

STATE OF IOWA
DEPARTMENT OF COMMERCE
BEFORE THE IOWA UTILITIES BOARD

IN RE: INTERSTATE POWER AND LIGHT COMPANY	DOCKET NO. RPU-2019-0001
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**DIRECT TESTIMONY
OF
STEVEN HOLLAND**

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

2 A. Steven Holland. My business address is Luther College, 700 College Drive,
3 Decorah, Iowa.

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

5 A. I am a Professor of Economics and the Dahl Chair in Economics at Luther
6 College.

7 **Q. Please describe your educational and professional background and
8 experience.**

9 A. I have a J.D. from Georgetown University and a Ph.D. in Applied Economics
10 from the University of Minnesota. Most of my research explores the intersection
11 of economic systems and legal systems, and this work has often led me to study
12 various aspects of local economics. For example, I have participated in research
13 on the impact of ethanol cooperatives on local communities, on the costs and
14 benefits of community bike trails, on how farmers' markets can increase producer

1 and consumer welfare, on the impact of gentrification, on the economic impact of
2 flooding, and on different methods to measure a community's well-being.

3 **Q. Have you previously testified before the Iowa Utilities Board or any other**
4 **agency?**

5 A. No.

6 **Q. What is the purpose of your Direct Testimony in this proceeding?**

7 A. The purpose of my Direct Testimony is to describe the economic impact of the
8 proposed Alliant rate increase on the Decorah community.

9 **Q. Are you familiar with the recent municipalization effort in Decorah?**

10 A. Yes, I followed the issue during the public debate around the competing
11 feasibility studies and through the referendum to create a municipal electric
12 utility. I did not formally advocate or assist with the efforts of either side of that
13 debate.

14 **Q. Are you able to speak to the economic impacts of increased utility**
15 **expenditures on a community such as Decorah?**

16 A. Yes. While I can't judge the veracity of claims in the various municipalization
17 studies and reports, I can comment on some of the likely economic impacts that
18 would result if the proposed Interstate Power and Light Company ("**IPL**") rate
19 increase is approved in this case.

20 **Q. How will higher electricity prices affect commercial and large general service**
21 **customers in the Decorah area?**

22 A. The impact of an electricity rate increase can vary across communities and vary
23 across customers within a community. However, research on the economic impact

1 of electricity price increases in other areas is likely to be instructive in this case.
2 That research suggests that in the short-run (the first year after the price increase)
3 businesses are likely to either increase prices, cut costs in other areas, and/or face
4 lower profits. In the longer term, those effects should continue but be somewhat
5 mitigated by efforts to reduce electricity consumption.

6 **Q. Are you able to explain those expected reactions to electricity rate increases?**

7 A. A useful way to think about how businesses will respond to electricity price
8 increases is by looking at “price elasticity of demand,” a measure of how
9 electricity use falls with an increase in price. An elasticity close to zero suggests
10 price increases will have little effect on demand. For instance, a price elasticity of
11 -0.1 suggests a 10% increase in electricity price will reduce the amount of
12 electricity demanded by only 1%. An elasticity above 1.0 represents greater price
13 sensitivity.

14 Most estimates of short-run price elasticity for electricity are quite low and fall in
15 the range of something close to zero to about 0.3.¹ This means that as electricity
16 prices rise, commercial and industrial customers will reduce consumption very
17 little, at least initially, and instead will reduce other costs, increase prices, or earn
18 reduced profits in response to higher input costs.

19 **Q. Do you have any examples to illustrate this point?**

20 A. Yes, a few examples may help explain this point.

¹ Deryugina, T., MacKay, A., & Reif, J. Forthcoming (2019). “The Long-Run Dynamics of Electricity Demand: Evidence from Municipal Aggregation.” *American Economic Journal: Applied Economics*.

1 Luther College's electricity consumption is relatively high, and it has already
2 made substantial investments in energy efficiency that have reduced consumption
3 by 30 percent, so it may be an example of a business with less ability to
4 immediately reduce its electricity consumption. Luther has estimated that the
5 proposed rate increase would likely increase its electricity costs by approximately
6 \$250,000 per year or about \$125 per student.² In the absence of additional student
7 revenue, Luther would need to either increase tuition or cut other expenses such
8 as labor costs.

9 Similarly, a 20% increase in electricity rates would result in roughly \$85,000 in
10 increased electricity costs for the City of Decorah.³ With a limited ability to
11 reduce that cost through reduced consumption, the City will probably need either
12 to increase taxes or divert tax revenue from other projects.

13 Finally, a trustee of the Winneshiek Medical Center ("**WMC**") previously stated
14 before the Board that WMC will face a \$50,000 per year increase in its electricity
15 bill.⁴ In response, WMC is likely to increase the property tax levy, pass the
16 additional cost onto patients, or reduce expenses elsewhere at the risk of
17 diminishing patient care.⁵

² "Potential Energy Rate Increase," *Luther College CHIPS* (student-run newspaper), May 16 2019.
<https://www.lutherchips.com/7326/news/potential-energy-rate-increase/>

³ City of Decorah, Resolution 2953, "A Resolution Opposing Alliant Energy Rate Increase Case and Joining as an Intervenor by Submitting Testimony to the Iowa Utilities Board, (Docket RPU-2019-0001).

⁴ Decorah Hearing Transcript, page 33, lines 18-20.

⁵ *Id.*

1 Other businesses in the Decorah area, especially those that are electricity-
2 intensive, will also face higher input prices that will necessitate cost savings or an
3 increase in the price of their products. Price increases, aside from the direct effect
4 on the consumers of those products, can also harm the business to the extent
5 customers begin to purchase less or purchase products from lower-priced firms
6 outside of IPL's service area.

7 We should expect a similar effect in the agricultural sector. A USDA study found
8 higher energy prices modestly reduce agricultural output, raise prices, and reduce
9 farm income.⁶

10 Over time, electricity consumers will find ways to ameliorate the impact of rate
11 increases by reducing consumption and switching to other forms of power. This
12 can be seen around Decorah. Price elasticities are higher in the long-run (more
13 than one year), with elasticities near or above 1.0 in the industrial and residential
14 sectors, which tend to be the most electricity-intensive, and between 0.3 and 0.6
15 in the commercial sector.⁷ This delayed response to higher prices is because
16 adjustments in scale and energy efficiency take time. This long-run response to
17 price increases can, however, be frustrated by additional price increases going
18 forward.

19 **Q. Can higher electricity prices have an impact on local employment?**

⁶ "Impact of Higher Energy Prices on Agriculture and Rural Economies," *ERR – 123, Economic Research Service / USDA* (Aug. 2011).

⁷ P. Burke & A. Abayasekara, 2017. "The price elasticity of electricity demand in the United States: A three-dimensional analysis," *CAMA Working Papers 2017-50*, Centre for Applied Macroeconomic Analysis, Crawford School of Public Policy, The Australian National University.

1 A. Yes. Several studies have found that employment falls slightly with increases in
2 electricity rates. When higher electricity prices cause output to fall, lower
3 production levels mean firms need fewer workers and employment falls. In
4 economic terms, electricity and labor are often complementary, so that reductions
5 in electricity use correspond with reductions in labor use.⁸

6 Within industries, the impact is likely to be greatest on workers whose jobs rely
7 heavily on electricity usage - typically workers who operate electricity-intensive
8 machines and workers who rely on technology. Recent studies find a 10%
9 increase in the price of electricity can reduce employment for these types of
10 workers by 1- 5%.⁹

11 **Q. How will higher electricity prices affect residential customers?**

12 A. Households respond to higher electricity prices in several ways. One is to reduce
13 electricity use. However, as explained above, demand for electricity is inelastic so
14 use is likely to fall very little, at least in the short-run, and the overall cost of
15 electricity for most households will likely rise. A more likely response to an
16 increase in electricity costs is reduced consumption in other areas.

17 **Q. Does the residential customer response to higher electric prices vary**
18 **depending upon income level?**

19 A. Yes. How households respond to higher electricity prices does depend, in large
20 part, on income. Many households have the means to adjust to higher electricity

⁸ M. Cox, et. al. (2014). "Labor demand effects of rising electricity prices: Evidence for Germany," *Energy Policy* 75, 266-277.; M. Kahn and E. Mansur (2013). "Do Local Energy Prices and Regulation Affect the Geographic Concentration of Employment?" 101 *J. Public Economics* 105-114.

⁹ For example: O. Deschenes (2010). "Climate Policy and Labor Markets," *NBER Working Paper* 16111.; Cox (2014).

1 prices by investing in efficiency or paying for higher electricity bills by reducing
2 discretionary spending. Many other households will struggle to deal with higher
3 electricity prices, but households with a higher “energy burden” will be affected
4 the most.

5 A household’s “energy burden,” is the percent of household income that goes to
6 pay for energy. One study found the average energy burden in the region that
7 includes Iowa to be 3.2%.¹⁰ The energy burden of most low-income households in
8 the IPL service area is much higher than that.

9 **Q. What does this mean for IPL’s residential customers?**

10 A. The IPL notice of proposed electric rate increase said its residential customers
11 used an average of 756 kWh/month in 2016. At an average rate of \$0.1638/kWh,
12 the average electricity bill for an IPL customer would be about \$123.83/month or
13 \$1,486.00/year. The monthly bill will increase by \$20.13/month for the typical
14 residence if the proposed rate increase is approved.¹¹ Under those assumptions,
15 the “*electricity* burden,” which ignores the costs of other forms of energy, for IPL
16 customer households with various levels of income are shown in the table below:

¹⁰ L. Ross, A. Drehobl, and B. Stickles (2018) “The High Cost of Energy in Rural America,”
ACEEE.

¹¹ IPL, Notice of proposed electric rate increase, RPU-2019-0001, March 1, 2019.

Annual income	Current electricity burden for IPL customers	Electricity burden for IPL customers after proposed rate increase	Electricity burden for MidAmerican customers ¹²
\$25,000	5.9%	6.9%	3.8%
\$50,000	3.0%	3.5%	1.9%
\$100,000	1.5%	1.7%	1.0%

1 **Q. Do you believe IPL’s management understands the burden that increased**
2 **electricity rates puts on its residential customers?**

3 A. While it is not possible to know what is in the minds of IPL’s management, I do
4 know that IPL President, Terry Kouba, has publicly stated:

5 We understand approximately 50 percent of our customers have a
6 median income of less than \$50,000. Approximately 25 percent of
7 our customers have a median income under \$25,000 . . . "¹³

8 That means that approximately 25% of IPL customers would have an electricity
9 burden of at least 6.9% and about half of IPL customers would have an electricity
10 burden of at least 3.5%. For households that use additional sources of energy,
11 their total energy burden could be substantially higher. With a current electricity
12 burden of 5.9% alone, the total energy burden of IPL’s customers with a median
13 income of \$25,000 is well above the regional average (3.2%). The electricity

¹² Calculations for the MidAmerican electricity burden used a price of \$0.1055/ kWh (according to IPL's response to OCA Data Request No. 6) and assumed the same average electricity use (756 kWh per month). A copy of IPL’s response to OCA Data Request No. 6 is filed with DAG Witness Martin-Schramm’s Direct Testimony as DAG Martin-Schramm Direct Exhibit 1.

¹³ Creston Hearing Transcript, page 37, lines 24-25 and page 38, lines 1-5.

1 burden will grow to 6.9% if IPL's rate increase is approved, which is almost twice
2 the electricity burden currently experienced by similar MidAmerican customers.
3 Households with high energy burdens can face significant challenges. Low-
4 income households are less able to reduce electricity consumption by investing in
5 efficiency and are more likely to attempt to reduce their electricity bills by simply
6 using less energy. Studies have shown that higher energy prices can cause the
7 houses of low-income families to be colder and more humid. Colder and more
8 humid homes can harm human health, especially for children, the elderly, and
9 those at risk for illnesses such as asthma. Problems such as mold and burst pipes
10 caused by colder temperatures and increased humidity can also increase a
11 household's expenses. Further, paying for these expenses, as well as the expense
12 of keeping the heat on, can cause low-income households to direct money away
13 from other essential items such as food and medicine.¹⁴

14 **Q. IPL has expressed an intent to request additional rate increases in the future.**
15 **What would be the economic impact of repeated future rate increases by**
16 **IPL?**

17 A. If rates continue to increase in the future, we should expect the impacts on the
18 local economy, which I have described above, to increase as well. In addition,
19 there are some effects that are likely to grow over time with repeated rate
20 increases.

21 **Q. What are those longer term impacts?**

¹⁴ ACEEE (2018).

1 A. The most significant long-run impact of increasing electricity rates is likely to be
2 that local businesses are put at a competitive disadvantage relative to businesses
3 in other territories. I understand that Alliant's residential rates are about 45%
4 higher than those of MidAmerican Energy Company ("*MidAmerican*"). If this
5 disparity continues to grow, businesses in the IPL service territory will face
6 higher costs and will be likely to charge higher prices for their goods, making it
7 more difficult for them to compete with businesses that have lower energy costs.
8 On the consumption side, as mentioned in the previous section, low-income
9 consumers are likely to bear a disproportionate burden from repeated rate
10 increases because their tighter budgets leave them less able to invest in energy
11 efficiency and adjust their consumption in response to higher electricity prices.
12 Legislation, such as SF2311, that reduces funding for energy efficiency upgrades
13 is likely to make these investments more difficult for low-income consumers.

14 **Q. Do energy prices have an effect on economic development?**

15 A. Over time, large disparities in electricity prices create incentives for energy-
16 intensive industries to migrate to areas where rates are lower.¹⁵ Obviously, some
17 businesses cannot or will not move (*e.g.*, farms, Luther College, etc.), but other
18 businesses may find it worthwhile to move out of the area.

19 **Q. Have you studied whether the disparity in rates between IPL and**
20 **MidAmerican has had any effect to date on movement of customers from one**
21 **service area to another or business location decisions?**

¹⁵ Kahn and Mansur (2013).

1 A. It appears the number of IPL's industrial customers has declined 9% from 1,653
2 in 2009 to 1,501 in 2017 while the number of MEC's industrial customers has
3 grown 30% from 1,351 in 2009 to 1,755 in 2017.¹⁶ There are many possible
4 explanations for these trends, but the data are consistent with industry migrating
5 toward lower cost energy, similar to that observed in other parts of the United
6 States. If businesses leave the area, employment will fall as well.

7 **Q. What are your recommendations to the Board concerning IPL's proposed**
8 **rate increase?**

9 A. I recommend the Board deny IPL's proposed rate increase. A rate increase of this
10 magnitude can put Decorah businesses at a competitive disadvantage and, over
11 time, may incentivize business to migrate to communities with lower electricity
12 rates. Businesses may also be forced to raise prices and reduce employment.
13 Residential customers will see a much greater percentage of their income go to
14 their electricity bills, with low-income customers being particularly vulnerable to
15 an increased "energy burden" coupled with higher prices for locally produced
16 goods and services.

17 **Q Does this conclude your Direct Testimony?**

18 A. Yes.

¹⁶ See DAG Martin-Schramm Direct Exhibit 3, filed in support of the Direct Testimony of James B. Martin-Schramm in this docket.

AFFIDAVIT OF STEVEN HOLLAND

STATE OF IOWA :
: **SS:**
COUNTY OF WINNESHIEK :

I, Steven Holland, being first duly sworn on oath, depose and state that I am the same Steven Holland identified in the foregoing Direct Testimony, that I have caused the Testimony to be prepared and am familiar with the contents thereof, and that the Direct Testimony is true and correct to the best of my knowledge, information and belief as of the date of this Affidavit.

/s/ Steven Holland
Steven Holland

Subscribed and sworn to before me, a Notary Public in and for said County and State this 26th day of July, 2019.

/s/ Rachel Moser
Notary Public

[Seal]

My commission expires on July 13, 2021.