Since then, I
58 have focused solely on small-scale hydroelectric projects—designing, building, owning,
59 and operating projects. A majority of the projects I've worked on involve irrigation
60 districts, including Big Wood Canal Company and Boise Board of Control in Idaho, the
61 Uncompahgre Valley Water Users Association in Colorado, Greenfields Irrigation
62 District in Montana, and the Klamath Irrigation District in Oregon. We've been in
63 contact with numerous other irrigation districts about potential projects and are in various
64 stages of development.

65 **Q. Please explain some of the practical and unique difficulties associated with**
66 **developing small scale hydro-electric projects.**

67 A. Hydro projects require a large, up-front capital investment when compared with many
68 other energy resources. However, they have a significant operating life of 50-100 years
69 and relatively low ongoing operation and maintenance costs – in addition to other
70 benefits, that I will describe later. A 20-year amortization is often required for financing
71 for hydro projects.

72 **Q. What are the opportunities in Wyoming for the development of hydro-electric**
73 **projects?**

74 A. We have been in contact with several Wyoming irrigation districts who are looking to
75 develop the power potential on their systems, including the Willwood Irrigation District
76 near Powell, the Greybull Irrigation District near Emblem, the Midvale Irrigation District
77 near Pavillion, and the Deaver Irrigation District near Deaver. We're also aware of a
78 potential project near Cokeville, Wyoming.

79 **Q. Please summarize some of the benefits that hydroelectric QFs provide to their local**
80 **communities.**

81 A. Hydroelectric QFs provide many benefits to a wide variety of stakeholders. For projects
82 on irrigation systems, this power generation creates revenue for the canal company,
83 which they can then use to lower their assessments. Farmers can then reinvest the
84 savings into their farms and their communities. Hydro projects are also not intermittent
85 like other carbon-free, renewable resources – making them more able to provide balance
86 to the grid. With increased legislative attention being paid to renewable energy
87 generation, hydro provides a stable, non-intermittent, renewable resource. Irrigation
88 conduit projects are also low-impact environmentally and with respect to fish populations

89 because they are located on already diverted water. Finally, irrigation conduit hydro
90 generation is uniquely matched to load demand from irrigators. For example, at the
91 Roach Gulch Reservoir, where we are working with Greybull Irrigation District in trying
92 to develop a site, they release water for irrigation at the exact time of power demands for
93 pumping to irrigation pivots.

94 **Q. Is PURPA necessary for small hydroelectric projects to sell their power to utilities**
95 **like Rocky Mountain Power?**

96 A. Yes. PURPA was passed because of utilities traditional reluctance to purchase power
97 from non-utility owned generators, including community and irrigation district
98 hydroelectric power. While forty years has passed since PURPA was enacted, this
99 fundamental reality has not changed. Absent PURPA, Rocky Mountain will not purchase
100 power from small hydroelectric projects, even when we are lower cost and less risky than
101 larger, utility owned generation. In addition, small hydroelectric projects, especially
102 those owned by governmental entities, generally do not have the resources, sophistication
103 or ability to sell their power into wholesale markets.

104 **III. TWENTY YEAR FIXED PRICE CONTRACT TERMS SHOULD BE RETAINED**

105 **Q. Please summarize your practical experience regarding how projects obtain**
106 **financing.**

107 A. As discussed earlier, because of the larger initial capital investment for these projects, my
108 experience in financing numerous hydro projects is that a 20-year amortization is
109 required to make these projects pencil.

110 **Q. Rocky Mountain Power witness Mark Tourangeau describes a number of new**
111 **financing opportunities for large projects on pages 17-30 of his direct testimony.**
112 **Please respond.**

113 A. Mr. Tourangeau describes corporate buyers seeking contracts as short as seven years,
114 “bank hedges,” tax equity financing, debt financing, and syndicated financing. I will not
115 opine about whether these are available for larger companies, but the market and project
116 financing for smaller projects has not substantially changed in recent years. At least for
117 smaller projects, the Commission should disregard Rocky Mountain Power’s testimony
118 that the market has changed since it last re-affirmed 20-year contract terms.

119 **IV. HYDRO-ELECTRIC PROJECTS SHOULD DEFER OR AVOID ROCKY**
120 **MOUNTAIN POWER’S NEXT RESOURCE ACQUISITION**

121 **Q. Are you an expert in avoided cost rate calculation methodologies?**

122 A. No, but I would like to submit testimony regarding the practical aspects of Rocky
123 Mountain Power’s proposal to limit capacity payments for only “like-for-like” resources.
124 As a preliminary matter, the three most important factors for a state commission to get
125 right for successful PURPA development are: 1) long-term fixed price contracts; 2)
126 accurate and sufficiently high avoided cost rates; and 3) access to standard published
127 rates. I already addressed the appropriate contract term length above. The Wyoming
128 Commission recently increased the size threshold eligibility for published rates to 5
129 megawatts, which provides significant benefits to small projects that do not have the
130 resources or experience to negotiate prices with utilities. However, without accurate and
131 sufficiently high avoided cost prices, long-term contracts and published rates will be
132 useless.

133 **Q. Please summarize your understanding of Rocky Mountain Power’s “like-for-like”**
134 **avoided cost methodology.**

135 A. Rocky Mountain Power uses some complex computer models to estimate its avoided cost
136 prices, which are supposed to estimate Rocky Mountain Power’s incremental energy and
137 capacity costs that it would generate or purchase if it did not buy power from a qualifying
138 facility or qualifying facilities. Rocky Mountain Power witness Daniel MacNeil explains
139 on pages 6-8 that it is proposing that only qualifying facilities that are of the same “type”
140 as the next deferrable resource will be allowed to be paid the capital costs of the next
141 deferrable resource in Rocky Mountain Power’s integrated resource plan (“IRP”).
142 Rocky Mountain Power categorizes “hydroelectric resources” as the same type as
143 “baseload” resources. According to Rocky Mountain Power, this means is that
144 hydroelectric will be eligible to be paid capacity payments based on any baseload
145 resources identified in their IRP. However, if Rocky Mountain Power’s next planned
146 capacity resource is a wind plant, then only wind plants are allowed to be paid capacity
147 payments based on the capacity costs of the wind plant. In other words, hydroelectric
148 facilities will not have the opportunity to be paid the capacity costs associated with any of
149 Rocky Mountain Power’s wind resources.

150 **Q. Do you agree with Rocky Mountain Power?**

151 A. While I agree that hydroelectric resources should be considered baseload, I disagree with
152 Rocky Mountain Power’s assumption that baseload resources like hydroelectric cannot
153 avoid or defer Rocky Mountain Power’s next wind or solar resource acquisition.

154 **Q. Is this important?**

155 A. Yes. While I am not an expert on Rocky Mountain Power’s IRP process, it is my
156 understanding that Rocky Mountain Power is generally planning on acquiring wind (and
157 to a lesser extent solar), and is not planning on acquiring any baseload resources. Mr.
158 MacNeil says on page 9 of this testimony that, “Since there are no thermal resources in
159 the 2017 IRP Update preferred portfolio, baseload resources would be eligible to defer
160 FOTs throughout their contract term.” This means that hydroelectric projects will only
161 be paid based on the low costs of market purchases and will not receive any capacity
162 payments over a twenty year contract term.

163 **Q. Is this reasonable?**

164 A. No. Based on both common sense and my decades of experience in the industry, it is
165 nonsensical for Rocky Mountain Power to take the position that the purchase of
166 hydroelectric generation would only defer or avoid wholesale market purchases over the
167 next twenty years. Hydroelectric generation will provide both energy and capacity
168 benefits to Rocky Mountain Power and it will defer or avoid planned wind, solar and
169 wholesale market purchases.

170 **Q. What is the practical implication of Rocky Mountain Power’s approach?**

171 A. No new hydroelectric facilities will be built in Wyoming.

172 **V. CONCLUSION**

173 **Q. Does this conclude your direct testimony?**

174 A. Yes it does.