Riverside Public Utilities - Economic and Social Impact Analysis

Executive Summary

Of all the many decisions that communities must make, one of the most important is whether or not to have a local utility that is publicly or privately owned. Because each community is unique in its own needs and circumstances, it is crucial to consider the advantages and drawbacks of different types of utility ownership. Since 1895, the publicly owned and operated Riverside Public Utilities (RPU) has faithfully served the City of Riverside. From low service rates to environmentally sustainable business practices, RPU has had a consistently positive impact on the city over the years. These benefits and the extent to which they affect the community are the focus of this report.

Using both data that are privately and publicly available, Beacon Economics has used the IMPLAN model to estimate the total impact that RPU has on the local economy during the 2015-16 fiscal year. Taken into consideration are the direct, indirect, and induced impacts, the details of which are outlined in the sections that follow. RPU's expenditures, infrastructural investments, effects on employment and wages, savings to customers, as well as other indicators, are all examined in this section of the report.

Following the economic effects, we then consider a variety of other types of impacts that RPU has on the community. These include things like rebate programs, reliability metrics, financial positions, connection fees, and awards and recognitions. These indicators help provide a wholesome understanding of RPU's competitive service and value to its customers.

The following are some key insights we found in our analysis:

Economic Impact:

- For the fiscal year 2015-16, RPU had an economic impact of more than $871 million. This includes over $513 million in direct impacts, nearly $216 in indirect impacts, and more than $142 million in induced impacts.
- More than 3,000 jobs in the local economy were supported by RPU's direct expenditures, earning more than $152 million in labor income. An additional 2,700 jobs were supported through secondary impacts, generating $114 million in labor income.
- The City of Riverside collected over $22 million in taxes and fees resulting from RPU's economic activity during the 2015-16 fiscal year.

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- Compared to other nearby utilities, RPU's low rates of electricity and water usage saved its customers over $90 million during the 2015-16 fiscal year. This savings went on to generate over $52 million in secondary impacts.
- During the fiscal year 2015-16, RPU directly added over $55 million in capital improvement projects, which generated more than $89 million in economic output for the City of Riverside.
- Close to 12% of RPU's revenue goes directly toward the City's General Fund. In the fiscal year 2015-16, this equated to nearly $46 million.
- RPU paid out over $36 million in local wages and benefits during the fiscal year 2015-16. This money generated an additional $27 million in secondary impacts.
- In the 2015-16 fiscal year, RPU spent close to $17 million in green initiatives and rebates, which generated almost $26 million in economic output.

Backup?

Other Impacts:

Why different years? Or, are these different variables being examined?

- During the 2014-15 fiscal year, RPU issued almost $9 million in water rebates to its customers, with most of these coming from its WaterWise Landscape program.
- Electrical rebates offered by RPU totaled $4.7 million for the fiscal year of 2014-15.
- Over 5,000 low-income customers received help to pay their electricity bills through RPU's Sharing Households Assists Riverside Energy (SHARE) program, totaling over $900,000 in aid during the 2014-15 fiscal year.
- Through its Solar Photovoltaic rebate programs, RPU produces over 26 megawatts of clean solar power each day. These programs have saved local customers over $10 million across the past five years.
- RPU had an average power outage (SAIDI) score of about 38 minutes during the fiscal year 2014-15, which was less than half the average score for the Inland Empire.
- On average, it took RPU about 98 minutes to restore power to its customers after an outage during the fiscal year 2014-15. Known as the CAIDI, this score was about 14 minutes less than the Inland Empire average.
- During the fiscal year 2015-16, RPU took over 22,000 water samples to ensure its supply was safe to use and drink.
- RPU is entirely water independent, generating nearly 10 million gallons per day at its water treatment plant.
- Through sound fiscal management, RPU has maintained its revenue bonds at the AAA level, ensuring low costs of borrowing when building future infrastructure projects.
- Over the years, RPU has received countless awards and honors for its excellence, ~~including the Association of Metropolitan Water Agencies Gold Award~~.

year? check

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(SDP)

water

& its electric bonds at the AA- level (SDP)

Mike

stet, the

RP3 Diamond Rating in 2015(?) 2014(?) for ---- & the E.F. Scattergood Award for ----

World definately like to see a scholarly format (ie.- all assertions supported, elimination of bias, etc.)

Overview of Project

There are many potential benefits to public ownership/management of a local utility. This analysis will evaluate the potential costs and benefits of public vs. private utilities using comparative data, local economic indicators, and other quantitative and qualitative information to assess the net benefit of the Riverside Public Utilities (RPU). The benefits highlighted in the analysis will include: rate savings to RPU customers, the benefits of increased reliability, the regional impacts of operational expenditures, the regional impacts of capital expenditures as well as capital improvements, leveraging the RPU for economic development efforts, local job impact and benefits, sustainability and green initiatives, as well as local controls and service.

Methodology

The economic impact of RPU on the City of Riverside is measured in terms of additional output, jobs, wages, and tax revenues that are generated by expenditures by RPU or the cost savings consumers enjoy as a result of having a locally owned-utility. RPU's local expenditures include expenditures for their operations, capital improvements associated with construction and development, wages to local residents, transferring money to the City's general fund, and green initiatives and innovations in the City of Riverside. The UC Riverside School of Business' Center for Economic Forecasting and Development estimated the economic impact of RPU—that is, the amount of economic activity generated in the local economy as a result of having a locally owned utility. The estimate includes both the expenditures and savings that are directly related to RPU, as well as RPU-related expenditures that ripple through the economy. Revenues are not considered in our approach to avoid double counting the economic activity RPU generates in the City of Riverside. In addition, only the portions of RPU-related expenditures that occur locally are considered in the analysis.

The IMPLAN modeling system, an input/output model that estimates the economic impact of a given change in the local economy, is used to estimate the impact of RPU on the Riverside economy.[1] IMPLAN estimates the direct, indirect, and induced impacts of a given change in the economy, the sum of which is referred to as the total economic impact.

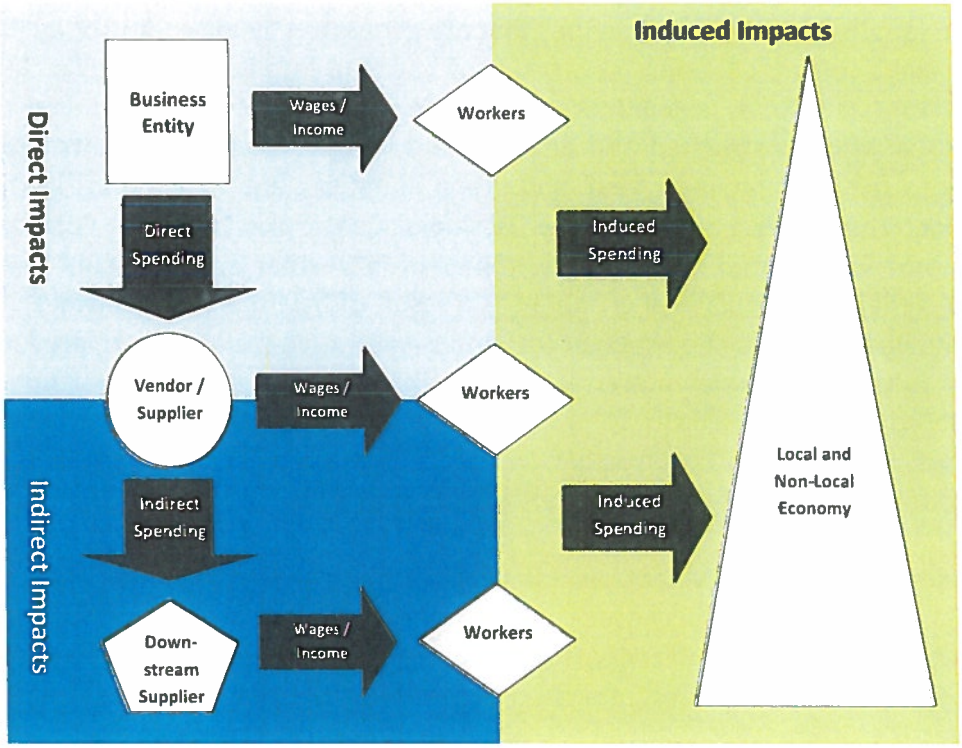
- The direct effect refers to the initial change in the local economy, such as the construction of a new RPU facility. For example, when RPU purchases office supplies from a local establishment it generates a **direct impact**.
- The office supply store purchases some of the goods sold in its store from local suppliers, generating an **indirect impact**.

[1] A detailed description of the IMPLAN input/output model can be found the appendix.

- The employees working at the office supply store and the employees working at suppliers earn additional income through the direct and indirect expenditures, eventually spending some of these earnings in the local economy on goods and services, thereby generating an **induced impact**.
- The sum of the direct, indirect, and induced impacts forms the total economic impact of RPU's operations.

This study comprehensively estimates the total economic impact of RPU as a result of its operations, its capital expenditures and improvements, while also evaluating additional benefits to the City as a result of: leveraging RPU for the City's economic development purposes, RPU's impact on the local job market, RPU's sustainability and green initiatives, and finally, the beneficial effects of being a locally owned and operated utility.

Figure 1: Input/Output Model Overview



Overview of Findings

The UC Riverside School of Business' Center for Economic Forecasting and Development finds RPU to be a significant boon to the City of Riverside's economy. The benefits include rate savings to RPU customers, regional impacts from its operational and capital expenditures, providing jobs to Riverside residents, proactively undertaking sustainability and green initiatives, providing increased reliability and safety, and having increased local controls and service. More importantly, many of these benefits would not be possible if not for the public ownership/management of the utility.

Economic Impact

The amount of economic activity generated by RPU is substantial. As shown in Table 1, in the 2015-16 fiscal year RPU was responsible for directly generating $513.6 million in economic activity in the City of Riverside. This includes $30.0 million in electricity consumer cost savings, $60.4 million in water consumer cost savings, $.7.2 million in economic activity from increased reliability for electric power, $262.2 million in operational expenditures, $55.2 million in capital improvements and economic development, $36.2 million in local wages, $45.8 million in transfers to the City's general fund, and $16.5 million in green initiates and rebates.

Table 1: Economic Activity Summary (2015-16 fiscal year)

Category	Economic Activity ($ Millions)
Consumer Cost Savings (Electricity)	30.0
Consumer Cost Savings (Water)	60.4
Reliability of Electric Power	7.2
Operational Expenditures	262.2
Capital Improvements	55.2
Local Wages	36.2
General Fund Transfer	45.8
Green Initiatives and Rebates	16.6
Total	**513.6**

As shown in Table 2, the $513.6 million in additional expenditures resulting from RPU's operations generated an estimated $871.4 million in economic output in the City of Riverside. This includes the $513.6 million in direct impacts attributed to RPU's operations and an additional $357.8 million in secondary impacts, which include

approximately $215.7 million in indirect expenditures and approximately $142.1 million in induced expenditures.

As shown in Table 2, the increase in economic output generated by these cost savings increased the demand for labor in the City of Riverside by 5,789 jobs, including 3,076 jobs supported directly by all of RPU's economic activity in the local economy. In conjunction with those jobs, employees within the City of Riverside earned $266.4 million in labor income, including $152.4 million supported directly by all of RPU's economic activity.

Table 2: Economic Impact Summary

Impact Type	Employment	Labor Income ($ Millions)	Output ($ Millions)
Direct Effect	3,076	152.4	513.6
Indirect Effect	1,579	69.0	215.7
Induced Effect	1,134	45.0	142.1
Total	**5,789**	**266.4**	**871.4**
Per $1 Million Spent	**11.3**	**0.5**	**1.7**

The economic output generated by the activities of RPU was also a boost to the City's finances. Indeed, the economic activity generated by RPU generated roughly $22.3 million in taxes and other fees for the City of Riverside.

Other Impacts

Other positive impacts produced by RPU include low rates of power outages as well as a high quality and independently operated water supply. These standards of service are maintained through detailed performance tracking metrics that, when analyzed, show how RPU exceeds other, comparable utilities in the region. This commitment to excellence has earned RPU countless awards over the years, further enhancing its accomplishments and bringing great pride to the city. In short, RPU customers enjoy fewer outages, quicker fixes, cleaner water, and an overall high caliber customer experience.

Economic Impact

The amount of economic activity generated by RPU is significant. This economic activity does not only include the expenditures and cost-savings that are generated directly by RPU, it also includes the related expenditures that ripple through the economy due to this activity. These expenditures, as well as other measures of cost savings from RPU that generate an economic impact, include the following items:

- Consumer Cost Savings (Electricity)
- Consumer Cost Savings (Water)
- Reliability of Electric Power
- Operational Expenditures
- Capital Improvements
- Local Wages
- General Fund Transfer
- Green Initiatives and Rebates

Further details concerning each of these economic impacts are presented below.

Consumer Cost Savings (Electricity)

Using publically available data from the U.S. Energy Information Administration (EIA), we compared the rates paid by electricity customers of RPU with rates paid by residential, commercial, and industrial customers of other local jurisdictions to determine the amount of savings that RPU customers benefit from as a result of a locally owned utility company. Because of these lower rates, consumers save money on their utility bills, some of which will flow back into the local economy in the form of increased spending on various categories such as food, transportation, general retail, dining, and others.

Table 3: Electricity Rate Comparison (¢/kWh)

	Residential	Commercial & Industrial
So Cal Edison	16.51	14.74
RPU Rate	16.08	12.89
kWh	729,492,000	1,449,937,000
Net Effect	$3,175,318	$26,775,700
Source: U.S Energy Information Administration (EIA)		

Laura/Brian check this. We cannot justify rate increases for residential for next 5 years with this set of numbers especially residential.

As shown in table 3 we found that RPU electricity customers pay a lower rate than customers in other jurisdictions. As a result, the net effect of the savings generated by RPU supported an estimated $30.0 million in additional expenditures in the City in the 2015-16 fiscal year.

As shown in Table 4, the $30.0 million in additional expenditures resulting from the cost savings offered by RPU generated an estimated $46.7 million in economic output in the City of Riverside. This includes the $30.0 million in direct impacts attributed to the cost savings offered by RPU and an additional $16.8 million in secondary impacts, which include approximately $7.7 million in indirect expenditures and approximately $9.1 million in induced expenditures.

In addition, Table 4 shows that the increase in economic output generated by these cost savings increased the demand for labor in the City of Riverside by 385 jobs, including 252 jobs supported directly by these cost savings offered by RPU. Furthermore, employees within the City of Riverside earned $17.1 million in labor income from the uptick in economic activity.

Table 4: Impact of RPU's Net Savings for Electricity Consumers

Impact Type	Employment	Labor Income ($ Millions)	Output ($ Millions)
Direct Effect	252	11.8	30.0
Indirect Effect	61	2.3	7.7
Induced Effect	73	2.9	9.1
Total	**385**	**17.1**	**46.7**
Per $1 Million Spent	**12.8**	**0.6**	**1.6**

Backup

The economic output generated by these cost-savings also improved the City's fiscal situation. Indeed, the cost-savings offered by RPU generated roughly $950,000 in taxes and other fees for the City of Riverside.

Consumer Cost Savings (Water)

Bryan & Scott Lauva Pls check this

By being water independent, RPU is also able to offer substantial benefits to its customer relative to purchasing water. For example, RPU would need to spend $66.9 million annually to purchase water from the Western Municipal Water district, compared to the just $6.5 million RPU currently spends on water. Because of these lower rates, consumers save money on their utility bills, some of which will flow back into the local economy in the form of increased spending on various categories such as food, transportation, general retail, dining, and others. **Overall, we found that RPU water customers pay a lower rate than customers in other jurisdictions.** As a result, the

Ok to compare to Western only? If yes, we should state that this is a high estimate of benefits, right?

net effect of the savings generated by RPU supported an estimated $60.4 million in additional expenditures in the City in the 2015-16 fiscal year.

As shown in Table 5, the $60.4 million in additional expenditures resulting from the cost savings offered by RPU generated an estimated $96.4 million in economic output in the City of Riverside. This includes the $60.4 million in direct impacts attributed to the cost savings offered by RPU and an additional $35.9 million in secondary impacts, which include approximately $18.3 million in indirect expenditures and approximately $17.7 million in induced expenditures.

In addition, table 5 shows that the increase in economic output generated by these cost savings increased the demand for labor in the City of Riverside by 895 jobs, including 615 jobs supported directly by these cost savings offered by RPU. Furthermore, employees within the City of Riverside earned $33.1 million in labor income from the uptick in economic activity.

Table 5: Impact of RPU's Net Savings for Water Consumers

Impact Type	Employment	Labor Income ($ Millions)	Output ($ Millions)
Direct Effect	615	22.2	60.4
Indirect Effect	139	5.3	18.3
Induced Effect	141	5.6	17.7
Total	**895**	**33.1**	**96.4**
Per $1 Million Spent	**14.8**	**0.5**	**1.6**

The economic output generated by these cost-savings also improved the City's fiscal situation. Indeed, the cost-savings offered by RPU generated roughly $2.4 million in taxes and other fees for the City of Riverside.

Reliability of Electric Power

The quality of RPU's service also generates a substantial benefit to the City of Riverside. **Overall, we found the number of outages and their duration for RPU customers are lower when to other local utilities.** Indeed, RPU's System Average Interruption Frequency Index (SAIFI) was 0.66, compared to Southern California Edison's 0.86 and RPU's System Average Interruption Duration Index (SAIDI) was 37.49, compared to Southern California Edison's 92.40. As shown in table 6, the impact of this increased reliability of electric power generated by RPU supported an estimated $7.2 million in additional expenditures in the City in the 2015-16 fiscal year.

Table 6: Value of Increased Reliability of Electric Power

Customer Type	RPU Lost Activity	SCE Lost Activity	Difference in Net Activity Lost
Residential	$287,092.1	$423,968.3	$136,876.2
Commercial	$3,733,329.6	$6,052,736.8	$2,319,407.2
Industrial	$9,083,331.2	$13,826,230.3	$4,742,899.1
Total	**$13,103,752.9**	**$20,302,935.4**	**$7,199,182.5**

Source: Lawrence Berkeley National Laboratory "Updated Value of Service Reliability Estimates for Electric Utility Customers in the United States" January 2015

As shown in Table 7, the $7.2 million in additional expenditures resulting from the increased reliability of electric power offered by RPU generated an estimated $11.2 million in economic output in the City of Riverside. This includes the $7.2 million in direct impacts attributed to the increased reliability of electric power offered by RPU and an additional $4.0 million in secondary impacts, which include approximately $1.8 million in indirect expenditures and approximately $2.2 million in induced expenditures.

In addition, table 7 shows that the increase in economic output generated by the increased reliability of electric power increased the demand for labor in the City of Riverside by 90 jobs, including 58 jobs supported directly by the increased reliability offered by RPU. Furthermore, employees within the City of Riverside earned $4.1 million in labor income from the uptick in economic activity.

Table 7: Impact of RPU's Increased Reliability of Electric Power

Impact Type	Employment	Labor Income ($ Millions)	Output ($ Millions)
Direct Effect	58	2.9	7.2
Indirect Effect	14	0.6	1.8
Induced Effect	18	0.7	2.2
Total	**90**	**4.1**	**11.2**
Per $1 Million Spent	**12.5**	**0.6**	**1.6**

The economic output generated by the increased reliability in electric power also improved the City's fiscal situation. Indeed, the increased reliability of electric power offered by RPU generated roughly $220,000 in taxes and other fees for the City of Riverside.

Operational Expenditures

RPU's operational expenditures in the City of Riverside are substantial. These expenditures include purchasing electric power and energy, maintenance, production and operations, office supplies, and marketing. These expenditures do not include wages paid to its workers or RPU's expenditures on capital improvements and economic development. More importantly, by having a locally owned utility the bulk of RPU's operational expenditures are able to stay within the City of Riverside. Indeed, **RPU's operational expenditures in the 2015-16 fiscal year directly added $262.2 million in the City of Riverside's economy.**

As shown in Table 8, the $262.2 million in operational expenditures by RPU generated an estimated $452.1 million in economic output in the City of Riverside. This includes the $262.2 million in direct impacts attributed to RPU and an additional $189.9 million in secondary impacts, which include approximately $121.9 million in indirect expenditures and approximately $68.0 million in induced expenditures.

Additionally, Table 8 shows that the increase in economic output generated by RPU increased the demand for labor in the City of Riverside by 2,652 jobs, including 1,224 jobs supported directly from the capital improvement projects undertaken by RPU. Furthermore, employees within the City of Riverside earned $127.4 million in labor income from the uptick in economic activity.

Table 8: Impact of RPU's Operational Expenditures

Impact Type	Employment	Labor Income ($ Millions)	Output ($ Millions)
Direct Effect	1,224	66.1	262.2
Indirect Effect	886	39.8	121.9
Induced Effect	542	21.5	68.0
Total	**2,652**	**127.4**	**452.1**
Per $1 Million Spent	**10.1**	**0.5**	**1.7**

The economic output generated by these operational expenditures also contributed to the City's fiscal situation. Indeed, RPU's operational expenditures generated roughly $14.5 million in taxes and other fees for the City of Riverside.

Capital Improvements

By having a locally owned and operated public utility, many of the capital improvements that are or will be made by RPU will occur in the City of Riverside, presumably generating significant positive impacts associated with construction and development. In addition, these improvements can help to catalyze growth in other parts of the City that would not necessarily be possible without provisioning of utilities in these areas.

By comparison private-sector utilities that serve several communities may choose to place facilities in locations independent of where their customer base is located. A publicly-owned utility can consider the economic development benefits of such investments such as unlocking commercial, industrial, or residential growth in the future as part of its decision-making process, which can facilitate growth in area that may not receive it were it to rely on generating solely short-run profits for the utility. **The capital improvement projects undertaken by RPU in the 2015-16 fiscal year directly added $55.2 million in the City of Riverside's economy.**

As shown in Table 9, the $55.2 million in capital improvement projects undertaken by RPU generated an estimated $89.4 million in economic output in the City of Riverside. This includes the $55.2 million in direct impacts attributed to RPU and an additional $34.2 million in secondary impacts, which include approximately $19.4 million in indirect expenditures and approximately $14.8 million in induced expenditures.

Additionally, Table 9 shows that the increase in economic output generated by RPU increased the demand for labor in the City of Riverside by 591 jobs, including 333 jobs supported directly from the capital improvement projects undertaken by RPU. Furthermore, employees within the City of Riverside earned $27.7 million in labor income from the uptick in economic activity.

Table 9: Impact of RPU's Capital Improvements

Impact Type	Employment	Labor Income ($ Millions)	Output ($ Millions)
Direct Effect	333	16.8	55.2
Indirect Effect	140	6.2	19.4
Induced Effect	118	4.7	14.8
Total	**591**	**27.7**	**89.4**
Per $1 Million Spent	**10.7**	**0.5**	**1.6**

The economic output generated by these capital improvements and economic development also benefited the City's coffers, generating roughly $2.1 million in taxes and other fees for the City of Riverside.

Local Wages

By employing the staff of the local utility, the City of Riverside can capture more of the indirect and induced benefits of those employees spending from wages and benefits in the local economy versus having those wages and benefits being earned outside the city at a larger, regional private-sector utility company. While RPU employs over 650 workers directly, only 304 live in the City of Riverside. For this analysis, we focused only on the workers who live locally to better determine the proportion of wage/benefits that are captured locally and therefore providing stimulus to the City of Riverside. **This worker breakout was further parsed by occupation to accurately reflect how much of the wage/benefits paid accrue to front-line service workers versus administrative staff.** In total, RPU paid approximately $36.2 million in wage and benefits to employees who live in the City of Riverside.

As shown in Table 10, the $36.2 million in wages/benefits paid by RPU to workers in the City of Riverside generated an estimated $62.9 million in economic output in the City of Riverside. This includes the $36.2 million in direct impacts attributed directly to RPU and an additional $26.7 million in secondary impacts, which include approximately $15.4 million in indirect expenditures and approximately $11.4 in induced expenditures.

In addition, Table 10 shows that the increase in economic output generated by these additional expenditures increased the demand for labor in the City of Riverside by 514 jobs, including 308 jobs supported directly by the wages paid by RPU to its 304 employees who live in the City of Riverside.[2] Furthermore, employees within the City of Riverside earned $21.3 million in labor income from the uptick in economic activity.

Table 10: Impact of RPU's Local Wages

Impact Type	Employment	Labor Income ($ Millions)	Output ($ Millions)
Direct Effect	308	12.7	36.2
Indirect Effect	115	5.1	15.4
Induced Effect	91	3.6	11.4
Total	**514**	**21.3**	**62.9**
Per $1 Million Spent	**14.2**	**0.6**	**1.7**

The economic output generated by the wages paid by RPU to employees who live in the City of Riverside also benefited the City's revenues from taxes and other fees. Indeed, the wages paid by RPU to employees who live in the City of Riverside generated roughly $1.8 million in taxes and other fees for the City of Riverside.

[2] Job counts differ due to the UC Riverside School of Business' Center for Economic Forecasting and Development using the expenditures instead of direct jobs to calculate impacts.

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Table 11: Total Jobs by Division and Type

Division	Jobs Type	Job Count	Share of Total Jobs
Administration	Management Services	38	14.3%
Administration	Business Support	8	3.0%
Administration	Utility Billing	13	4.9%
Administration	Field Services	51.25	19.3%
Administration	Customer Service	64.75	24.4%
Administration	Marketing Services	26	9.8%
Administration	Legislative and Regulatory Risk	2	0.8%
Electric	Production & Operations	52	19.6%
Electric	Field Operators	83	31.3%
Electric	Energy Delivery Engineering	38	14.3%
Electric	Customer Engineering-GIS	29	10.9%
Electric	Power Generation	59.5	22.5%
Water	Production & Operations	36	13.6%
Water	Field Operators	97	36.6%
Water	Water Engineering	40	15.1%
Water	Water Resources	5.5	2.1%
Water	Conservation/Reclamation Program	2.65	1.0%
Central Stores	N/A	8	3.0%

Adds to more than 100%.

General Fund Transfer

RPU also provides funding to the City's general fund to be utilized by the City. These funds can be used to finance its other operations because roughly **11.5% of the revenues generated by RPU will flow back into the city's coffers rather than be held as retained earnings, distributed back to shareholders, or put to use in to use places outside the city, as would likely be the case in a privately-owned utility.** As a result, the revenues generated by RPU in the 2015-16 fiscal year generated an estimated $45.8 million for the City's General Fund.

As shown in Table 12, the $45.8 million that was transferred to the City's general fund generated an estimated $86.7 million in economic output in the City of Riverside. This includes the $45.8 million in direct impacts attributed to RPU and an additional $40.9 million in secondary impacts, which include approximately $26.5 million in indirect expenditures and approximately $14.4 million in induced expenditures.

Table 12 also shows the increase in economic output generated by RPU increased the demand for labor in the City of Riverside by 469 jobs, including 161 jobs supported directly from RPU's revenue that is transferred to the City's general fund. Also, employees within the City of Riverside earned $27.1 million in labor income from the uptick in economic activity.

Table 12: Impact of RPU's General Fund Transfer

Impact Type	Employment	Labor Income ($ Millions)	Output ($ Millions)
Direct Effect	161	14.3	45.8
Indirect Effect	193	8.2	26.5
Induced Effect	115	4.6	14.4
Total	**469**	**27.1**	**86.7**
Per $1 Million Spent	**10.2**	**0.6**	**1.9**

Green Initiatives and Rebates

By owning their own utility, ratepayers and City leaders can have greater control in ensuring that the provision of utility services is aligned with the needs and preferences of the local economy. For example, the City can be more aggressive in utilizing renewables as a source of power generation and transmission if it so chooses. In addition, RPU can utilize more sustainable sources of water for its ratepayers, amongst other environmental and social strategies. These efforts not only help the city reach its social and environmental objectives, but also benefit the economic prospects of the City. Indeed, **RPU spent $16.6 million in order to support green initiatives and green energy rebates in the 2015-16 fiscal year.**

As shown in Table 13, the $16.6 million on green initiatives and green energy rebates from RPU generated an estimated $25.9 million in economic output in the City of Riverside. This includes the $16.6 million in direct expenditures by RPU on green initiative and ratepayer rebates, as well as $9.2 million in secondary impacts, which include $4.7 million in indirect expenditures and approximately $4.5 million in induced expenditures.

Table 13 also shows the increase in economic activity generated by these green initiatives and rebates will increase the demand for labor in the City of Riverside by 192 jobs. Moreover, employees within the City of Riverside earned $8.4 million in labor income from the uptick in economic activity.

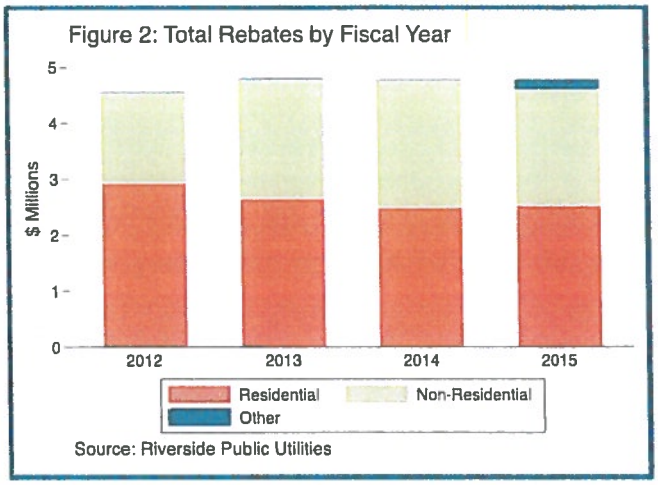
Table 13: Impact of RPU's Green Initiatives & Rebates

Impact Type	Employment	Labor Income ($ Millions)	Output ($ Millions)
Direct Effect	125	5.6	16.6
Indirect Effect	31	1.5	4.7
Induced Effect	36	1.4	4.5
Total	**192**	**8.4**	**25.9**
Per $1 Million Spent	**11.6**	**0.5**	**1.6**

The economic output generated by RPU's green initiatives and green rebates also supported the City fiscally. Indeed, RPU's green initiatives and green rebates generated roughly $289,000 in taxes and other fees for the City of Riverside.

Other Impacts

Green Rebates and Incentives



Riverside Public Utilities offers many programs and services to help create a healthy business environment in the City of Riverside. By owning their own utility, ratepayers and city leaders have greater control in ensuring that the provision of utility services helps drive economic development efforts in the City of Riverside. Moreover, Riverside Public Utilities provides benefits to businesses such as incentive programs that provide rebates for technology purchases that can provide energy savings and promote energy efficiency and conservation. In fact, for over 15 years Riverside Public Utilities has provided a number of benefit programs that can help make businesses more energy efficient.

Riverside Public Utilities has received many awards from national, state, and local government agencies, water and energy industry organizations, local community groups, and marketing and advertising associations for excellence and innovation.[3] In fact, Riverside Public Utilities has been honored by the American Public Power Association (APPA) for its inventive use of public benefit funds that help make businesses and residents more energy efficient. These public benefit funds are spent in four program areas:

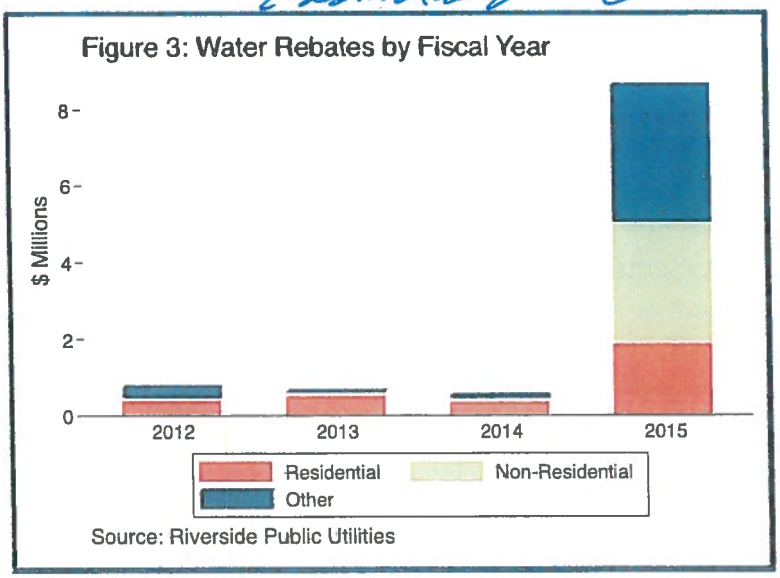
- Energy Efficiency
- Research, Development & Demonstration
- Renewable Energy
- Low Income Assistance

[3] "Awards & Recognition." *Riverside Public Utilities*. http://www.riversideca.gov/utilities/admin-awards.asp

Riverside Public Utilities is committed to increased use of renewable energy resources and sustainable living practices that will help to reduce negative environmental impacts in both the City of Riverside and the State of California. What's more, Riverside Public Utilities helps support the local economy by offering a vast collection of rebates and incentives to local businesses and residents. These incentives help promote energy and resource efficiency, making the City of Riverside a better place to live and do business.

Water Rebates

The California State Water Resources Control Board called on California cities to counter the worst drought in the state's history by conserving water. Following the call to conserve water, Riverside Public Utilities' water customers reduced usage by nearly 4.4 billion gallons of water – enough to fill more than 6,000 Olympic sized swimming pools. To encourage water conservation, Riverside Public Utilities expanded their water rebates program tremendously during the 2014-15 fiscal year. RPU's rebates programs totaled $570,000 during the 2013-14 fiscal year, it expanded its efforts in 2014-15 by increasing its water rebates programs 1,416% to $8.6 million. The largest programs during this time were the WaterWise Landscape (for both residential and non-residential users) programs, which offered rebates for commercial water customers who replace existing lawn areas with water-efficient, California-friendly plants. In fact, during the 2013-14 fiscal year, Non-residential users received $423 in WaterWise Landscape rebates. The following year, rebates increased to over $3 million. By replacing existing grass areas with artificial turf, outdoor water use was cut significantly through Riverside Public Utilities' water conservation programs that encouraged water wise practices through rebates and incentives.

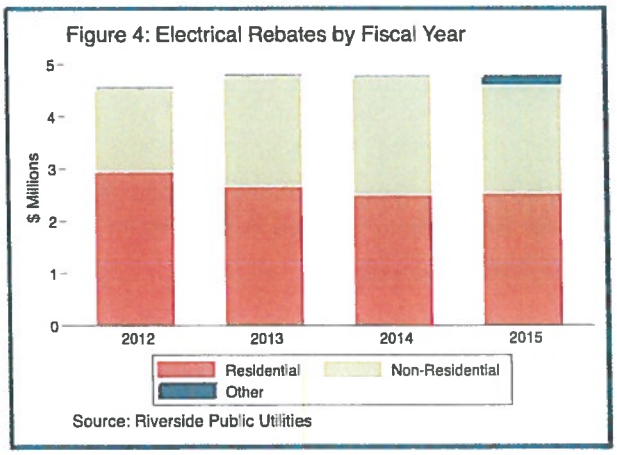


Electric Rebates

Riverside Public Utilities energy efficiency programs during the 2014-15 fiscal year helped customers reduce their energy usage by more than 19 million kilowatt hours. Electrical rebate programs offered by Riverside Public Utilities have held steady over the last four years, with an average of $4.7 million allocated across all programs each year. Riverside Public Utilities takes extra effort to ensure that lower-income customers are the beneficiaries of the rebates offered.

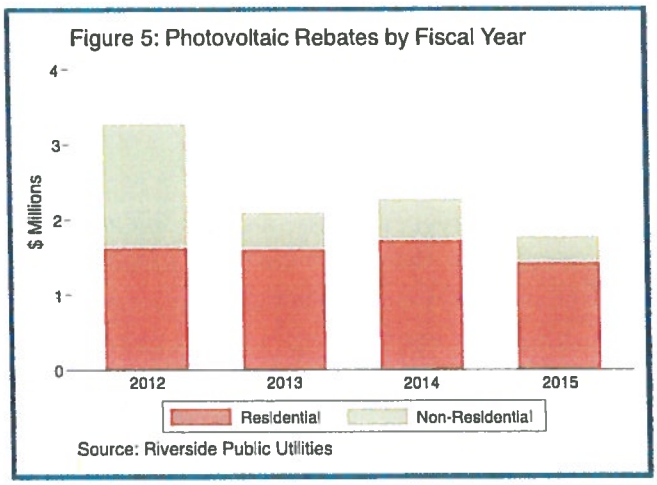
During the 2014-15 fiscal year, more than 5,000 residential customers benefitted from the Sharing Households Assist Riverside's Energy (SHARE) program. This program helped qualified low-income earners in Riverside with their electric bills. Nearly one-fifth of all electrical rebates ($900,000) for both residential and non-residential customers were related to low income assistance, which demonstrates RPU's commitment to helping individuals at every rung of the economic ladder. Additionally, RPU is committed to innovation. During that same year, RPU provided local businesses and universities with nearly $70,000 in funding to conduct important research, development, and demonstration of energy efficiency, renewable energy, and energy storage projects.

Small businesses in the City of Riverside are also significant beneficiaries of Riverside Public Utilities' electrical rebates. The Small Business Direct Installation Program is one of the largest offered to non-residential customers. Open to Flat and Demand Rate commercial customers, Riverside Public Utilities offers direct installation programs that help small business customers lower their utility bills by installing energy and water efficiency upgrades at low or no cost. The utility also ~~offers~~ helps businesses like liquor stores, gas stations, and markets by installing efficient motors, replacement gaskets, and LED case lighting in large walk-in coolers through the Keep Your Cool Program. Together, these two programs have allocated over $4.2 million since fiscal year 2012.



Solar Rebates

The City of Riverside has seen impressive support in its Solar Photovoltaic Rebate Programs in both commerical and residential projects. These programs now produce more than 26 megawatts of clean solar power every day. In fact, the City of Riverside has demonstrated its comitment to solar power with the first photovoltaic project beginnning in 2002, having a capaity of 150 kilowatts. Riverside Public Utilities makes it more affordable for both businesses and residents to install solar technologies by expediting the approval process, making it easier and faster than ever. Additionally, the non-residential and residential photovoltaic rebate programs provide finanical incentives for customers to install qualifiying photovoltaic systems on their facilities. Residents can receive a rebate amount of $0.50 per watt AC as long as the rebate does not exceed 50% of the total cost. For non-residential users, the rebate amount is $0.50 per watt AC and cannot exceed $50,000. Over the last five years, Riverside Public Utilites allocated $10.3 million between residents and businesses.



Performance Metrics

Riverside Public Utilities prides itself on being energy efficient and customer-focused, operating under the guiding principles of safety, integrity, quality, and most of all reliability. In order to ensure these high standards of service, RPU maintains a rigorous set of performance metrics, routinely analyzing them for areas of improvement. These metrics include the SAIDI, CAIDI, and SAIFI, which will be explored in this section. A careful look at these measurements shows that RPU is among the top providers of water and electrical services to the region.

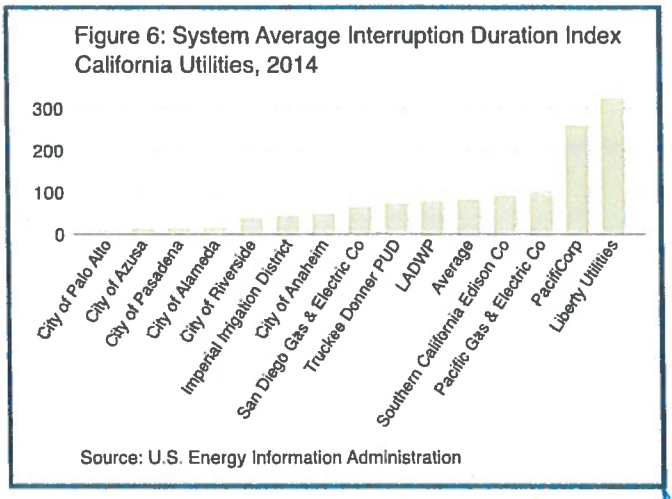
Electricity Reliability Metrics

George, you can rewrite/add using the more understandable language you mentioned to me. Overwrite my edits

SAIDI

One of the best measurements of service reliability is what's known as the System Average Interruption Duration Index, or SAIDI for short. Essentially, this metric keeps track of the average power outage duration that ~~an RPU customer experiences in a given year~~. Maintaining a low SAIDI score has been a serious objective for RPU, and the data shows that it has succeeded in this endeavor. In 2014, RPU had an average SAIDI score of 37.5--less than half the Inland Empire's average of about 137 over the last decade. When compared to other utility providers in the region like Southern California Edison, which had a SAIDI score of 112, RPU has certainly outperformed.

the system incurs each year.



Also, this is where we should discuss the LBNL study & show the $ associated w/ outages.

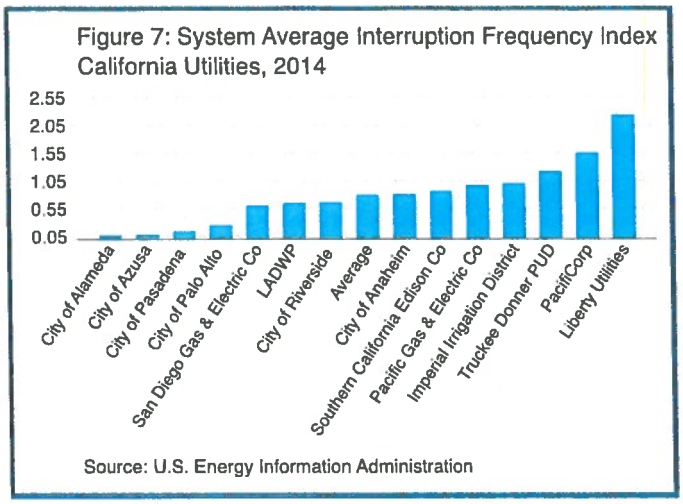
CAIDI

Closely related to SAIDI is the Customer Average Interruption Duration Index (CAIDI). This measurement is used to calculate how long, on average, it takes to repair a power outage. Last year, RPU had a CAIDI score of 97.7, or about 1 hour and 38 minutes of downtime before power was restored. Comparatively, both the Inland Empire and LADWP had CAIDI scores of 112—almost two hours, on average.

SAIFI

In addition to SAIDI and CAIDI, another useful reliability metric is the System Average Interruption Frequency Index (SAIFI). With this, utility providers are able to quantify how frequently power outages occur. Power outages can be extremely costly to customers—especially businesses. Even a relatively short outage can cost an enterprise hours of machine-rebooting time. Therefore, RPU works extensively to maintain a low SAIFI score. In 2014, RPU had a SAIFI score of 0.66—or about 0.66 power outages per

customer, on average. This was noticeably better than the 0.96 that Southern California Edison scored over the same time period.



Water Reliability Metrics

Water Quality

Riverside Public Utilities takes extensive precautions to ensure that its water meets the highest standards of quality. Last year, over 22,000 samples were taken to help prevent hundreds of contaminants and bacteria from entering the water supply. These samples are collected at every point of the treatment and transportation process by an outside testing laboratory, guaranteeing independent results. RPU consistently achieves contaminant levels well below state maximum regulations. Annual sampling data, including contaminant results, are publicly available online to establish total transparency.

Water Independence

Since 2008, Riverside Public Utilities has been completely water independent, saving its customers from the high price of importing from other sources. This was achieved by building a cutting-edge water treatment plant that transports nearly 10 million gallons of water each day. Additionally, this plant is totally efficient, using all residual water for irrigation. It was even constructed at half the cost by winning a government grant of $12 million.

Financial Reserves & Bond Ratings

Most recently, Standard & Poor's has guaranteed RPU's water revenue bonds at the AAA level. This highest standard has been achieved by RPU for its consistently strong financial reserves—the result of prudential management and constant transparency. These excellent ratings allow RPU to issue bonds at lower interest rates, which in turn save the utility millions of dollars when borrowing money to pay for capital improvement projects, such as the replacement of old electric poles and ruptured water pipelines.

Over the next decade, RPU plans to make investments in new infrastructure projects that will cost about $1 billion in total[4]. These projects include: a recycled water system, a rubber dam that will capture storm water and recharge the groundwater basin, a new water treatment plant, as well as building a new electric transmission line to the statewide power grid. With superb bond ratings and large reserves, RPU will be able to minimize the cost of financing these projects by borrowing for less and paying with cash.

Furthermore, large financial reserves can be used for any emergency situations that might arise. For instance, strong reserves have enabled RPU to endure California's current five-year drought without resorting to vast rate increases on its customers.

Most importantly, having a secure financial position helps RPU provide its customers with markedly lower rates compared to other nearby communities. In a recent news release, RPU estimated the savings from these lower rates to be about $90 million each year[5]. In short, sound financial management is not only an immense benefit to RPU customers, but it is an essential element to RPU's quality of service.

Awards, Honors, and Social Involvement

Over the years, RPU has received an innumerable amount of awards and honors in recognition of its quality of service and reliability. For example, in 2009, the Association of Metropolitan Water Agencies (AMWA) presented RPU with its Gold Award—an honor given to utilities that demonstrate optimal business operation procedures and fiscal soundness. In 2010, RPU received 28 different awards for its innovation in marketing techniques. RPU has also been widely recognized for its "design-build delivery system," which streamlines the design and construction processes of new projects, greatly reducing time and monetary costs.

In addition to its excellence in business operations, RPU has been recognized for having exceptional customer satisfaction over the years. Twice a year, RPU conducts customer

[4] "Susan B. Cash: RPU has money to upgrade infrastructure." The Press Enterprise. July 17, 2015. http://www.pe.com/articles/reserves-773698-water-rpu.html.

[5] "City of Riverside Remains Committed to Strong Financial Reserves for Utilities." City of Riverside News Release. May 28, 2015. http://www.riversideca.gov/press_releases/2015-0528-city-of-riverside-remains-committed-to-strong-financial-reserves-for-utilities.pdf.

satisfaction surveys, which in recent times have never dipped below 93% satisfaction. More recently, in 2010, customer satisfaction exceeded 98%—a nearly perfect score, demonstrating RPU's quickness in responding to service interruptions.

RPU has also received praise for its high-mindedness toward water conservation and protection of the environment. One example of this is RPU's participation in the Toro Precision Sprinkler Head Replacement Pilot Program, which entailed the use of nearly 73,000 water-efficient sprinkler heads. These sprinklers are estimated to save over 104 million gallons of water annually, and over 500 million gallons across their lifetimes. In recognition of this tremendous effort, RPU received the Toro Irrigation's 2010 WaterSmart Partner Award, the California Municipal Utilities Award for Best Management Practices, and was a finalist for the ACWA's Claire Hill Award. For its comprehensive Integrated Water Management Plan (IWMP), RPU received the 2011 Innovative Vision Award from the Santa Ana Watershed Project Authority.

Apart from its business practices and conservation efforts, RPU has a notable positive impact on the environment by making a real effort to give back to the community each year. For example, a significant portion of RPU employees participate in United Way's Day of Caring, which aims to improve the local community through trash and graffiti removal. Moreover, these same employees contribute tens of thousands of dollars each year to United Way's annual fundraising campaign, which gives aid to local education and health programs.

Summary

Overall, Riverside Public Utilities has spent a great deal of time and effort to ensure that its standards of quality and reliability exceed customer expectations. Through a host of different quantitative metrics, RPU continually monitors its performance, making sure that its customers receive fast and effective relief from outages, as well as supplying them with clean water that's safe to both use and drink. Through diligent and prudent financial planning, it has secured robust reserves, maintained the highest possible ratings for its water bonds, minimized the cost of building new infrastructure, and saved its customers millions of dollars each year in lower rates. This commitment to excellence has brought RPU a multitude of awards over the years, affirming the intrinsic value and integrity of the company and its employees, not only to its customers, but also to the community at large.

Utility Connection Fees

Introduction

Utilities levy connection fees so that existing customers of the utility are not forced to subsidize the costs of the new customers. Many, if not most utilities charge one-time connection fees. The naming convention of these fees varies widely, though the fees generally represent the same concept. For example, a water utility "tap fee" may be called any of the following: connection fee, cut-on fee, installation fee, meter set fee, new meter connection fee, service fee, and turn-on fee. Although economic theory may suggest that fees constrain development, connection fees over and above the direct cost of the connection can presumably be used as a catalyst for achieving growth by using the fees to pay for infrastructure projects.

Connection Fees and Economic Growth

Studies suggest that property taxes do not fully cover the full cost of infrastructure needed to service new development.[6] When new housing is built, roads and sewers must also be built, and facilities such as schools, parks, and recreation areas are needed. Homeowners subsidize this new infrastructure through the property tax system, However, in many cases the revenues from property taxes are not sufficient to cover the costs of new development.[7] Connection fees are therefore used to help cover the costs of new development.

Connection fees offer a more efficient way to pay for infrastructure than taxes by strengthening the linkage between those paying the fees and those receiving the benefits. Without connection fees, local governments may not have sufficient funds to accommodate growth. By providing funding for infrastructure such as roads, new water, and sewer extensions, connection fees can have a positive impact on encouraging residential and commercial development.

In Kings County, Washington, for example, capacity charges are used to keep the County's wastewater treatment system up to date with growth in the region.[8] Capacity charges are another example of a connection fee. A capacity charge is a fee billed to property owners with new sanitary sewer connections made to a structure or addition to a structure. The charge serves many purposes, however. This translates to building more pipes, pump stations, and treatment plants. The purpose of the charge is distributing the costs of expansion to the newest customers with the newest connections: growth paying for growth. By updating and renovating existing infrastructure, connection fees reduce uncertainty and risk for developers and therefore encourage economic development. Additionally, a public utility is integrated into city planning and development issues, which in turn creates opportunities for expansion and improvements to promote development and reduce public works projects for grade separations, street widening, and other improvement projects. A public utility also

[6] "The Costs of Sprawl–Revisited." *Transportation Research Board*. 1998.
[7] "Urban Sprawl: Lessons from Urban Economics." *Brookings-Wharton Papers on Urban Affairs*. 2001.
[8] http://www.kingcounty.gov/services/environment/wastewater/capacity-charge/faq.aspx.

provides infrastructure support to other city initiatives such as web-connectivity, communications infrastructure, and street light conversions.

Connection Fees and Conservation

Aging infrastructure often must be modified, upgraded, or even expanded to accommodate future challenges. Investment in capital projects can help improve health outcomes or expand the capacity of the current system to accommodate future demand and population growth. Connection fees provide the funds to invest in new infrastructure that improves usage amounts and encourages conservation efforts.

Connection fees serve an important role in allocating scarce resources that have alternative uses. For example, water connection fees may be used to promote water conservation. Water connection fees help provide a water utility with revenue needed to pay and invest in water infrastructure that encourages efficiency. A collaborative study on water connection charges between Western Resource Advocates (WRA) and the Environmental Finance Center at University of North Carolina (UNC) studied water connection charges and made the following recommendations:

> Local policymakers and planners should recognize the importance of connection fees in shaping future water demand and development patterns, and in managing costs of this fundamental service. Quite simply, connection charges can help ensure sustainable economic growth amid increasing water scarcity.[9]

Used efficiently, the revenues generated from connection fees can be used to invest in water-efficient infrastructure to combat the impacts of the drought on the state. Since January 2014, Governor Brown has issued six executive orders to help promote water conservation in the face of the ongoing drought. The most recent being Executive Order B-37-16 on May 9, 2016 which seeks to prioritize water usage, making conservation a "California Way of Life."[10]

Does a private utility differ from a public utility in terms of conservations efforts? A 2010 study examined six water utilities in California found that public utilities "appear more proactive and target-oriented in asking their customers to conserve than their private counterparts."[11] A comparative analysis of 34 public and 31 private utilities found that public providers were more likely to appeal to their users to use less water because of the drought. Out of the 65 utilities in the sample, 16 said they had called for additional conservation, and 13 of those were public utilities.

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[9] "Water Connection Charges: *A Tool for Encouraging Water-Efficient Growth." Western Resource Advocates.* 2015.

[10] https://www.gov.ca.gov/news.php?id=19408

[11] "Public versus Private: Does It Matter for Water Conservation? Insights from California." *Environmental Management*. 2010.

Cost Comparisons: Public vs. Private

Because of the different methods involved in connection charges and the variation across regions, uncovering true cost comparisons between public and private utilities can be cumbersome, and in some cases, inconclusive. In other words, obtaining a true apples-to-apples comparison faces a number of pitfalls. Moreover, few studies have compared connection fees for public versus private utilities. California offers some comparisons, because of the mix of public and private utilities present, in some cases, next to one another. However, little to no literature exists because of the many different metrics (residential or commercial, for instance) and meter sizes involved.

Comparing rates and rate structures of private and public connection fees will only tell part of the story because of the many different methods of comparing pricing. What's important is how the fees are used to expand existing and or future operations to shape future outcomes. Growth is not free.

Public ownership enables local governments to plan and implement strategic growth initiatives. In addition to investment, connection fees can be used to shape local objectives, usage patterns, and managing service costs. Leveraging connection fees internalizes costs and ensures that taxpayers are not on the hook for new development. Connection fees are necessary to service new developments that attract new real estate (both commercial and residential), which in turn promotes economic development in the short and long run. Without connection fees, local governments may have difficulty raising the necessary funds to pay for infrastructure, therefore harming growth.

Conclusion

Overall, Riverside Public Utilities has had a tremendous positive effect on the City of Riverside and its economy. Through various activities, RPU had an economic impact of over $871 million during the 2015-16 fiscal year. Of this, $513.6 million resulted from direct impacts, which includes over $36 million in local wages and nearly $46 million in transfers to the City's General Fund. This also includes more than $262 million in operational expenditures, which generated over $19 million in fiscal revenue for the city.

As a result of RPU's economic activity, the demand for labor in Riverside increased by more than 5,789 jobs—over half of which were directly supported by RPU. These jobs generated more than $266 million in labor income, with over $152 million of that directly credited to RPU. Moreover, the cost savings that RPU generated for its customers subsequently resulted in an additional 1,280 jobs.

Operating as a locally owned utility company, RPU saves its customers a great deal of money compared to other utility providers in the region, primarily through lower rates of service. As a result, the City of Riverside received over $143 million in additional economic output during the 2015-16 fiscal year, with over $90 million of that coming from the direct impacts caused by RPU's lower rates.

Furthermore, locally based capital improvement projects, multiple rebates and green initiative spending, and minimal service disruptions all contribute to the exceptional quality of service that RPU customers enjoy. With exceptional fiscal management policies, RPU enjoys a spectacular reputation regarding its water bond ratings, which lowers the cost of financing important infrastructure investments.

Through its insistence on low prices, quality, and reliability of service, RPU stands as a major benefit to the City of Riverside. The people and government of Riverside can take great pride in the job that RPU has done and will continue to do. Riverside Public Utilities is good for the economy, the environment, and most importantly, the customer.

Scott, OK w/ this?

Appendix

The IMPLAN modeling system combines the U.S. Bureau of Economic Analysis' Input-Output Benchmarks with other data to construct quantitative models of trade flow relationships between businesses, and between businesses and final consumers. From this data, we can examine the effects of a change in one or several economic activities to predict its effect on a specific state, regional, or local economy (impact analysis). The IMPLAN input-output accounts capture all monetary market transactions for consumption in a given time period. The IMPLAN input-output accounts are based on industry survey data collected periodically by the U.S. Bureau of Economic Analysis and follow a balanced account format recommended by the United Nations.

IMPLAN's Regional Economic Accounts and the Social Accounting Matrices will be used to construct region-level multipliers that describe the response of the relevant regional economy to a change in demand or production as a result of the activities and expenditures related to Riverside Public Utilities. Each industry that produces goods or services generates demand for other goods and services and this demand is multiplied through a particular economy until it dissipates through "leakage" to economies outside the specified area. IMPLAN models discern and calculate leakage from local, regional, and state economic areas based on workforce configuration, the inputs required by specific types of businesses, and the availability of both inputs in the economic area. Consequently, economic impacts that accrue to other regions or states as a consequence of a change in demand are not counted as impacts within the economic area.

The model accounts for substitution and displacement effects by deflating industry-specific multipliers to levels well below those recommended by the U.S. Bureau of Economic Analysis. In addition, when estimating the impact of household spending, multipliers are applied only to personal disposable income to obtain a more realistic estimate of the multiplier effects generated by increased demand. Importantly, IMPLAN's Regional Economic Accounts exclude imports to an economic area, so the calculation of economic impacts identifies only those impacts specific to the economic impact area, as determined by the purchasing patterns of the industries where changes in output are occurring. IMPLAN calculates this distinction by applying the area's economic characteristics described in terms of actual trade flows within the area. The current version of IMPLAN not only identifies what proportion of inputs are purchased locally, but also determines where inputs are sourced from that are not obtained within the local economic area. This enables a user to estimate the impact of a spending increase in one economy on other nearby economies and how increased economic activity in those areas in turn impact the original study area.

Impact studies operate under the basic assumption that any increase in spending has three effects: First, there is a direct effect on that industry itself, resulting from the additional output of goods or services. Second, there is a chain of indirect effects on all the industries whose outputs are used by the industry under observation. These are the impacts generated by a business' supply chain. Third, there are induced effects that arise when employment increases and household spending patterns are expanded. These impacts follow from the additional income that is earned in the course of producing this output, both by employees in the target industry and in those supplying it.

It is clear that there are several components to the overall economic impact. First, there is an effect on value added-the net increase in the overall value of the local economy. Value added is the total increase in an industry's output less the cost of any intermediate inputs, and it is commonly used to measure an industry's contribution to local gross product. Value added consists primarily of labor income, but also includes indirect business taxes and other property income. The secondary and tertiary effects of the industry on the rest of the local economy are not very large. Second, there is an impact on local employment, with the single-largest share of jobs created in the industry itself, and the others spread throughout the study area's economy. Third, is the increase in output, where the difference between value added and output is that the former concentrates on various earnings, while the latter includes the costs of intermediate inputs. National income accounting avoids double counting by excluding the costs of intermediate inputs.

It is also important to note that capital investments made on different types of projects can lead to different multipliers. Why? A sector can have a large multiplier if it induces economic activity in industries whose employees have a high propensity to spend from take-home pay. Also, if the sector does not import many materials from abroad or from out of state, then its multiplier effect on the local economy will be high. In essence, some of the spending in the local economy may "leak out" into other states and countries. If raw materials are imported, then a change in a local sector's level of production will result in a commensurate change in economic activity abroad. The same is true if a California business buys inputs from firms in different states.

Our analysis using input-output accounts is based on three important assumptions. First, there are constant returns to scale. This means that a 10% cut in spending will be ten times as severe-across every sector in the economy-as a one percent cut. Second, there are no supply constraints. This means that any marginal increase in output can be produced without having to worry about bottlenecks in labor markets, commodity markets, or necessary imports. This assumption is quite realistic in a free-market economy like California's where there is some unemployment. It is even more reasonable in times of high unemployment, such as the present economic environment, because there are many under- and un-utilized resources that can be activated without detracting from other industries or businesses. Third, the flow of commodities between

industries is fixed. This means that it is not possible to substitute in the short-run the many different inputs that go into the target industry.

Defining Jobs

By using the IMPLAN model, we define the term "job" as the annual average of monthly jobs in that industry. This is the same definition used by the Bureau of Labor Statistics and the Bureau of Economic Analysis. Thus, to illustrate, 1 job lasting 12 months is equal to 2 jobs lasting 6 months each, which are equal to 3 jobs lasting 4 months each, and so on. This definition should be kept in mind throughout the reading of this report.