Pickering Nuclear Generating Station

Contribution of Continued Operation to the Ontario Economy

March 2018

CANADIAN CENTRE FOR
ECONOMIC ANALYSIS

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This analysis is based on detailed operational and capital expenses provided by Ontario Power Generation (OPG). These included number of employees and employee salaries, primary contractors (with locations of businesses), goods and services required for the operation of the Pickering Nuclear Generating Station (Pickering Station), and ongoing capital expenditures. Below, we provide an overview of the results of the analysis.

Nuclear Industry	Nuclear energy provides just under 60% of Ontario's electricity needs. The nuclear industry is comprised of 180 companies and employs about 60,000 people every year.
Pickering Station	Pickering Station supplies enough power for 1.5 million homes each day, and represents 14% of Ontario's electricity.
Economic	Continued operation of the Pickering Station over the next eight years is expected to contribute on average per year: • $1.54 billion to Ontario's GDP; • Across all industry sectors, $788 million in gross operating surplus. Top 5 sectors impacted are utilities, finance, construction, professional/scientific/technical, and manufacturing; • 7,590 full-time equivalent (FTE) jobs per year across the entire economy, representing an average annual $748 million in wages. Over 30% of non-utility jobs are for individuals with below median income, largely induced effects through retail and food trades; and • $290 million in government taxation revenues ($155 million in federal and $135 million in provincial).
Housing Affordability	If Pickering Station were to stop operating, the energy generation replacement would increase electricity costs in Ontario. As a result, households in the region could see on average a 0.2% to 0.8% decrease in housing affordability.

1.0 INTRODUCTION

1.1 NUCLEAR POWER IN ONTARIO

Nuclear energy plays a fundamental role in Ontario's electricity system. It provides just under 60% of Ontario's electricity need, as illustrated in Figure 1 (Ontario Energy Board 2016). Moreover, given its low environmental footprint, nuclear power is viewed as a clean, reliable, and low-cost form of energy (Table 1). Currently, almost all of Canada's commercial reactors are located in Ontario (World Nuclear Association 2017).

Figure 1 Ontario energy supply by source *(Ontario Ministry of Energy 2017)*

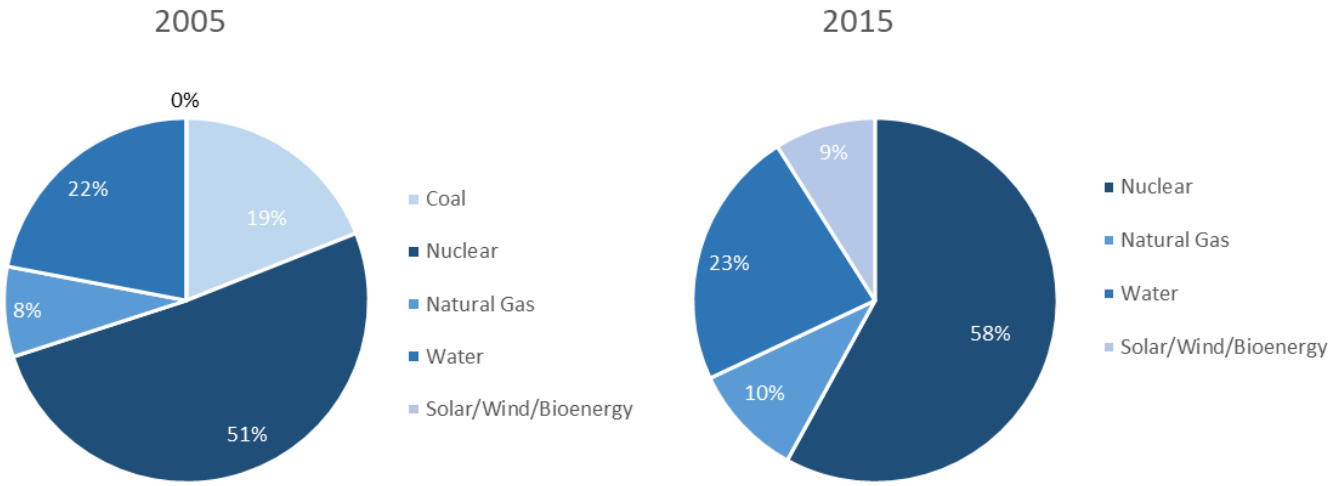


Table 1 Energy supply and price by source, May 2016 *(Ontario Energy Board 2016)*

Energy by Source	% of Total Supply	Total Unit Cost (Cents per kWH)
Nuclear	**58%**	**6.8**
Hydro	23%	5.7
Gas	9%	14.0
Wind	8%	13.3
Solar	2%	48.1

Not only is nuclear power a source of energy, as an industry, it is a contributor to Ontario's economy. In Ontario, the nuclear industry is comprised of 180 companies and employs about 60,000 people every year (Ontario Ministry of Energy 2017).

1.2 PICKERING NUCLEAR GENERATING STATION

The Pickering Nuclear Generating Station (Pickering Station) is located on the shore of Lake Ontario by Pickering, just east of Toronto. Composed of six CANDU (CANadian Deuterium Uranium) reactors, Pickering Station generates 3,100 megawatts, which supplies enough power for 1.5 million homes each day, and represents 14% of Ontario's electricity (Ontario Power Generation 2017).

The Pickering Station began operation in July 1971 with a single reactor. By 1986, the station had expanded with the addition of seven reactors, for a total of eight. Six of the eight reactors continue in operation today (Ontario Power Generation 2015). In February 2010, as opposed to a full refurbishment, OPG decided to spend $200 million on a fuel channel life management project to keep the reactors active for another ten years, prior to safe stating them (World Nuclear Association 2017).

In January 2016, the Province of Ontario approved the plans to pursue continued operation of the Pickering Stations until 2024 (Ontario Ministry of Energy 2016). The extended activation of the reactors includes two reactors staying online until 2022 and four reactors staying online until 2024, after which they are expected to begin safe stating the power plant. Extending the operation of the Pickering Station ensures that a reliable source of clean energy is provided while Darlington Nuclear Generating Station and the initial Bruce Nuclear refurbishment are carried out (Ontario Ministry of Energy 2017).

After operation of the Pickering Station ends, it will go into a long-term decommissioning process, which includes the layup and safe storage of the reactors. Employees of the Pickering Station could see future employment opportunities in the decommissioning process of the plant or at the Darlington Station. This period is not included in this analysis.

2.0 ANALYSIS

2.1 PROJECT DATA AND METHODOLOGY

The analysis of the contribution of the continued operation of Pickering Station to the Ontario economy is based on detailed operational and capital expenses provided by OPG. These included the number of employees and total employee salaries, primary contractors (with locations of business), goods and services required for the operation of the Station, and ongoing capital expenditures.

The economic impact analysis of the continued operation of the Pickering Station was conducted using CANCEA's Prosperity at Risk® *(PaR)* platform[1]. Using over 170 tables from Statistics Canada, including Statistics Canada input-output data (I/O), and over 56,000 Canadian Census dissemination areas, the Prosperity at Risk® platform takes into account the demand and supply of commodities across industry sectors and unifies it with demographics, labour force dynamics, government finances, private capital investment, and the interdependencies of production to allow for the economic impacts of the continued operation of the station to be quantified and forecasted.

The economic impact of the continued operation of the Pickering Station on the economy can be divided into three main traditional effects – direct, indirect, and induced – and broader system effects

- ***Direct Effects:*** The direct effects are the impacts directly involved in the operation of the station. This includes income and value of production of economic agents (i.e., workers and firms) directly involved in the operation of the station. These effects are considered to be the value-added to the Ontario economy due to the operation of the station. For example, this could include the operation and maintenance employment associated with the station.

- ***Indirect Effects:*** The indirect effects of operation are the economic impacts that arise through business to business interactions throughout the supply chain. In order for the agents in the direct effects to complete their work, they require supplies and materials that they must purchase from suppliers. This leads to a chain of expenditures in different sectors of the economy. The sector that receives the stimulus will purchase intermediate inputs, and the producers of those inputs will need to buy the raw inputs from other industries further upstream in the supply chain. These impacts are captured under indirect effects.

- ***Induced Effects***: Induced effects are the economic activity created through increased spending of those workers receiving incomes from the ongoing operation of the Pickering Station. However, induced effects can also occur due to reinvestment of business profits to expand capacity or replace depreciated capital stock (Heintz, Polin and Garrett-Peltier 2009). These purchases or

[1] For an in-depth breakdown of CANCEA's Prosperity at Risk® platform, please refer to "The Economic Impact of Canadian P3 Projects" and the recent report on Bill 148: Fair Workplaces, Better Jobs Act, 2017 (The Canadian Centre for Economic Analysis 2016, 2017).

activities can lead to further employment, wages, income, and tax revenue that reverberate throughout different industries.

As the Prosperity at Risk® platform is an agent-based, event-driven microsimulation platform, it is capable of capturing the direct, indirect, and induced contributions of the continued operation of the Pickering Station to the Ontario economy, as well as identifying the contribution at different regional levels. By incorporating household behavior, industry and firm behavior, and federal and provincial tax rates, Prosperity at Risk® is capable of providing the economic impact of the continued operation of the Pickering Station across different economic indicators such as GDP (real and nominal), employment, wages, government revenue, and household income.

Furthermore, Prosperity at Risk® also captures the "system impacts", which take the broader impact of operations into consideration.

- ***System Effects***: System effects are the broadest category of effects. They focus on how the asset (i.e., Pickering Station) is used and how this use changes behavior and/or the states of residents and the community. For example, in terms of the Pickering Station, could have implications on the affordability of housing in the region due to the replacement cost of electricity if the station were not in operation. Through its integrated platform, *Prosperity at Risk* (PaR) is capable of measuring these impacts.

In addition to internal model validation, the output from the Prosperity at Risk® platform is regularly tested against the results other models. Cross model validation ensures Prosperity at Risk® is producing baselines that are in accordance with other models. Key models include:

- Public sector forecasts including Ontario MOF (e.g., population and GDP); and
- Private sector forecasts including major Canadian banks.

For more information on the Prosperity at Risk® platform and its applications, please refer to CANCEA (2017).

2.2 KEY ASSUMPTIONS

In order to perform the analysis several assumptions are required about the evolution of Ontario's economy. The first is that there will be no significant changes to the structure of Ontario's economy over the duration of the analysis and that input/output industry data used remains valid. This includes industry supply chains, import/export markets, and consumer consumption behaviour. This includes the rate at which people spend money that they earn. Secondly, it does assume economic activity diffuses across the province at a rate proportional to geographic proximity without bias for any particular company within a sector, or along any particular transportation corridors.

Finally, the analysis considers only the duration of the extension, and does not include any additional benefits or costs which may accrue after 2024.

3.0 RESULTS

3.1 INDUSTRY IMPACTS

The continued operation of the Pickering Station over the next eight years is expected to contribute an average of $1.54 billion per year to Ontario's GDP. Although the Pickering Station's economic influence extends to all sectors of the province, the bulk of the economic activity is directly associated with the operation of the station. Figure 2 shows the top 15 sectors impacted by the Pickering Station. Furthermore, the largest contribution to GDP is in Durham region, just under 70% of the average annual GDP contribution occurs in the Durham region. A third of the contributions comes from regions outside Durham, led by Toronto (11%), and then York (5%).

Figure 2 Average annual GDP contribution by sector ($Millions)

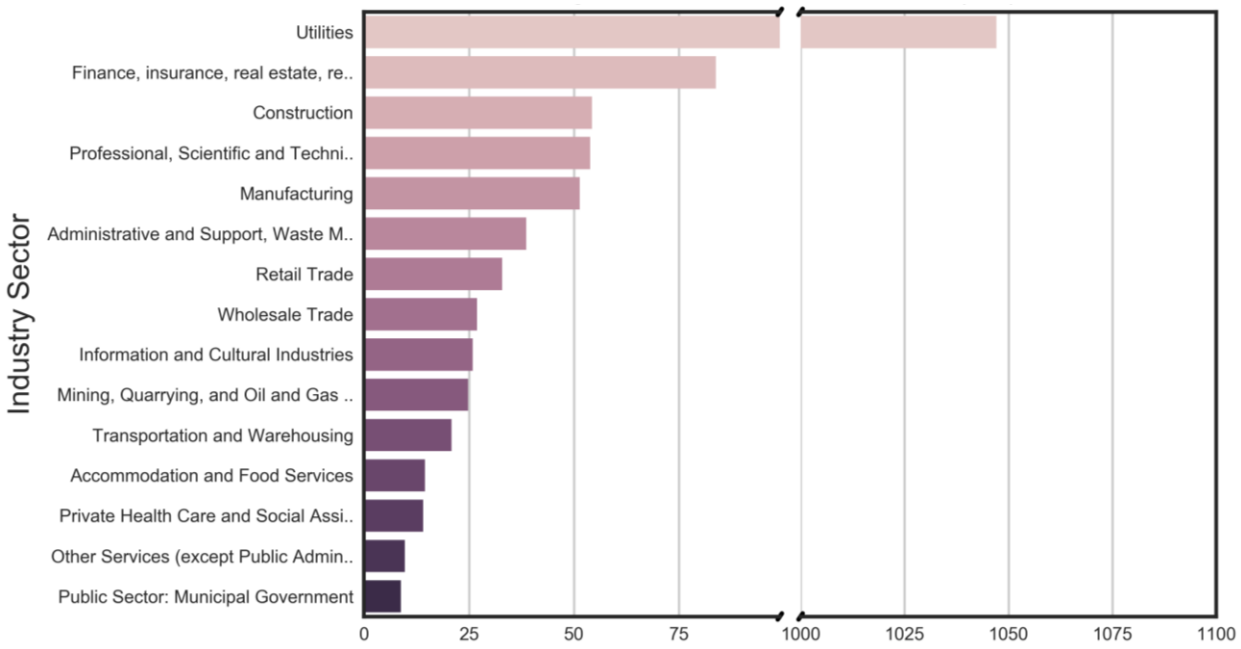
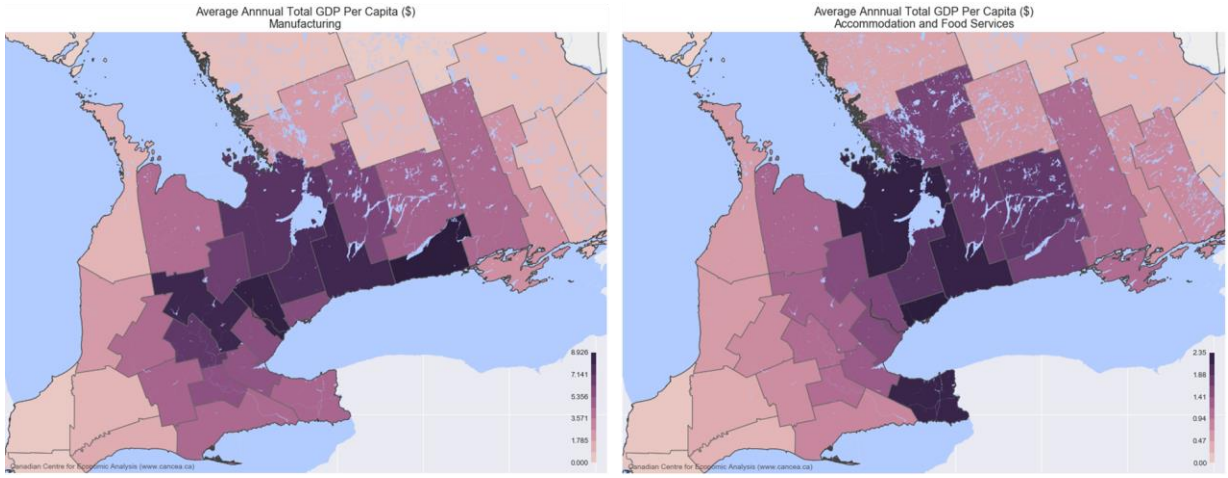


Figure 3 illustrates the average annual GDP per capita contribution to the Ontario economy in the manufacturing and the accommodation and food services industries. The economic contributions are felt differently across the province. For example, the operation of the station requires manufactured goods and services, some of which increase employment in south-western Ontario (left), while household income supported by the station allow greater tourism to Muskoka and Niagara (right).

Figure 3 Average annual GDP per capita contribution in Manufacturing and Accommodation and Food Services industries ($/person)

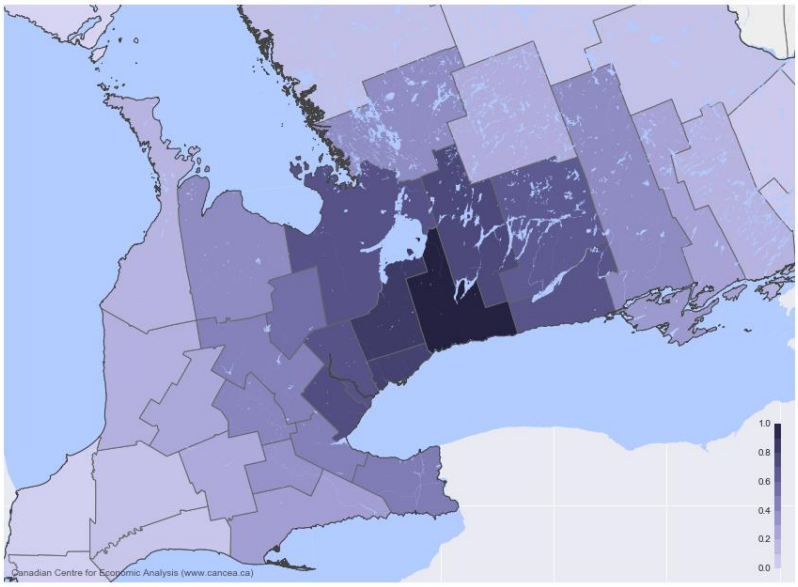


Across all industry sectors, the continued operation of the Pickering Station is estimated to contribute an average annual $788 million in gross operating surplus (GOS) through to 2024. Furthermore, the increased GOS and wages are estimated to generate an average of $155 million per year in federal government tax revenue and $135 million per year in provincial government tax revenue. Of this, 76% is personal income tax, 13% is from consumption taxes (HST), and the remainder are corporate taxes.

3.2 JOBS AND INCOMES

Over the next eight years, continued operation of the Pickering Station could generate an average of 7,590 full-time equivalent (FTE) jobs per year, representing an average annual $747 million in wages. Figure 4 highlights the employment impact of the continued operation of the Pickering Station by region.

Figure 4 Average annual total jobs per 1,000 people by region



The 7,590 jobs arise from direct employment at Pickering, indirect employment at suppliers, and induced spending from wages earned by individuals across all industries.

Depending on the distribution of dual incomes at the same household, between 4,500 and 7,590 households could be affected. In terms of average annual jobs supported by the Pickering Station, the largest number are in Durham (2,700), followed by Toronto (1,700) and Peel (750). Figure 5 provides the annual number of jobs supported by the Pickering Station over the next eight years. Similar to GDP, the largest contribution relates directly to utilities, followed by retail trade and administrative and support, waste management and remediation services.

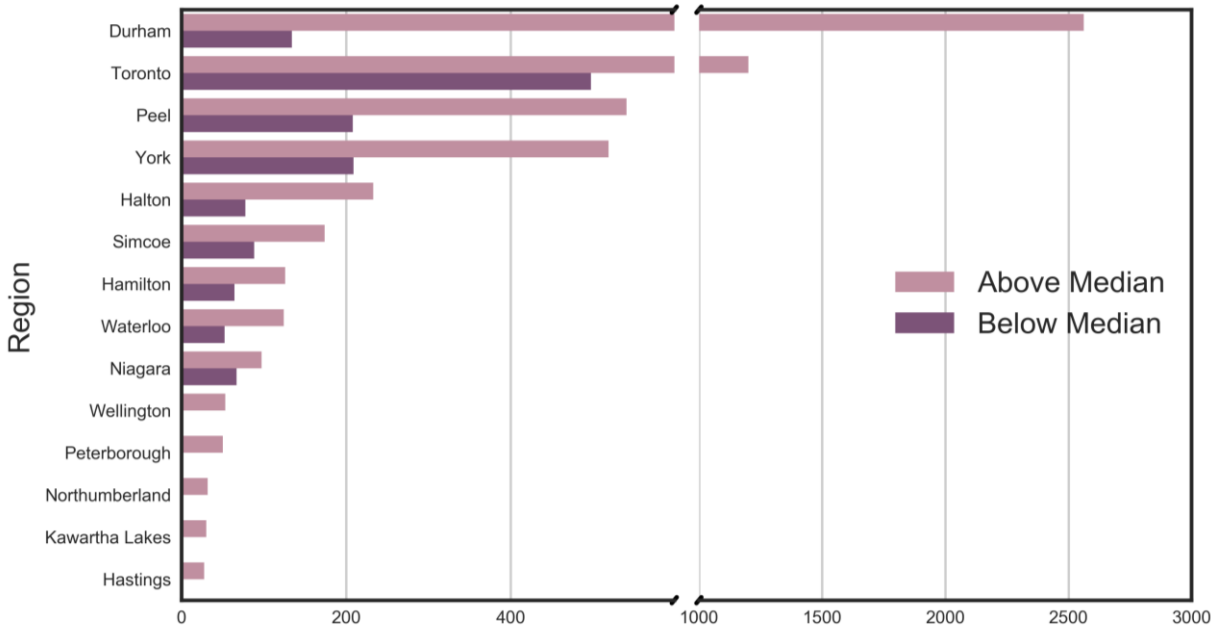
Figure 5 Annual contribution of jobs by sector from direct, indirect, and induced economic activity

	2017	2018	2019	2020	2021	2022	2023	2024
Accommodation and Food Services	527.13	505.00	475.03	479.91	449.59	493.98	453.07	454.31
Administrative and Support, Waste Management and Remediation Services	706.74	671.32	651.98	662.45	631.48	694.49	636.16	637.41
Arts, Entertainment and Recreation	89.52	86.00	80.08	80.71	75.21	82.59	75.75	76.01
Construction	819.29	730.40	533.33	469.06	372.78	352.18	322.70	323.08
Crop and Animal Production	30.32	29.02	26.76	26.84	24.90	27.23	24.96	25.06
Finance, insurance, real estate, rental and leasing and holding companies	536.29	507.24	456.86	452.11	414.99	448.47	410.89	412.34
Fishing, Hunting and Trapping	0.66	0.63	0.59	0.60	0.56	0.62	0.57	0.57
Forestry and Logging	3.01	2.79	2.41	2.33	2.10	2.21	2.02	2.03
Information and Cultural Industries	149.60	143.01	135.87	137.51	129.55	142.41	130.54	130.89
Manufacturing	442.62	419.77	384.58	382.50	354.66	384.95	352.09	353.76
Mining, Quarrying, and Oil and Gas Extraction	93.36	91.39	91.54	79.40	86.45	89.26	68.83	79.87
Non-Profit Sector	90.94	87.29	81.59	82.31	76.85	84.41	77.41	77.66
Other Services (except Public Administration)	230.83	221.31	207.40	208.86	195.57	214.58	196.41	197.32
Private Educational Services	62.61	60.25	56.33	56.92	53.11	58.44	53.63	53.79
Private Health Care and Social Assistance	154.31	148.68	142.00	144.42	136.24	150.51	138.02	138.44
Professional, Scientific and Technical Services	548.84	518.41	489.36	490.70	462.34	503.79	460.66	462.32
Public Sector: Aboriginal Government	16.50	15.90	14.87	15.03	14.02	15.44	14.16	14.21
Public Sector: Educational Services	82.30	78.99	73.75	74.39	69.41	76.23	69.92	70.14
Public Sector: Federal Government	31.01	29.49	27.77	27.93	26.24	28.70	26.28	26.36
Public Sector: Health Care and Social Assistance	32.22	30.88	29.34	29.71	27.99	30.80	28.22	28.31
Public Sector: Municipal Government	89.57	85.42	81.00	81.66	77.00	84.41	77.21	77.54
Public Sector: Provincial Government	10.96	10.42	9.72	9.74	9.11	9.94	9.09	9.13
Retail Trade	859.33	825.56	767.93	773.96	720.64	791.34	725.94	728.29
Support Activities for Agriculture and forestry	4.90	4.68	4.36	4.37	4.08	4.47	4.09	4.10
Transportation and Warehousing	254.45	242.97	228.21	229.51	215.33	235.80	215.73	216.70
Utilities	2371.46	2355.15	2273.43	2362.79	2221.03	2502.18	2310.04	2310.24
Wholesale Trade	248.30	236.08	216.75	216.00	200.40	217.95	199.39	200.34

In addition to the high income jobs directly at the Pickering Station, over 30% of non-utility jobs are for individuals with below median income[2], largely induced effects through retail and food trades. Furthermore, as evident in Figure 6, the majority of below median income jobs are in Toronto, followed by York and Peel.

[2] Based on an *individual* median income of $35,000.

Figure 6 Average annual contribution to jobs by income level



3.3 ELECTRICITY PRICES AND SHELTER AFFORDABILITY

The Pickering Station provides an estimated 14% of Ontario's energy supply. If the station were to stop operating, this energy generation would need to be replaced with other sources of electricity that could be more expensive. Table 2 provides an overview of the assumptions used in determining the change in electricity prices given the ceasing of operation at the Pickering Station.

Table 2 Replacement electricity cost

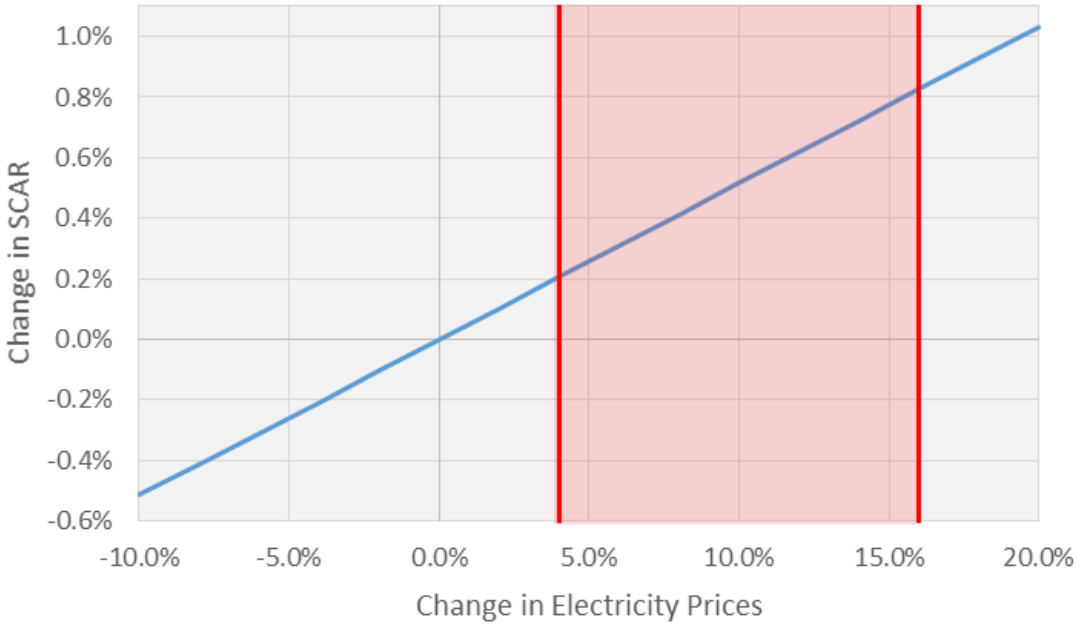
	Low Scenario	High Scenario
Price of Replacement Electricity (cents per KWH)	9.0	15
Average Resulting Electricity Price (cents per KWH)	7.3	8.1
% Increase	4.0%	16%

Increasing electricity costs could result in changes in housing affordability, as measured by CANCEA's *Shelter Consumption Affordability Ratio (SCAR)* index[3]. Figure 7 illustrates the range of possible outcomes on affordability given changes in electricity price. However, according to the high and low scenarios

[3] For more information on the SCAR index, please refer to CANCEA's report on understanding the forces driving shelter affordability issues in Ontario and the GTHA (The Canadian Centre for Economic Analysis 2017).

outlined above, if the Pickering Station were to halt operation, households in the region could see a 0.2% to 0.8% increase in their SCAR (which means a decrease in affordability).

Figure 7 Replacement electricity and change in SCAR



4.0 CONCLUSIONS

The continued operation of the Pickering Nuclear Generating Station contributes significantly to Ontario's economy, not just in Durham Region, but across the province and the different industries. Over the next eight years of operation, the Pickering Station is estimated to contribute to the Ontario economy an average annual:

- $1.54 billion in GDP;
- 7,590 FTE jobs, associated with $747 million in wages;
- $788 million in gross operating surplus; and
- $290 million in tax revenue for the federal and provincial governments.

Furthermore, if the Pickering Station were to stop operation, this could result in between a 4-16% increase in electricity costs (due to replacement electricity at higher costs), which could increase SCAR (and therefore decrease affordability) by 0.2-0.8% across the province.

APPENDIX A. BIBLIOGRAPHY

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APPENDIX B. SUPPLEMENTAL RESULTS

Figure 8 Annual GDP contribution by sector ($Millions)

	2017	2018	2019	2020	2021	2022	2023	2024
Accommodation and Food Services	15.92	15.25	14.34	14.49	13.57	14.91	13.68	13.72
Administrative and Support, Waste Management and Remediation Services	41.22	39.15	38.02	38.64	36.83	40.50	37.10	37.18
Arts, Entertainment and Recreation	4.46	4.28	3.99	4.02	3.74	4.11	3.77	3.78
Construction	90.72	80.88	59.06	51.94	41.28	39.00	35.73	35.78
Crop and Animal Production	3.85	3.68	3.40	3.41	3.16	3.46	3.17	3.18
Finance, insurance, real estate, rental and leasing and holding companies	98.79	93.44	84.16	83.28	76.45	82.61	75.69	75.96
Fishing, Hunting and Trapping	0.04	0.04	0.04	0.04	0.03	0.04	0.03	0.03
Forestry and Logging	0.28	0.26	0.22	0.22	0.19	0.21	0.19	0.19
Information and Cultural Industries	28.16	26.92	25.57	25.88	24.38	26.80	24.57	24.63
Manufacturing	59.14	56.08	51.38	51.10	47.38	51.43	47.04	47.26
Mining, Quarrying, and Oil and Gas Extraction	27.24	26.67	26.71	23.17	25.22	26.04	20.08	23.30
Non-Profit Sector	4.23	4.06	3.80	3.83	3.58	3.93	3.60	3.61
Other Services (except Public Administration)	10.72	10.28	9.63	9.70	9.08	9.96	9.12	9.16
Private Educational Services	2.03	1.95	1.82	1.84	1.72	1.89	1.74	1.74
Private Health Care and Social Assistance	15.05	14.50	13.85	14.08	13.28	14.68	13.46	13.50
Professional, Scientific and Technical Services	60.09	56.76	53.58	53.73	50.62	55.16	50.44	50.62
Public Sector: Aboriginal Government	0.69	0.67	0.62	0.63	0.59	0.65	0.59	0.60
Public Sector: Educational Services	7.63	7.32	6.84	6.90	6.44	7.07	6.48	6.50
Public Sector: Federal Government	4.17	3.97	3.73	3.76	3.53	3.86	3.53	3.55
Public Sector: Health Care and Social Assistance	3.08	2.95	2.80	2.84	2.67	2.94	2.69	2.70
Public Sector: Municipal Government	9.60	9.16	8.68	8.75	8.25	9.05	8.28	8.31
Public Sector: Provincial Government	1.47	1.40	1.31	1.31	1.22	1.34	1.22	1.23
Retail Trade	36.52	35.09	32.64	32.89	30.63	33.63	30.85	30.95
Support Activities for Agriculture and forestry	0.29	0.28	0.26	0.26	0.24	0.27	0.24	0.25
Transportation and Warehousing	23.09	22.05	20.71	20.83	19.54	21.40	19.58	19.67
Utilities	1004.31	1119.95	1101.17	1118.42	1093.39	1142.92	899.52	896.92
Wholesale Trade	30.76	29.25	26.85	26.76	24.83	27.00	24.70	24.82

Figure 9 Average annual wages and jobs contribution by industry

Figure 10 Annual jobs contribution by region

	2017	2018	2019	2020	2021	2022	2023	2024
Algoma	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Brant	41.92	39.83	36.49	36.01	33.45	36.26	33.18	33.35
Bruce	10.50	9.95	9.08	8.91	8.31	8.95	8.13	8.22
Chatham-Kent	1.90	1.83	1.68	1.60	1.53	1.64	1.50	1.51
Cochrane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dufferin	30.12	28.48	25.88	25.57	23.64	25.55	23.34	23.47
Durham	2862.23	2779.61	2620.87	2742.58	2528.21	2830.99	2603.77	2605.86
Elgin	6.73	6.44	5.89	5.72	5.36	5.79	5.30	5.33
Essex	1.59	1.54	1.40	1.33	1.28	1.36	1.25	1.26
Frontenac	24.38	23.07	21.10	21.03	19.62	21.20	19.39	19.47
Greater Sudbury / Grand Sudbury	2.99	2.87	2.73	2.54	2.54	2.68	2.25	2.43
Grey	33.39	31.55	28.56	28.04	25.97	27.95	25.42	25.66
Haldimand-Norfolk	28.31	26.87	24.48	23.90	22.24	23.98	21.79	22.02
Haliburton	3.55	3.33	2.98	2.95	2.70	2.90	2.66	2.67
Halton	339.01	343.24	332.40	304.39	271.36	312.75	290.39	291.92
Hamilton	220.22	208.80	190.84	188.71	174.85	189.47	173.29	174.16
Hastings	48.80	46.09	41.98	41.84	38.80	41.94	38.39	38.53
Huron	10.66	10.13	9.24	8.93	8.40	9.01	8.12	8.26
Kawartha Lakes	52.81	49.78	44.91	44.34	40.92	44.04	40.12	40.42
Kenora	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lambton	3.79	3.64	3.33	3.19	3.04	3.25	2.96	2.99
Lanark	4.15	3.91	3.53	3.49	3.25	3.49	3.19	3.20
Leeds and Grenville	6.21	5.86	5.31	5.26	4.90	5.26	4.81	4.83
Lennox and Addington	10.42	9.80	8.80	8.72	8.03	8.63	7.91	7.93
Manitoulin	0.09	0.09	0.08	0.08	0.07	0.08	0.07	0.07
Middlesex	44.07	42.13	38.62	37.63	35.32	38.13	34.93	35.12
Muskoka	21.40	20.11	18.01	17.74	16.29	17.49	15.96	16.06
Niagara	189.77	179.91	164.55	163.04	150.98	163.74	149.66	150.47
Nipissing	6.08	5.77	5.34	5.19	4.95	5.30	4.71	4.84
Northumberland	53.13	50.11	45.48	45.00	41.69	44.93	40.92	41.24
Ottawa	32.79	31.05	28.47	28.32	26.64	28.70	26.24	26.36
Oxford	22.28	21.21	19.39	19.03	17.71	19.16	17.54	17.63
Parry Sound	4.69	4.41	3.93	3.86	3.55	3.80	3.46	3.49
Peel	862.28	817.13	750.26	745.33	692.00	750.90	686.38	689.91
Perth	17.25	16.39	14.91	14.59	13.57	14.64	13.38	13.46
Peterborough	80.48	80.32	71.04	61.20	75.86	71.09	65.51	66.00
Prescott and Russell	0.88	0.83	0.74	0.73	0.68	0.73	0.67	0.67
Prince Edward	7.18	6.77	6.13	6.09	5.62	6.07	5.55	5.57
Rainy River	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Renfrew	9.30	8.78	7.99	7.94	7.40	7.98	7.29	7.33
Simcoe	307.99	290.64	263.56	260.69	240.82	259.90	237.09	238.63
Stormont, Dundas and Glengarry	1.44	1.36	1.23	1.22	1.14	1.22	1.12	1.12
Sudbury	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Thunder Bay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Timiskaming	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03
Toronto	1943.90	1842.45	1698.48	1692.00	1573.96	1710.04	1562.23	1570.68
Waterloo	202.30	197.30	176.94	162.71	174.97	175.43	161.55	162.28
Wellington	88.53	83.97	76.74	75.74	70.32	76.11	69.51	69.95
York	847.48	800.60	729.39	724.46	669.59	724.78	662.79	665.78

Figure 11 Annual wage contribution by region

	2017	2018	2019	2020	2021	2022	2023	2024
Algoma	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brant	2.31	2.19	1.98	1.94	1.80	1.94	1.77	1.78
Bruce	0.79	0.75	0.69	0.68	0.63	0.68	0.62	0.63
Chatham-Kent	0.10	0.10	0.09	0.08	0.08	0.09	0.08	0.08
Cochrane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dufferin	1.74	1.64	1.47	1.44	1.33	1.42	1.30	1.31
Durham	470.40	459.66	438.49	463.31	428.24	482.59	444.15	444.33
Elgin	0.36	0.35	0.31	0.30	0.28	0.30	0.28	0.28
Essex	0.08	0.08	0.07	0.07	0.07	0.07	0.06	0.06
Frontenac	1.34	1.26	1.14	1.13	1.05	1.12	1.02	1.03
Greater Sudbury / Grand Sudbury	0.24	0.23	0.22	0.20	0.20	0.21	0.17	0.19
Grey	1.98	1.86	1.67	1.62	1.50	1.60	1.44	1.47
Haldimand-Norfolk	1.71	1.62	1.46	1.42	1.32	1.41	1.27	1.30
Haliburton	0.20	0.19	0.16	0.16	0.15	0.15	0.14	0.14
Halton	26.31	29.05	29.87	24.72	20.75	25.96	24.59	24.72
Hamilton	12.47	11.78	10.65	10.45	9.65	10.40	9.49	9.55
Hastings	2.72	2.56	2.30	2.27	2.09	2.24	2.05	2.06
Huron	0.66	0.63	0.57	0.55	0.52	0.55	0.49	0.50
Kawartha Lakes	3.15	2.95	2.64	2.57	2.37	2.53	2.29	2.32
Kenora	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lambton	0.21	0.20	0.18	0.17	0.16	0.18	0.16	0.16
Lanark	0.24	0.22	0.20	0.19	0.18	0.19	0.17	0.17
Leeds and Grenville	0.35	0.33	0.29	0.29	0.27	0.28	0.26	0.26
Lennox and Addington	0.61	0.57	0.50	0.49	0.45	0.48	0.44	0.44
Manitoulin	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Middlesex	2.39	2.28	2.07	2.01	1.88	2.02	1.85	1.86
Muskoka	1.20	1.13	0.99	0.96	0.88	0.93	0.84	0.85
Niagara	10.19	9.62	8.69	8.53	7.87	8.47	7.71	7.78
Nipissing	0.39	0.37	0.34	0.32	0.32	0.33	0.29	0.30
Northumberland	3.24	3.04	2.74	2.68	2.48	2.65	2.40	2.43
Ottawa	1.87	1.76	1.61	1.59	1.49	1.60	1.46	1.47
Oxford	1.24	1.18	1.07	1.04	0.96	1.04	0.95	0.95
Parry Sound	0.26	0.25	0.22	0.21	0.19	0.20	0.18	0.19
Peel	50.93	48.12	43.80	43.22	40.03	43.22	39.41	39.69
Perth	0.98	0.93	0.83	0.81	0.75	0.81	0.73	0.74
Peterborough	5.89	6.36	5.31	3.43	6.81	5.24	4.90	4.95
Prescott and Russell	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04
Prince Edward	0.40	0.37	0.33	0.33	0.30	0.32	0.29	0.29
Rainy River	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Renfrew	0.55	0.52	0.47	0.46	0.43	0.46	0.42	0.42
Simcoe	17.84	16.76	15.02	14.68	13.53	14.48	13.14	13.28
Stormont, Dundas and Glengarry	0.08	0.07	0.07	0.07	0.06	0.07	0.06	0.06
Sudbury	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thunder Bay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Timiskaming	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Toronto	115.05	108.74	99.46	98.37	91.37	98.77	89.95	90.67
Waterloo	13.44	13.74	11.83	9.35	13.24	11.61	10.81	10.86
Wellington	5.22	4.94	4.48	4.38	4.07	4.38	3.98	4.02
York	51.59	48.57	43.83	43.23	39.82	42.87	39.13	39.36

Figure 12 Labour dependence of industry: average labour input per unit of output per sector

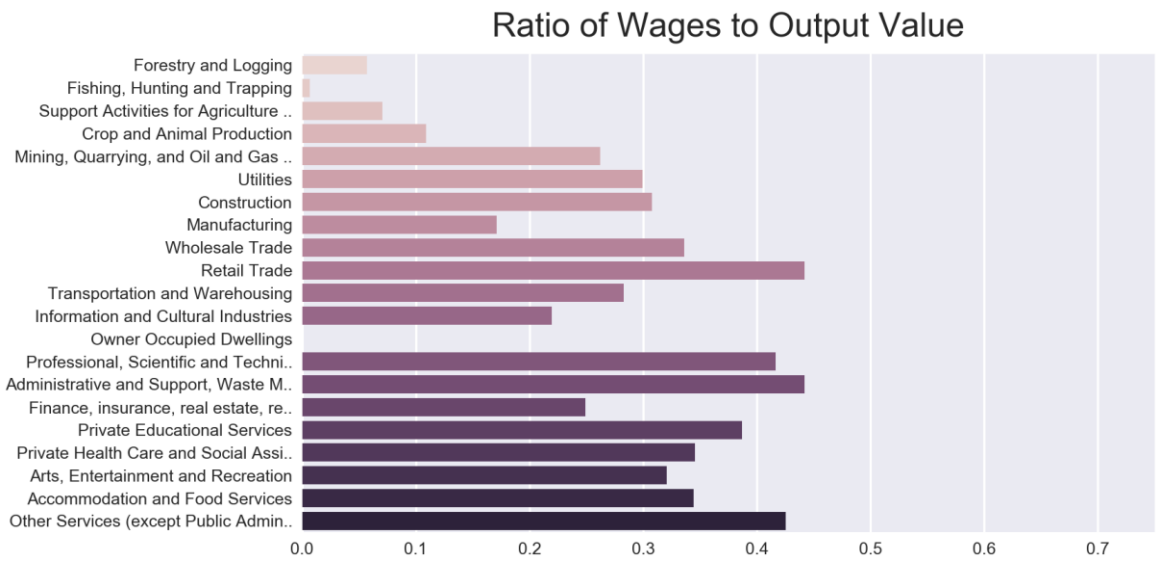


Figure 13 Average household spending on goods and services by sector

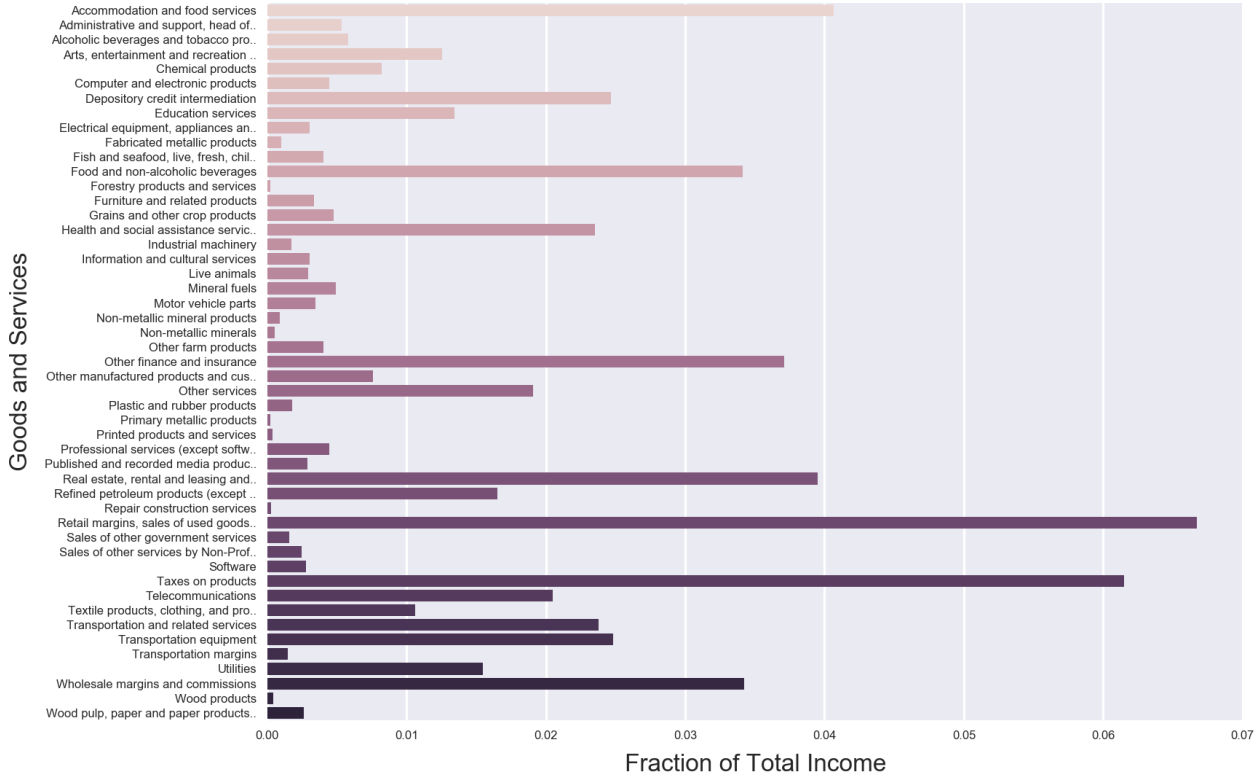
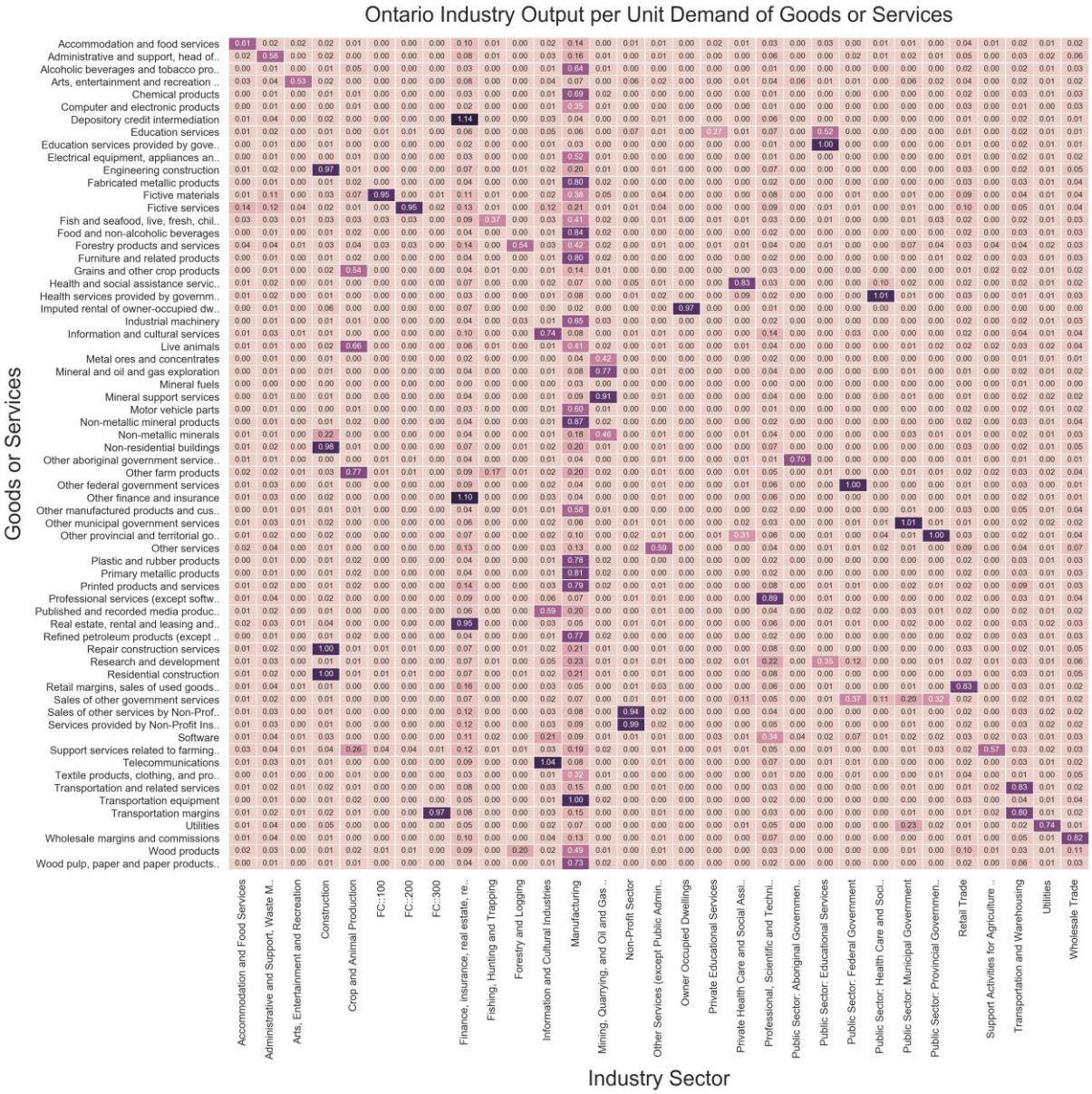
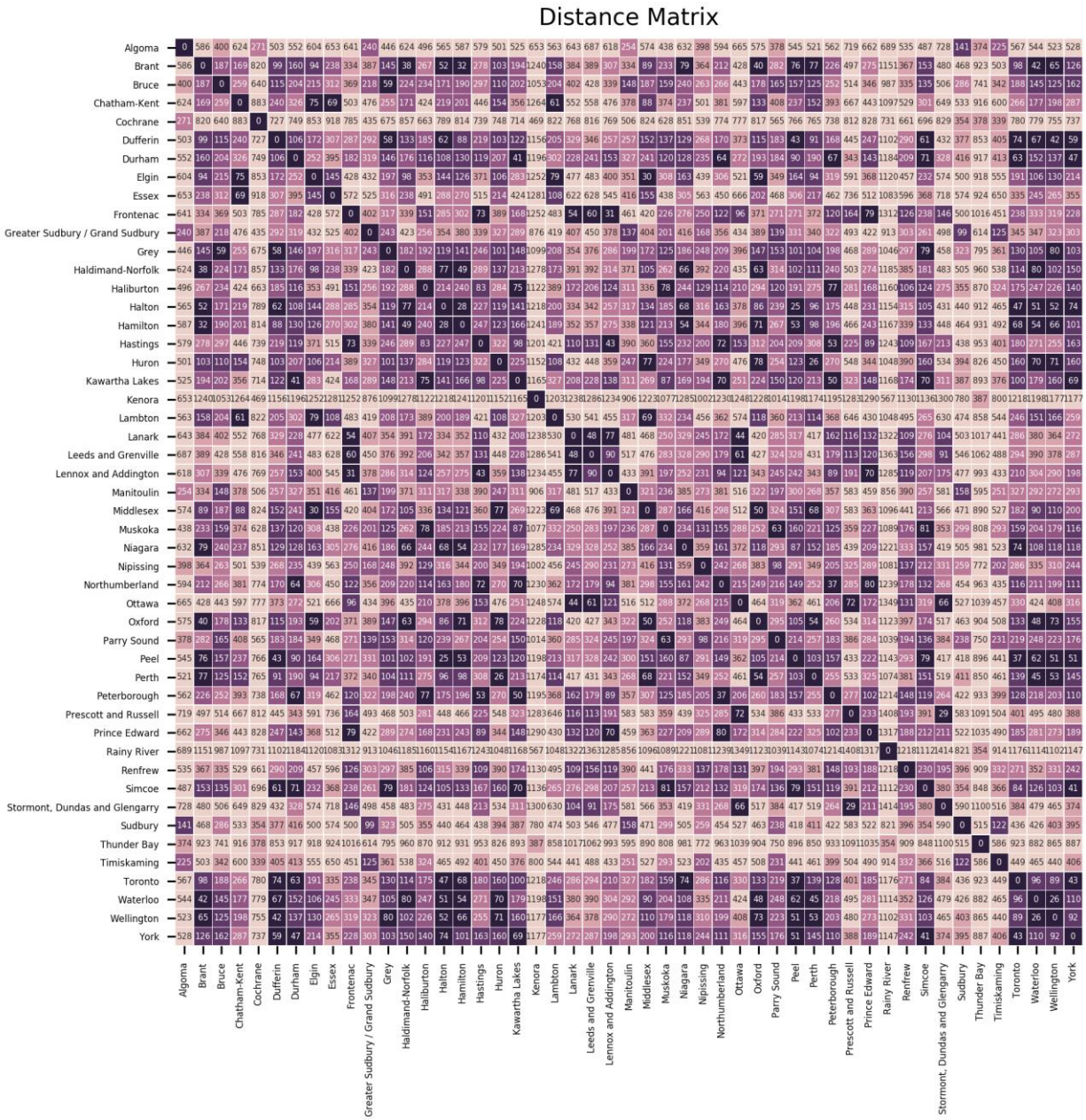


Figure 14 Demand response[4]



[4] To produce one unit of the goods or services (each row), the figure shows how much each industry must produce. Note that imports are not shown in this figure.

Figure 15 Regional proximity[5]



[5] The proximity coefficients influence the diffusion of economic activity across the province. The Darker cells indicate nearby regions with greater likelihood of economic interactions occurring between them.