

BEFORE THE CORPORATION COMMISSION OF OKLAHOMA

IN THE MATTER OF THE APPLICATION OF)
OKLAHOMA GAS AND ELECTRIC COMPANY)
FOR COMMISSION AUTHORIZATION OF A)
PLAN TO COMPLY WITH THE FEDERAL)
CLEAN AIR ACT AND COST RECOVERY; AND)
FOR APPROVAL OF THE MUSTANG)
MODERNIZATION AND COST RECOVERY)

CAUSE PUD 201400229

FILED
FEB 20 2015

COURT CLERK'S OFFICE - OKC
CORPORATION COMMISSION
OF OKLAHOMA

SUMMARY OF TESTIMONY

OF

SCOTT NORWOOD

ON BEHALF OF

OKLAHOMA INDUSTRIAL ENERGY CONSUMERS

FEBRUARY 20, 2015

1 My name is Scott Norwood. I am President of Norwood Energy Consulting, L.L.C. I am
2 an energy consultant specializing in the areas of electric utility regulation, resource planning
3 and energy procurement. I have over 33 years of experience in the electric utility industry.
4 My background and experienced is detailed in Exhibit SN-1 of my Responsive Testimony.

5 I am testifying on behalf of Oklahoma Industrial Energy Consumers (“OIEC”) in this
6 proceeding. I have testified in approximately 200 regulatory proceedings in 15 states over
7 the last ten years. I have testified on behalf of OIEC in numerous past base rate and fuel
8 proceedings before the Oklahoma Corporation Commission (“OCC” or “Commission”),
9 including Oklahoma Gas and Electric Company’s (“OG&E”) 2007 application for approval
10 of the Red Rock coal-fired generating station (PUD 200700012); the Company’s 2005 and
11 2008 base rate cases (PUD 200500151 and PUD 200800398); OG&E’s application for
12 approval of a \$211 million, 120 mile, 345 kV transmission line from Woodward to
13 Oklahoma City to facilitate wind energy imports from western Oklahoma (PUD
14 200800148); OG&E’s applications for approval of the OU Spirit and Crossroads wind
15 generation projects (PUD 200900167 and PUD 201000037); OG&E’s 2006 and 2009 fuel
16 prudence reviews (PUD 200700364 and PUD 201000175); and the Company’s application
17 for approval of a rider to recover Southwest Power Pool (“SPP”) transmission charges (PUD
18 201000146). I have also participated on behalf of OIEC in past Commission proceedings
19 involving environmental compliance issues, including Public Service Company of
20 Oklahoma’s (“PSO”) request for approval of an environmental compliance plan (PUD
21 201200054) as well as recent public hearings involving environmental compliance proposals
22 presented in the 2014 Integrated Resource Plans (“IRP”) filed by OG&E and PSO. Through
23 my participation in these past projects, and similar proceedings in other jurisdictions, I have

1 become very familiar with the operations of power supply resources on OG&E's system and
2 the environmental compliance and resource planning issues under review in this case.

3 The purpose of my testimony in this case is to present my findings and recommendations
4 regarding OG&E's request for pre-approval of its proposed environmental compliance plan
5 and Mustang modernization plan and to respond to issues raised on these matters in the
6 responsive testimonies filed by other parties. My testimony also addresses certain limited
7 aspects of OG&E's request for approval to recover costs of these proposed projects through
8 a proposed new Environmental and Generation Plan Rider ("EGP Rider"). OIEC witness
9 Mark Garrett also addresses a number of issues regarding OG&E's cost recovery proposals
10 in his Responsive Testimony filed in this case.

11 OIEC's members are large users of electricity on OG&E's system, and therefore are very
12 sensitive to any electric rate increases proposed by OG&E. OIEC's interest in this case is to
13 assess the reasonableness and forecasted costs and rate impacts associated with OG&E's
14 proposed environmental compliance plan and Mustang modernization plan, including the
15 Company's proposed new EGP Rider and its proposal to recover future environmental
16 control system operating costs through the Fuel Adjustment Clause ("FAC") Rider.

17 **SUMMARY OF RESPONSIVE TESTIMONY**

18 My responsive testimony in this case was filed on December 16, 2014. In my responsive
19 testimony, I present evidence and analysis to support the following major findings:

20 **ENVIRONMENTAL COMPLIANCE PLAN**

- 21
- 22 1. The modeling process used by OG&E to evaluate environmental compliance plan options
23 generally appears reasonable and was conducted with widely-accepted industry standard
24 production cost models. With the exception of modeling of the SPP's new integrated

1 market ("SPP IM"), the compliance plan evaluation process is consistent with past OG&E
2 Integrated Resource Plan ("IRP") analyses.

3 2. OG&E evaluated the impact of uncertainty in key variables that impact the forecasted costs
4 of environmental compliance plan options. The Company's CO2 sensitivity appears to
5 significantly overstate costs that would likely be incurred as a result of EPA's recently
6 proposed regulations of carbon emissions from existing generating units.

7 3. OG&E's proposed Scrub/Convert environmental compliance plan would reduce the
8 Company's existing owned coal-fired generating capability by 39%, from the existing level
9 of 37% to a level of approximately 21% of total installed capacity by 2020, and would
10 thereby greatly diminish the existing fuel diversity of OG&E's system.

11 4. Under the Replace compliance plan, which assumes replacement of four coal units with new
12 combined cycle units, OG&E's owned coal-fired generating capability would drop by 80%,
13 from the existing level of 37% to a level of approximately 7% of total installed capacity by
14 2020, and would thereby leave the Company heavily dependent on natural gas and SPP
15 market purchases for future energy requirements.

16 5. As shown in Table 1, below, the Scrub and Scrub/Convert plans have lower costs than the
17 Convert, Replace, and Scrub/Replace alternative compliance plans, under OG&E's base
18 case analysis, and much lower costs under the high gas sensitivity analysis, while the costs
19 of all options are relatively close under OG&E's CO2 sensitivity analysis.

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Table 1

OG&E Cost Forecast for Environmental Compliance Options
2015-2044 (Cumulative NPV, \$Millions)

| | <u>Base Case</u> | <u>High Gas</u> | <u>CO2</u> |
|---------------|------------------|-----------------|------------|
| Scrub | \$22,423 | \$24,676 | \$27,046 |
| Scrub/Convert | \$22,351 | \$25,822 | \$26,402 |
| Convert | \$22,484 | \$27,234 | \$25,877 |
| Scrub/Replace | \$23,229 | \$26,572 | \$26,868 |
| Replace | \$24,237 | \$28,931 | \$26,806 |

Source: OG&E's response to OIEC 3-12, Attachment 86.

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6. Under the Scrub compliance plan, there would be no permanent loss of fuel diversity on OG&E's system, and coal fired generating capacity would represent approximately 35% of the Company's total installed capacity in 2020.

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7. Under OG&E's base case analysis, the cost of the alternative Scrub compliance plan is approximately \$800 million lower on a nominal basis than the Company's proposed Scrub/Convert compliance plan. The cost of the Scrub compliance plan is approximately \$5.6 billion lower than the proposed Scrub/Convert plan under OG&E's high gas price sensitivity.

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MUSTANG MODERNIZATION PLAN

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8. The estimated capital cost of OG&E's proposed Mustang Modernization plan is approximately \$414 million, and the estimated annual revenue requirement of this plan is \$73.8 million in 2020. This proposal is unrelated to OG&E's environmental compliance plan.

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1 9. OG&E has not demonstrated that its proposal to accelerate the retirement of Mustang Units
2 3 and 4 by 4 to 8 years is reasonable or necessary. The Company also has not demonstrated
3 that its proposal to replace the retired Mustang generating units with new gas-fired simple
4 cycle combustion turbine ("CT") units represents the lowest reasonable cost alternative, and
5 did not evaluate deferral or market purchase alternatives to these new CT units.

6 **WIND ENERGY RESOURCES**

7 10. OG&E has failed to justify its decision not to acquire additional wind energy as part of its
8 environmental compliance plan. At current price levels, the energy savings resulting from
9 additional wind energy purchases by OG&E could help offset rate impacts of the proposed
10 environmental compliance plan while at the same time providing environmental benefits
11 and long-term fuel price hedge benefits to the OG&E system.

12 Based on the above findings and other evidence discussed in my testimony, my primary
13 recommendations are as follows:

14 1. I recommend that OG&E reconsider the Scrub compliance plan based on the fact that
15 OG&E's analysis indicates that this plan provides a lower total nominal cost in the base case
16 analysis, only modestly higher costs in the CO2 sensitivity case, and much greater fuel
17 diversity benefits than the Company's proposed Scrub/Convert plan and other compliance
18 options.

19 2. In the event that the Commission believes that OG&E's ownership of coal-fired generation
20 should be lower than 35% (the level provided under the Scrub plan) due to concerns
21 regarding future environmental regulations, I recommend that OG&E's Scrub/Convert plan
22 be adopted as the most reasonable alternative to the Scrub compliance plan.

1 3. As explained further in the Responsive Testimony of OG&E witness Mark Garrett, I
2 recommend that consideration of cost recovery for the proposed environmental compliance
3 plan be deferred until OG&E's next base rate case, which is expected to be filed in the
4 summer of 2015.

5 4. I recommend that the Commission reject OG&E's Mustang Modernization plan.

6 5. I recommend that OG&E be encouraged to solicit bids to acquire additional wind energy as
7 soon as possible.

8 My recommendations regarding OG&E's environmental compliance plan are based on
9 capital and operating cost assumptions presented by the Company in this case. To the extent
10 future costs prove to be higher than represented by OG&E in this case, the Company should
11 be held fully accountable for demonstrating the reasonableness of such cost variances in
12 future rate proceedings.

13 **SUMMARY OF REBUTTAL TESTIMONY**

14 My rebuttal testimony in this case was filed on January 26, 2015. My rebuttal testimony
15 focuses primarily on responding to the recommendations of OER witness Rose and Sierra
16 Club witnesses Fisher, Comings and Wilson. My major concerns with the testimony of
17 these witnesses are as follows:

18 **FUEL DIVERSITY IMPACTS**

19 Despite the fact that OG&E's proposed compliance plan has lower costs under most base
20 case analyses and would remove 40% of the Company's coal-fired generating capacity by
21 2020, OER witness Rose and Sierra Club witnesses Fisher, Comings and Wilson assert that
22 it would be more reasonable for four of OG&E's five coal-fired generating units to be
23 retired or converted to burn natural gas by 2020. These alternative recommendations go far

1 beyond the requirements of the Environmental Protection Agency's ("EPA") Federal
2 Implementation Plan for compliance with the Regional Haze rule and would permanently
3 eliminate over 80% of the existing low-cost coal-fired energy from the OG&E system and
4 leave the Company's Oklahoma customers almost entirely dependent upon gas-fired
5 generation and SPP market purchases. At a time when there is great uncertainty regarding
6 future environmental policies, gas prices and SPP market operations, these parties
7 recommendations to permanently eliminate over 80% of the fuel diversity value supplied
8 from OG&E's coal fired generating units simply makes no sense.

9 **ENVIRONMENTAL COMPLIANCE PLAN MODELING**

10 OER and Sierra Club witnesses conducted complex regional production cost modeling for
11 the new SPP market alternative to assess costs of OG&E's proposed compliance plan and
12 their alternative proposals. My review indicates that the OER and Sierra Club modeling
13 analyses are seriously flawed and unreasonably overstate benefits of their recommended
14 alternative compliance plans.

15 The major flaw in the OER analysis is the questionable assumption that OG&E could
16 acquire 1,900 MW of low cost wind energy in the alternative plans, but could acquire no
17 additional wind under OG&E's plan. A second major flaw in OER's analysis is the
18 questionable assumption that OG&E could acquire low cost existing combined cycle
19 capacity in the alternative plans, but could not acquire such capacity under OG&E's
20 proposed compliance plan. As explained in my rebuttal testimony, if these and other
21 questionable assumptions in OER's analysis were corrected, the forecasted benefit of the
22 OER's alternative plans over OG&E's proposal would be eliminated.

1 The major flaw in Sierra Club's compliance plan analysis is the assumption that very high
2 carbon prices will be enacted in the future. There is no basis for this assumption, which is
3 inconsistent with both ICF's own carbon price forecast for EPA, as well as the carbon
4 compliance forecast of Synapse Energy, Sierra Club's consultant in this case. As explained
5 later in my testimony, if Sierra Club's analysis is adjusted to reflect a more reasonable
6 carbon forecast, the forecasted benefits of implementing its alternative "no coal" compliance
7 plans would be eliminated.

8 **IMPACT ANALYSIS**

9 OER and Sierra Club witnesses fail to address or evaluate customer rate impacts of their
10 alternative compliance proposals. This is a particularly serious flaw due to the fact that their
11 "no coal" proposals would leave customers highly exposed to future natural gas and market
12 price increases, without offering any suggestions as to how such impacts could be mitigated
13 after the permanent loss of coal-fired energy on OG&E's system occurs under their
14 proposals.

15 **WIND ENERGY RESOURCES**

16 Virtually all parties in this proceeding have recognized the great value that additional wind
17 energy could provide to OG&E as economy energy, a hedge against future natural gas price
18 increases and as a low-cost means for mitigating carbon emissions on OG&E's system.
19 Given this broad consensus, I again recommend that OG&E be encouraged to issue a
20 request for proposals ("RFP") for new wind energy as soon possible, and that additional
21 cost-effective wind energy resources be included as a key element of the Company's
22 environmental compliance plan.

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1 **MUSTANG MODERNIZATION PLAN**

2 Virtually all parties in this proceeding, recommend that the Commission deny OG&E's
3 request for approval of the proposed Mustang Modernization plan for the reason that the
4 Company had not demonstrated that the project represents the lowest reasonable cost
5 alternative. Again, the proposed Mustang Modernization plan is unrelated to OG&E's
6 environmental compliance plan and the Company has not demonstrated that the project is
7 necessary or that it represents the lowest reasonable cost alternative for serving the
8 Company's customers.

9 When appropriately corrected, the analysis presented in the responsive testimony of OER
10 witness Rose and the Sierra Club witnesses reinforces my original conclusion that OG&E's
11 proposed Scrub/Convert compliance plan represents a reasonable and moderate proposal
12 that would preserve fuel diversity while accounting for potential risk that future
13 environmental regulations could adversely impact operating costs of coal-fired units.

CERTIFICATE OF SERVICE

On this 20th day of February 2015, a true and correct copy of the above and foregoing instrument was sent via electronic mail and/or regular U.S. Postal Service, postage fully prepaid there on to the following interested parties:

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