



8 **Q: Do you have a resume or CV?**

9 **A:** Yes. It is marked Exhibit E2.

10 **Q: What is the purpose of your direct testimony?**

11 **A:** To explain East River’s ability to provide wholesale power to Kingsbury Electric  
12 Cooperative Inc. (“KEC”), and provide reliable transmission and related infrastructure in  
13 conjunction with KEC to serve the electric service needs of Gevo Net-Zero 1, LLC (“NZ1”) and  
14 Dakota Renewable Hydrogen, LLC (“DRH”) in support of the NZ1 and DRH petitions to have  
15 KEC assigned as the petitioner’s electric provider in the service area of Otter Tail Power Company  
16 (“OTPC”). This will include addressing the requirements of SDCL 49-34A-56 and explaining the  
17 relationship between KEC, East River, Basin Electric Power Cooperative (“Basin Electric”), and  
18 the Western Area Power Administration (“WAPA”). I incorporate herein East River’s Petition to  
19 Intervene filed in each of the above dockets.

20 **Q. What is the relationship between KEC, East River, and Basin?**

21 **A.** East River, KEC and Basin Electric are part of a three-tiered cooperative power supply  
22 network. KEC is a member-owner of East River, and East River is a member-owner of Basin  
23 Electric. Basin Electric generates power from a mix of generation sources including coal, natural  
24 gas, wind, solar, hydropower, recovered energy, oil/diesel/jet fuel, and market purchases. At the  
25 end of 2023, Basin Electric operated 5,217 megawatts of wholesale electric generating capacity  
26 and had 8,112 megawatts of generating capacity within its resource portfolio. Basin Electric and  
27 WAPA deliver power over high-voltage transmission lines to delivery point substations where it  
28 sells that power at wholesale to East River. East River delivers power across its over 3,300-mile  
29 transmission system to distribution substations. East River owns approximately 268 substations.  
30 Distribution cooperatives like KEC take delivery from East River substations and step down the

31 voltage to levels at which it can be used in homes, farms and in businesses across eastern South  
32 Dakota and western Minnesota. East River also purchases a portion of its power supply, about  
33 17%, from WAPA which markets power generated at the hydroelectric dams within the Missouri  
34 River basin.

35 **Q. Explain the cooperative governance model.**

36 **A.** The cooperative network in our region follows a democratic grassroots governance model  
37 which provides representation from all members through each stage of the three-tiered cooperative  
38 power delivery network. Distribution cooperative board members are democratically elected by  
39 their fellow member-owners to represent them on the local distribution cooperative board of  
40 directors. Any eligible member-owner can run for the board of directors of their local distribution  
41 cooperative if they meet the requirements of their specific bylaws. Each member-owner has one  
42 vote, no matter the amount of electricity they use, and elections are held at a cooperative's annual  
43 or district meetings where member-owners vote for their preferred candidate. Directors are elected  
44 to serve three-year terms. Members of a distribution cooperative board of directors then  
45 democratically elect one of their own to represent the cooperative on the East River board of  
46 directors. The East River board then elects one of their own to represent the cooperative on the  
47 Basin Electric board of directors. The cooperative model of governance provides accountability  
48 and representation for member-owners at each level of the cooperative network. The board of  
49 directors at each level have a fiduciary responsibility to choose management personnel, set  
50 direction, provide oversight, ensure adequate resources and monitor progress as they delegate day-  
51 to-day responsibilities to the cooperative's management personnel.

52 **Q. How does East River and Basin Electric deliver power?**

53 **A.** Basin Electric and East River Electric deliver power through two Regional Transmission  
54 Organizations: Midcontinent Independent System Operator (MISO) and Southwest Power Pool  
55 (SPP). Basin Electric is a market participant, buying and selling power in the MISO and SPP  
56 markets. East River is classified as a Transmission Owner in SPP and delivers power through  
57 MISO, although it is not classified as a Transmission Owner in MISO. East River delivers  
58 wholesale power to our members through its approximately 3,300 miles of transmission line and  
59 approximately 280 substations. East River operates its transmission facilities at voltages of 230  
60 kV, 115 kV, 69 kV, 41.6 kV and 34.5 kV.

61 **A. What is the Southwest Power Pool?**

62 **Q.** SPP is a regional transmission organization (RTO): a nonprofit corporation mandated by  
63 the Federal Energy Regulatory Commission to ensure reliable supplies of power, adequate  
64 transmission infrastructure and competitive wholesale electricity prices on behalf of its members.  
65 It manages the electric transmission system in parts of 14 states in the central and western United  
66 States including South Dakota. SPP's members include cooperatives, investor-owned utilities,  
67 municipal systems, state agencies, federal agencies, independent transmission companies, and  
68 independent power producers. SPP is responsible for coordinating the reliability of the  
69 transmission system and balancing electric supply and demand in its footprint. SPP's primary  
70 responsibility is to make sure that the electricity is delivered to its member companies in the most  
71 affordable way possible. Basin Electric and East River are members of SPP.

72 **Q. What is your involvement if any with SPP?**

73 **A.** I am a member of the SPP Markets and Operations Policy Committee (MOPC). The MOPC  
74 is responsible, through its designated organization groups, for developing and recommending

75 policies and procedures related to the technical operation of SPP, as approved by the SPP Board of  
76 Directors. The policy and procedures developed by the MOPC include system design, planning,  
77 adequacy, regional transmission service tariff, interconnections, operation, reliability, market  
78 designs and efficiency, and market power mitigation that will help to assure efficient and reliable  
79 power supply among the systems in SPP and SPP transmission customers.

80 I provided direct testimony to FERC for East River’s original filing to FERC in which East  
81 River, as a Transmission Owner in SPP, requested implementation of the formula rate template  
82 associated with the transfer of functional control of certain East River transmission facilities to  
83 SPP.

84 **Q: Briefly explain the history between East River, KEC, NZ1, and DRH.**

85 **A.** East River and KEC provided a bid for electric service for the NZ1 project in April/May  
86 of 2021, subsequently, East River and KEC were informed that NZ1 had selected OTPC to serve  
87 the NZ1 project. In May 2023 we were contacted by NZ1 to reenter negotiations because NZ1,  
88 DRH, and OTPC could not come to terms for electric service. NZ1 and DRH executed KEC Large  
89 Load Applications for Membership and Electric Service in August of 2023 and March of 2024,  
90 respectively. Contribution in Aid of Construction Agreements were executed in March of 2024  
91 and Electric Service Agreements were negotiated in 2024.

92 **Q. What is a biddable load?**

93 **A.** That refers to customers with loads that satisfy the criteria of SDCL 49-34A-56. Any new  
94 customers at new locations which develop after March 21, 1975, located outside municipalities as  
95 the boundaries thereof existed on March 21, 1975, and who require electric service with a  
96 contracted minimum demand of two thousand kilowatts or more are considered biddable  
97 loads. Subject to Commission approval, these customers are not obligated to take electric service

98 from the electric utility having the assigned service area where the load is located. As such  
99 qualifying customers can take bids from competing utility providers for electrical service.

100 **Q. Do you consider NZ1 and DRH biddable loads?**

101 A. Yes.

102 **Q. What makes them a biddable load?**

103 A. Their respective projects will be built at a location outside a municipal service territory  
104 that is not now or in the past been served by an electric utility. Both NZ1 and DRH would be new  
105 retail customers of KEC. NZ1 and DRH will have a contracted minimum demand of two thousand  
106 kilowatts or more, and their actual loads significantly above that. NZ1 and DRH each have  
107 negotiated with KEC an Electric Service Agreement (ESA) that requires KEC to supply electric  
108 demand not to exceed 49 MW and 25 MW respectively. They both have signed membership  
109 agreements with KEC where they represented they are new customers who require a contracted  
110 minimum demand of two thousand kilowatts or more. They are biddable loads for the reasons  
111 stated above and/or in their respective petitions and pre-filed testimony filed in each of these  
112 consolidated dockets.

113 **Q: Are you familiar with the power requirements of NZI and DRH?**

114 A: Yes. They have shared their power requirements with us. The electric service to each shall  
115 be firm, NZ1's electric demand is projected to be 40-45 MW with an expected 90% load factor,  
116 and DRH's electric demand is projected to be 20-25 MW with an expected demand of 90% load  
117 factor. The details of their respective power requirements are set out in Pre-Filed Direct Testimony  
118 of Ronald Borchardt, Vice President of Project Engineering for Gevo, Inc. and NZI.

119 **Q: Will there be an adequate power supply available to NZ1 and DRH?**

120 **A:** Yes. Basin Electric, East River’s primary source of power will fulfill NZ1’s and DRH’s  
121 demand and energy requirements by using Basin Electric resources. In conjunction with the NZ1  
122 project, Kingsbury County Wind Fuel, LLC intends to construct, own, and operate a 99 MWac  
123 wind farm that will be connected directly to the NZ1 Project via a 10+ mile 115 kV transmission  
124 line to be owned and operated by East River. The wind farm has a wholesale power purchase  
125 agreement with Basin Electric, and Basin will take title to the energy at the substation to be  
126 constructed in conjunction with the wind farm. The wind farm is being designed to provide the  
127 amount of electrical energy required by the NZ1 Project on a net-monthly basis, but KEC will be  
128 the contracted retail electric supplier and transmission will be provided by East River. When the  
129 wind farm produces more energy than can be consumed by the NZ1 Project, the wind farm will  
130 export any such excess energy in accordance with its interconnection and related agreements.  
131 When the wind farm is not producing energy, the NZ1 Project will receive grid energy based on  
132 its retail electric service agreement from KEC. NZ1 and DRH will be provided firm capacity for  
133 the entire load with the capacity requirement for the project being provided by Basin Electric.  
134 According to the 2024 SPP Resource Adequacy Report, Basin Electric has a total capacity of 4,216  
135 MW, a net Peak Demand of 3,482.4 MW, a resource adequacy requirement of 4,004.7 MW and an  
136 excess capacity of 211.3 MW resulting in a LRE planning reserve margin of 21.1%.<sup>1</sup>

137 **Q: Can you describe the developments and improvements to be undertaken by KEC and**  
138 **East River to provide electric service to DRH and NZ1?**

139 **A:** Yes. KEC and East River will design, construct and install, or cause to be designed,  
140 constructed and installed, all service delivery facilities to a demarcation point of interconnection

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<sup>1</sup> See page 17 of the report. A hyperlink to the report is provided below.  
<https://www.spp.org/documents/71804/2024%20spp%20june%20resource%20adequacy%20report.pdf>

141 with NZI and DRH at a switch on the 34.5 kV bus necessary to provide service to each of them.  
142 East River will add and upgrade its transmission system including a new substation on the site to  
143 the extent reasonably necessary to meet a combined initial peak capacity requirement of 65 MW  
144 for NZ1 and DRH. KEC and/or East River will own, operate and maintain the facilities once  
145 installed. All revenue metering will be provided by KEC.

146 KEC and East River entered into separate Contribution in Aid of Construction (CIAC)  
147 Agreements with NZ1 and DRH that contain details of the developments and improvements. Said  
148 developments and improvements are subject to change as the final design is completed. Exhibit 5  
149 of NZ1’s petition depicts a diagram of East River’s upgrade plan. The plan includes the rebuild of  
150 facilities along with a conversion from 69 kV to 115 kV for three sections of the East River system  
151 from the Carpenter substation to the Kingsbury County substation (across the road from the project  
152 location), Arlington substation to Kingsbury County substation, and VT Hanlon substation to  
153 Kingsbury County substation. The transmission plan is detailed in the Kingsbury County  
154 Substation Request Transmission System Study as “Option 2.” The Kingsbury County Substation  
155 Request Transmission System Study is marked Exhibit E3

156 **Q: Can you describe the timing of the improvements you have identified above?**

157 **A:** It will take approximately 56 weeks to construct and install the Kingsbury County  
158 substation from the date of commencement of construction. The Kingsbury County substation will  
159 be ready to serve load approximately 56 weeks from the date of commencement of construction.  
160 It will take approximately 136 weeks to construct and install the transmission system upgrades  
161 from the date of commencement of construction.

162 **Q: Can you describe the economic factors related to the development and**  
163 **improvements?**



164 **A:** East River and KEC expect to invest approximately [Trade Secret Data Begins] [Redacted] [Trade  
 165 Secret Data Ends] million in new transmission and related infrastructure to reliably serve the NZ1  
 166 DRH. NZ1 and DRH will be responsible for the cost (on a load-ratio basis) of [Trade Secret Data  
 167 Begins] [Redacted] [Trade Secret Data Ends] through a CIAC basis for facilities directly  
 168 attributed to the new load. The KCWF wind farm will likewise be responsible under a separate  
 169 CIAC agreement with East River for approximately [Trade Secret Data Begins] [Redacted] [Trade  
 170 Secret Data Ends] for the 10+ miles of 115 kV, double-circuited transmission line and related  
 171 facilities. KWCF will be directly responsible for the cost of interconnection facilities and  
 172 transmission upgrades identified in the SPP generator interconnect process.

173 The cost attributable directly to the new load is [Trade Secret Begins] [Redacted] [Trade  
 174 Secret Ends]. The transmission investment that will be includable in SPP is [Trade Secret Begins]  
 175 [Redacted] [Trade Secret Ends]. The portion of the transmission that is not directly attributable  
 176 to the load or that is not includable in SPP is [Trade Secret Begins] [Redacted] [Trade Secret  
 177 Ends].

178 If KEC does not serve NZ1 and DRH, East River will still move forward with [Trade Secret  
 179 Begins] [Redacted] [Trade Secret Ends] of the above described transmission build out, including  
 180 the following:

181 [Trade Secret Data Begins]

Project	Project Estimate
Arlington Substation rebuild	[Redacted]
Kingsbury County Substation	[Redacted]
Arlington Substation to Kingsbury County Substation Line rebuild	[Redacted]
Oldham Substation modifications	[Redacted]

Lakeview Substation modifications	[REDACTED]
VT Hanlon Substation modifications	[REDACTED]
Lake County Substation modifications	[REDACTED]
VT Hanlon to Lakeview Line modifications	[REDACTED]
Kingsbury County Substation to Oldham Substation Line	[REDACTED]
Oldham Substation to Lake County Substation Line rebuild	[REDACTED]
Carpenter 230/115 kV Addition	[REDACTED]
Manchester Substation	[REDACTED]
DeSmet Substation modifications	[REDACTED]
Lake Preston Substation modifications	[REDACTED]
Carpenter Substation to Manchester & Willow Lake Line rebuild	[REDACTED]
Carpenter Substation to Manchester Substation Line rebuild	[REDACTED]
Manchester Substation to DeSmet Tap Line rebuild	[REDACTED]
DeSmet Line Tap rebuild	[REDACTED]
DeSmet Tap to Lake Preston Substation Line rebuild	[REDACTED]
Lake Preston Substation to Kingsbury County Substation Line rebuild	[REDACTED]
Total	[REDACTED]

182

183 *[Trade Secret Data Ends]*

184 **Q: Will NZ1 and DRH pay their share of East River’s transmission buildout that isn’t**  
 185 **covered under the CIAC agreement?**

186 **A:** Yes. NZ1 and DRH will pay for their share of the transmission buildout which is included  
 187 in the rate recovery of system-wide costs. The cost is recovered on both the demand and energy

**PUBLIC DOCUMENT – CONFIDENTIAL INFORMATION HAS BEEN EXCISED**

188 charges. Some of the transmission investment will be includable in SPP and the return on  
189 investment for those assets is specified in the East River Annual Transmission Revenue  
190 Requirement (ATRR) template filed with SPP and FERC, a public document. The portion of  
191 transmission that is not directly attributable to the load or that is not includable in SPP will be  
192 recovered through East River and KEC rates at cost.

193 **Q: Is any of the transmission buildout investment being made solely to serve NZ1 or**  
194 **DRH?**

195 A: The investment is not being made to solely serve the NZ1 or DRH but instead is part of  
196 East River’s projects under the SPP 2024 Integrated Transmission Plan. The cost solely to serve  
197 NZ1 or DRH is being recovered via the CIAC agreement.

198 **Q: Will the proposed build-out to serve NZ1 and DRH duplicate utility infrastructure or**  
199 **otherwise be excessive?**

200 A. No, it won’t. There isn’t an adequate utility infrastructure to provide service to the NZ1  
201 and DRH Projects now. Any utility that would serve their loads will have to build millions of  
202 dollars in additional transmission and related infrastructure to adequately serve them at this  
203 location. The planned upgrade includes the replacement of existing line sections that were  
204 previously planned by East River to be upgraded for age, condition, and load growth. This plan  
205 does not overbuild or provide any unnecessary duplication of facilities. The upgrades were  
206 proposed to SPP in a FERC-approved regional transmission planning process and were selected by  
207 SPP as the best alternative among the options evaluated. The proposed upgrades provide support  
208 for the DRH and NZ1 load, other new loads in Kingsbury County, and mitigates low voltage issues  
209 for contingencies in the Brookings area. It is our understanding that SPP would not approve an  
210 upgrade that was considered to be excessive or otherwise not in the public interest.

211 In addition to the NZ1 and DRH load, additional dairy load and possibly digester loads  
212 are being considered in Kingsbury County. New dairy loads are expected to be in the 8.5 to 10  
213 MW range and new digester loads are expected to be 7.5 MW. The most certain dairy loads are  
214 in western Kingsbury County with an additional dairy expected in southeast Kingsbury County.  
215 Because these are loads that are not currently operating, we assume the loads will be similar to  
216 other dairy loads on the East River system (i.e., high load factors). The upgrades in the Kingsbury  
217 County area are included in the final portfolio of projects recommended by SPP in the 2024  
218 Integrated Transmission Plan (ITP).

219 **Q: Did East River perform any studies on the proposed load additions to East River’s**  
220 **transmission system?**

221 A: Yes. East River completed a load connection transmission system study which was  
222 completed on November 1, 2023. The load was included in SPP’s 2024 ITP assessment. SPP  
223 identified the needs resulting from the loads and solicited upgrades from stakeholders to mitigate  
224 the needs. East River submitted its proposed upgrades which SPP evaluated against other options  
225 but ultimately selected the East River proposed upgrades as the best solution. The SPP ITP  
226 assessment is an open, public process with multiple opportunities for stakeholder input, feedback  
227 and formal challenge. The SPP 2024 Integrated Transmission Planning Assessment Report and  
228 associated system upgrades were reviewed and approved by the stakeholder process and approved  
229 by the SPP Board of Directors on October 29. The SPP 2024 Integrated Transmission Planning  
230 Assessment Report is marked Exhibit E4.<sup>2</sup>

231 **Q: Does this conclude your pre-filed written testimony?**

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<sup>2</sup> A hyperlink to the report is provided below.

<https://www.spp.org/engineering/transmission-planning/integrated-transmission-planning/>

232 A: Yes.

233 Dated this 1<sup>st</sup> day of November, 2024

234

235

236

A handwritten signature in black ink, appearing to be 'MH', is written over a horizontal line. The signature is cursive and stylized.

Mark Hoffman