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Economic Benefits of a Lower Contestable Threshold in the SWIS

Report prepared for ALINTA

KPMG Economics

May 2021

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Lower Contestability Threshold in the SWIS

Economic benefits for Western Australia

7.5% - 12.5%

Reduction in electricity price for eligible connections

24,500

Connections in 20–50 MWh pa range able to access discounted prices

$29.7 m

Potential direct savings on annual electricity costs

$548 m

Present value of potential GSP boost over 15 years

194 jobs

Potential increase in permanent FTE jobs after 5 years

19/20

Industry divisions increase value added & employment

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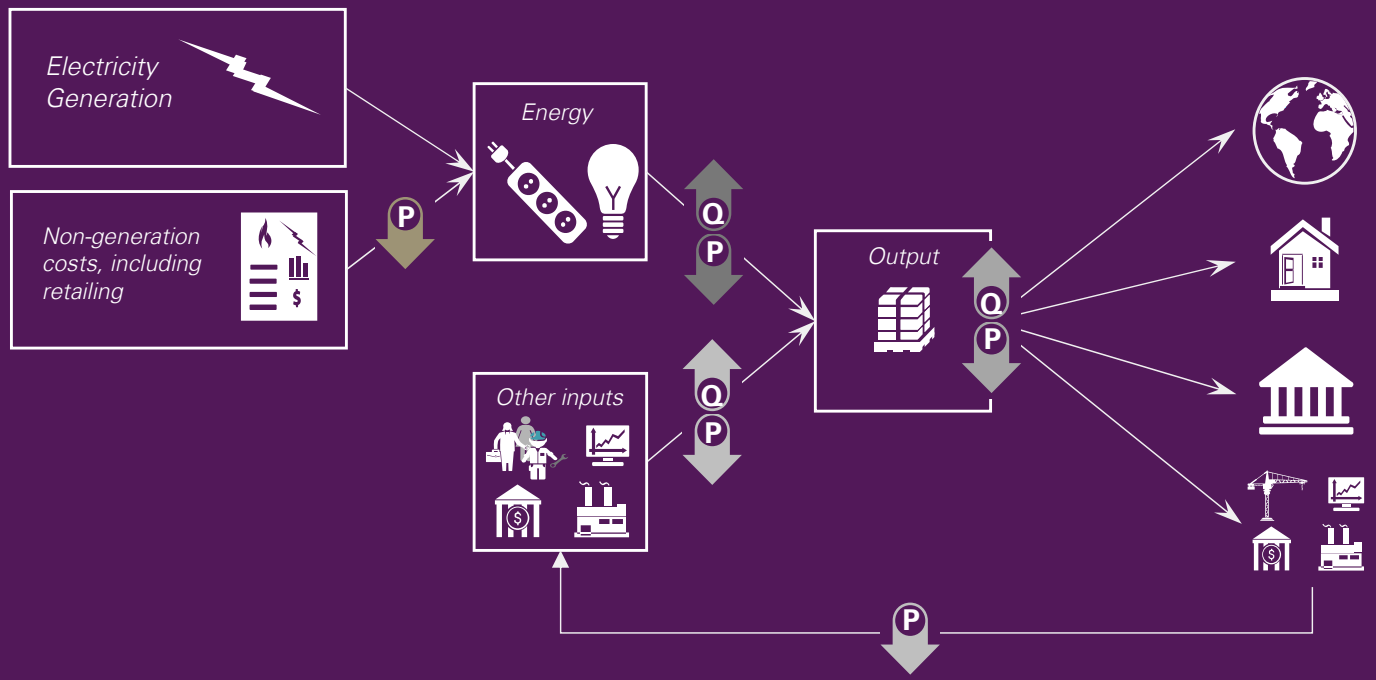
Benefits of a Lower Contestability Threshold in the SWIS



Retail cost of electricity to target customer segment reduced.

Lower costs reduce price of goods & services, boosting competitiveness & sales.

Lower input prices feed back into lower production costs leading to further rounds of benefits.

Contents

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This report has been prepared as outlined in the Introduction Section. The services provided in connection with this engagement comprise an advisory engagement, which is not subject to assurance or other standards issued by the Australian Auditing and Assurance Standards Board and, consequently no opinions or conclusions intended to convey assurance have been expressed.

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Executive Summary

A lower contestability threshold has the potential to unlock significant benefits for electricity customers

Provided that conditions are conducive to the emergence of competition, customers are typically better off with increased contestability. As competition increases, customers benefit from **lower prices** and access to a **more diverse range of products and services**. Retailers become more responsive to customer needs and seek to attract and retain customers by improving service quality and offering discounts and new products. Increased contestability can also stimulate greater awareness by customers with respect to quality, product range and pricing. A more competitive market is also likely to be better placed to facilitate the transformation of the energy industry as it adjusts to the introduction of new technologies, such as batteries and electric vehicles.

Savings of 7.5% - 12.5% on total bill of SWIS customers in the 20MWh – 50MWh zone possible with lower contestability threshold

Evidence from Australian and international precedents suggest potential **annual total electricity bill savings** for SWIS customers in the 20 MWh – 50 MWh segment in the order of **7.5% - 12.5%**. At the lower end of this range potential annual savings are $481 for a 20 MWh customer and $1,127 for a 50 MWh customer. At the upper end of the range potential **annual savings** are **$802** for a **20 MWh** customer and **$1,878** for a **50 MWh** customer. The economic benefits of lowering the contestability threshold depend on the uptake of lower-priced options offered by new retailers and by the incumbent retailer. Evidence from Australia and overseas suggest that over a 5 year period after the change in contestability policy **switching rates** are likely to be high.

Direct and indirect impacts of lower electricity prices provide a boost to the broader WA economy

Electricity prices are important for the broader economy as all households and businesses use electricity directly or indirectly. KPMG-SD, a sophisticated multi-industry model that captures the SWIS region as an integrated component of the Western Australian and national economies, has been used to estimate the broader economic impact of lower electricity prices for SWIS customers in the 20 MWh – 50 MWh usage range. The potential economy-wide benefits are significant:

- in **present value terms real WA GSP** is estimated to be **up to $548 million** higher over a **15 year period**
- 5 years after the contestability threshold is lowered **up to 194 permanent FTE** jobs may be created in the WA economy.

Cost-sensitive industries that compete globally and electricity-intensive industries with a relatively large share of SMEs benefit most

The biggest benefit is recorded by the **Accommodation and Food Services** industry, a relatively intense user of electricity with a relatively large proportion of small businesses in the target usage zone. This industry is also exposed to the cost-sensitive tourism market and to the household sector, which gets a boost. The benefit recorded by the **Mining** industry ranks 2nd in absolute terms but 15th in relative terms reflecting its large size. This export oriented industry is cost sensitive and benefits mainly through lower supply chain costs. The **Manufacturing** industry is relatively electricity intensive and trade-exposed, making it cost-sensitive. It benefits directly and through lower supply chain costs. The **Retail Trade** and the **Transport, Postage and Storage** industries benefit directly from the reduction in the contestability threshold but the main driver of their performance is the overall expansion of the economy.

COVID-19

Overview

The modelling presented in this report was completed before the COVID-19 pandemic resulted in disruption to the Western Australian, Australian and global economies. KPMG has not re-done the modelling of a lower contestability threshold for the SWIS to account for the potential implications of the COVID-19 pandemic.

The modelling in this report is focused on the longer term economic impacts of the proposed lowering of the contestability threshold in the SWIS. This is the appropriate time-frame for considering a policy proposal that is designed to be permanent.

The economic impacts of COVID-19 are ongoing and it will take some time before the full effects, including the policy responses by governments and the behavioural responses by businesses and households play out. Over the course of the past year the COVID-19 pandemic has resulted in:

- reduced economic activity with higher levels of unemployed and under-employed workers and productive capacity;
- large and extensive government support policies designed to cushion the economic fall-out of the crisis; and
- changes in behaviour, particularly in relation to work arrangements.

The list above is not meant to be complete or definitive. Sectors of the economy, such as resources, have fared much better than others, such as those dependent on domestic and international tourism. Fiscal and monetary policy responses, together with increased savings by households constrained by lockdowns and travel restrictions, have boosted the housing market and the stock market to record levels.

The commencement of mass vaccination programs around the globe has underpinned confidence that the health implications of the COVID-19 virus can now be managed without resorting to extreme lock-down measures and shutting down international borders. This means that governments and the private sector will increasingly focus on the medium-to-long term economic recovery phase. This will be a global phenomenon and Western Australian businesses will be operating in an economic environment that provides opportunities and challenges. The opportunities will come from the rebound in economic activity in the rest of Australia and overseas. The challenges will come from interstate and international businesses with spare productive capacity that will compete vigorously for access to new markets.

In such an environment a policy that decreases the price of electricity will be even more beneficial to the economy than the same policy implemented in an environment where the domestic and global economy are more robust and there is less spare capacity. Moreover, the prospect of a competitiveness boost in the medium to longer term through lower energy costs will help underpin business confidence. This is important for businesses that are currently under stress as it may help management justify continuing operations and retaining workers on the payroll in anticipation of better conditions in the future.

The West Australian economy has been resilient in the face of the COVID-19 crisis, underpinned by exemplary management of the health dimensions of the pandemic, highly effective state and federal government policies to support the economy and a favourable industrial structure. The West Australian unemployment rate is now back to its pre-pandemic levels, exports have grown strongly and domestic demand has recovered so that by the December quarter of 2020 it was more than 1% higher than in the December quarter of 2019.

Potential implications for the modelling results in this report

The results presented in this report remain valid. Given the timing of the policy reform it is likely that the West Australian economy will be operating at the levels we assumed in the no-reform baseline used in the modelling. If the economic recovery falters in West Australia and the rest of the world then the economic benefits of the lower contestability threshold presented in this report may be on the conservative side because it will mean that there is more excess capacity in the economy than we are assuming so that any competitiveness boost to West Australian businesses will have a bigger positive impact.

We note that a lasting economic legacy of the COVID-19 pandemic may be to permanently alter the structure of the economy, including accelerated adoption of new technologies and adoption of different work practices. This may have flow-on impacts on many aspects of the economy such as the demand for office and retail space, freight and passenger transport services, online service delivery and supply chain security. By altering the industrial structure of the economy such changes may impact energy usage in ways that are not contemplated in the modelling in this report, both for the baseline and the contestability reform scenarios.

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Introduction

Context and Overview

Context

The SWIS is the biggest electricity network in Western Australia. The figure opposite shows that the boundary of the SWIS extends to Kalbarri to the north, Albany to the south and Kalgoorlie to the east. Electricity customers within the South West Interconnected System (SWIS) can be divided into two general categories:

- **non-contestable** customers use 50 MWh of electricity or less during a year; and
- **contestable** customers use more than 50 MWh of electricity or less during a year.

Under the Electricity Corporations Act 2005 (WA), Synergy is the only electricity retailer that can supply electricity to the non-contestable electricity market within the SWIS. There are no restrictions on retailers supplying electricity to the contestable customers, which provides them with choice.

Increased contestability in the electricity retail market has the potential to encourage retailers to be more responsive to customers and more innovative in their product and service offerings. Customers benefit by getting access to a more diverse range of products and services as well as materially lower prices. A more competitive market is also likely to be better placed to facilitate the transformation of the energy industry as it adjusts to the introduction of new technologies, such as batteries and electric vehicles.

With increased competition customers in the SWIS could benefit by switching to a new retailer or gaining access to a better deal from their incumbent supplier. The focus of this study is to quantify the economic impact of lowering the contestable customer threshold within the SWIS from 50 MWh to 20 MWh per annum.

The analysis presented in this report is organised in two parts:

i. **Market Analysis** – focused on estimating the potential impact of increased contestability on the price of electricity to customers within the SWIS that use between 20 MWh and 50 MWh of electricity per annum; and

ii. **Economy-wide Analysis** – focused on estimating the broader economic impacts of the price reductions determined in Pricing Analysis on the SWIS economy.

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Pricing Analysis

Market Analysis

Overview of KPMG's approach

In this section we consider the potential impact of increased contestability on the price of electricity to customers within the SWIS that use between 20 MWh and 50 MWh of electricity per annum.[1] There are two components to this analysis:

- The potential magnitude of the **total bill reduction** resulting from lowering the contestability threshold; and
- The **switching rate** of those customers in the 20 MWh and 50 MWh band that would either:
  a) exit their current contract with Synergy and enter into a retail contract with a new entrant at the estimated lower prices; or
  b) benefit from a lower price offer from Synergy in response to the competition under the lower threshold.

Increased contestability will change the dynamics of the retail electricity market as retailers and customers adjust their behaviours. As the market develops and retailers test different products and services there is likely to be volatility in relation to price offers, switching behaviour and customer impacts. The approach taken here is to abstract from this volatility in the transition period and focus on developing reasonable estimates of where the market could transition to and stabilise.

A credible threat of new entry is likely to spur the incumbent to offer better quality products and services at a price reflecting cost, in an effort to maintain market share. However, competition will be inhibited to the extent that the incumbent retailer has advantages over new entrants, which can act as barriers to entry. These advantages include branding (where that brand is seen as positive and attracts trust and loyalty); or favourable treatment (such as continuing subsidies). In addition, customers may perceive that the incumbent is responsible for all aspects of the supply of electricity and that there is a greater risk of interrupted supply with new retailers.

It is important to note that it is beyond the scope of this analysis for KPMG to provide explicit forecasts of electricity retail prices in the SWIS. This is an extremely difficult task requiring a system-wide framework that captures the interplay of many variable, including the regulatory framework applicable to the market. KPMG's approach is to provide a range of estimates for the potential impact of lowering the contestability threshold on market outcomes for electricity customers in the SWIS. The estimates that we derive are based on evidence drawn from Australian and international precedents.

The remainder of this section is organised around the following topics:

- analysis of the total bill reductions;
- relevant precedents; and
- proposed assumptions for switching rates.

Key assumptions relating to electricity bill impacts

Customer tariff is the amount charged for providing energy under a contract. It includes both fixed ($ per day) and variable ($ per MWh) charges. While price offers are often expressed as discounts on the variable charge, the economic modelling exercise is based on the total cost of electricity to customers. For this reason we focus on **changes to total bills** and not just to changes to variable charges.

Experience in other electricity markets suggests that reductions in prices following introduction of retail contestability can vary over time as the market adjusts to the new regime. A working assumption is that a five year transition period is reasonable for the market to reach a new equilibrium following the introduction of competition.

We consider three bill change scenarios. In each scenario a single tariff change is assumed to be available to all customers in the 20MWh – 50MWh band around 5 years after the contestability threshold is lowered. The total bill change scenarios are:

- Scenario 1: **7.5%** reduction
- Scenario 2: **10.0%** reduction
- Scenario 3: **12.5%** reduction

The estimated price reductions in these scenarios are based on evidence drawn from:

- publicly available information on the WA retail market and Synergy costs; and
- Australian and international precedents.

All other cost components relevant to the retail price are assumed to be unaffected by the increase in contestability and remain constant in the modelling period.

1. The relevant customer base will be almost exclusively businesses as annual electricity usage above 20 MWh generally represents a commercial load.

Market Analysis

Secondary impacts

Lowering the contestable customer threshold within the SWIS from 50 MWh to 20 MWh per annum could have knock-on effects to customers groups, including:

- Customers over 50 MWh may also benefit from lower prices as the change in competition dynamics instigated by the lower contestability threshold may lead to increased competition across the market; and
- Customers under 20 MWh may face higher prices if Synergy (or the Government) attempts to off-set an reduction in revenues resulting from the lower threshold.

These secondary impacts are not included in the market analysis and economic modelling.

Other benefits from a lower contestability threshold

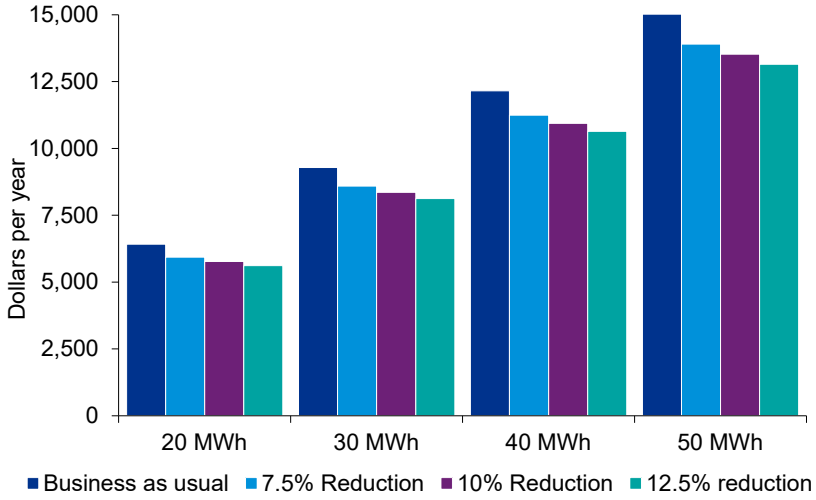
In addition to price movements, increasing the scope of contestability may also have other beneficial impacts on the market, including promoting greater liquidity in the wholesale market, encouraging the development of innovative products and services, and developing greater customer awareness. These benefits are difficult to quantify and will evolve over time as new entrants and the incumbent retailer respond and adapt their behaviour.

Estimated range of total electricity bill reductions

The estimated annual total electricity bill savings for customers in the 20 MWh – 50 MWh range are reported in the table below. The adjacent chart compares the estimated total electricity bill for SWIS customers in the impacted range under the current regime (Business as usual) and under the three scenarios associated with the lower contestability threshold.

	Consumer Savings Per Year ($)			
	20 MWh	30 MWh	40 MWh	50 MWh
Total Bill	6,415	9,285	12,156	15,027
Reduction				
7.5%	481	696	912	1,127
10%	641	929	1,216	1,503
12.5%	802	1,161	1,519	1,878

Estimated total bill reductions under three scenarios



Evidence from precedents

The Independent Pricing and Regulatory Tribunal (IPART) estimated that the deregulation of the NSW electricity market in 2014 resulted in the average annual electricity bill of a residential customer falling by about 5% in real terms by 2017-18.[1] In New Zealand reforms introduced in 1994 appear to have reduced the real price of electricity to commercial customers by about 25%.[2] In Great Britain electricity bills for 3,800kWh customers fell by about 6% in real terms in the first 5 years after deregulation was introduced in 1999.[3] In Texas the retail electricity market was deregulated in 2002. Abstracting from the temporary disruption to the market caused by major natural disasters, electricity prices in Texas have fallen by over 30% since deregulation and remain well below the national average.[4]

This evidence suggests that the range of price reductions in the three scenarios for the SWIS market modelled in this study are reasonable.

1. IPART, Review of the performance and competitiveness of the retail electricity market on NSW, November 2017.
2. Based on data published by the NZ ministry of Economic Development.
3. Based on data published by the UK Department for Business, Energy and Industrial Strategy.
4. Based on data published by the Public Utility Commission of Texas.

Market Analysis

Switching rates

While the potential bill changes discussed in the previous section might be available to all SWIS customers within the 20 MWh – 50 MWh range, the economic impact of the decrease in the contestability threshold depends on how many customers actually access these lower electricity prices. Among other things the uptake of lower-priced electricity contracts will depend on customer awareness, time constraints, preferences and any loyalty to the existing suppliers.

For this modelling exercise we define the switching rate to include any customer that gets access to the estimated lower electricity prices by contracting with a new entrant to the target segment of the retail market or by renegotiating their existing contract with Synergy.

Switching is an important indicator of customer participation in the market. A low switching rate is likely to reflect a lack of effective competition, perhaps because there are significant barriers to entry for new retailers. Furthermore, if customers are not active in the market then there is less incentive for retailers to innovate by developing new product and service offerings, or by adopting new technologies. In the residential sector, switching rates after the introduction of retail contestability tend to move between 10% to 20%. However, evidence from the Australian and international market suggests that Commercial, Industrial and Small, Medium Enterprise (SME) customers have a much higher uptake.

For the economic modelling we focus on a switching rate of 100% to provide an estimate of the upper bound of the total potential benefits to the economy under this policy reform. We note that the total bill reduction estimates discussed in the previous section are material and are expected to encourage high switching rates.

Although the switching rate is expected to vary across different users (e.g., businesses in different industries) we have abstracted from these complexities by assuming that all customers in the 20 MWh – 50 MWh range have strong incentives to access cheaper energy irrespective of the energy-intensity of their activities or the magnitude of their electricity bill.

Although the size of the market that will be opened up by lowering the contestability threshold to 20 MWh in the SWIS is moderate in size, precedents in other markets suggest this is unlikely to be a significant barrier to entry for new retailers into this segment of the market. The SWIS market is similar in size to the South East Queensland market. Retailers currently operating in the contestable segment of the SWIS market and retailers not currently operating in the SWIS are unlikely to be constrained from entering the market as long as there is reasonable access to the wholesale market.

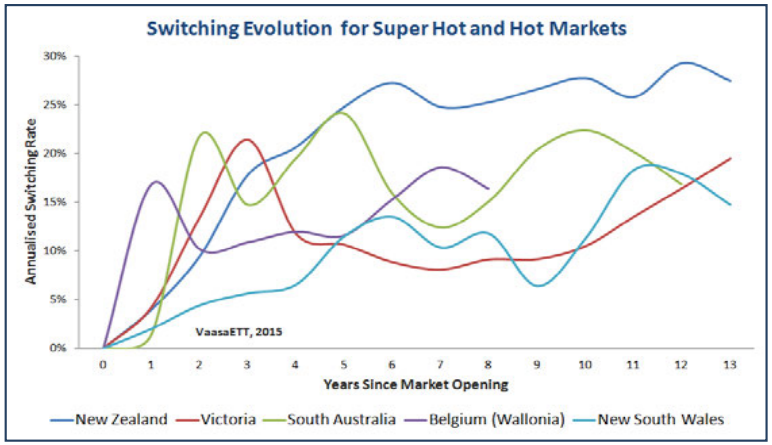
There are two potential sets of barriers to eligible SWIS customers switching retailer:

- **Poor customer motivation**: including a perception of insufficient monetary gain, a complex switching process, or a lack of trust in alternative suppliers; and
- **Contractual terms locking in customers**: commercial contract conditions such as unjustified termination fees and value-added services can lead to customer "lock-in" because switching retailer is costly to the customer.

Governments have the ability to influence both of these barriers through appropriate regulation, implementing effective retail market arrangements and information provision. The regulated timeframes for switching can be a key factor as well and widespread deployment of smart meters will substantially speed up this process, as a final meter read can be performed remotely rather than incurring the costs of a site visit. Systems and processes that support switching also need to be accurate. Any errors in the switching process could lead to a negative experience for customers.

Evidence from precedents

The chart below shows how the annualised switching rate evolves over time in a number of markets following the introduction of retail competition. The switching rate tends to jump sharply in the first few years before stabilising at a level between about 10% and 25%. Additional evidence on switching rates is summarised in Appendix A.



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Economy-wide Analysis

Economy-wide Analysis

Overview

The previous sections focused on the direct benefits that will be potentially available to SWIS customers in the 20 MWh – 50 MWh segment following the lowering of the contestability threshold to 20 MWh. The direct customer benefits were measured in terms of lower total electricity bills. SWIS customers using between 20 MWh – 50 MWh of electricity per annum are likely to be predominantly small to medium sized businesses. Lower electricity costs for these businesses will potentially result in significant flow-on benefits for the broader economy.

Electricity prices are important for the broader economy as all households and businesses use electricity directly or indirectly. Even if households and particular businesses do not benefit directly from lowering the contestability threshold in the SWIS it is important to recognise that they use electricity indirectly through purchases of goods and services produced using inputs of electricity. In competitive markets decreases in electricity prices flow through to lower prices for goods and services, meaning that household budgets are freed up making it possible to buy more goods and services. Apart from increased sales to households businesses benefit from an increase in competitiveness. This occurs directly, through lower electricity costs, and indirectly through lower cost of produced inputs that they purchase from other businesses that benefit directly from electricity cost reductions. This improvement in competitiveness means that businesses are better able to compete for export sales in interstate and international markets and to compete against import competition from interstate and overseas businesses.

In this section we estimate the economy-wide impacts of reducing the contestability threshold in the SWIS with the aid of KPMG-SD, a proprietary multi-industry regional Computable General Equilibrium (CGE) model. An overview of KPMG-SD and how it was tailored for this analysis is provided in Appendix A. The electricity price reductions estimated in the previous section, which reflect the direct impact of lowering of the contestability threshold, are used as inputs into KPMG-SD. The model then estimates the indirect (or flow-on) effects of the electricity price reductions.

In the following sections we describe: (i) the delineation of the SWIS region in KPMG-SD; (ii) how the direct electricity price reductions estimated in the market analysis are imposed in KPMG-SD; and (iii) the estimated economy-wide consequences of lowering of the threshold for contestability.

Delineation of the SWIS as an economic region in KPMG-SD

In its standard form KPMG-SD uses the Statistical Area Level 4 (SA4) geographical areas, as defined in the Australian Statistical Geography Standard (ASGS) by the Australian Bureau of Statistics, to delineate regional economies. Electricity users that will be directly impacted by the proposed change to the contestability thresholds are located in the region covered by the SWIS. The SWIS covers a large portion of south-west Western Australia and spans 9 of the 10 SA4 regions that make up Western Australia. To model the proposed policy change we have used available data at a finer level of spatial disaggregation (SA2 level) to delineate an economic region in Western Australia that coincides as closely as possible to the SWIS region. This allows us to configure KPMG-SD so that the Australian economy is represented by 3 regions: the SWIS region, the Rest of Western Australia (RoWA) and the Rest of Australia (RoA). More details about the spatial aggregation in KPMG-SD are provided in Appendix A.

Simulation approach

An application of KPMG-SD involves simulation of two scenarios. The first scenario establishes base line projections for the SWIS, Western Australian and Australian economies that reflect our best estimates of how these economies will evolve in the absence of a change to the contestability threshold in the SWIS. The second (policy) scenario introduces shocks to electricity prices in the base line that capture the direct impacts of the reduction in the contestability threshold in the SWIS. The economic impacts of the reduction in the contestability threshold in the SWIS are then quantified as the differences in the values of variables in the policy and base line scenarios.

The scenarios that we simulate relate to a representative year in the future (e.g., 2025) allowing sufficient time for the policy to be implemented and the full direct impacts to flow to businesses.

The base case scenario that we are using is designed to represent the size and structure of the economy in 2024-25 in the absence of the lower contestability threshold. The electricity price shocks determined in the market analysis are used to develop scenarios that are simulated to quantify the impact of the lower contestability threshold on the size and structure of the economy.

Economy-wide Analysis

Mapping electricity price shocks into the model

In KPMG-SD the production side of the economy is represented by industries as classified by the ABS in the input-output database. The electricity price impacts estimated in the market analysis relate mainly to businesses that use between 20MWh and 50MWh of electricity per annum. KPMG-SD does not distinguish businesses within an industry category. For example, the model captures an aggregate transaction showing the *Manufacturing* industry's purchases of electricity. On the other side of this transaction the output of the *Electricity Generation* industry is combined in fixed proportions with the output of the *Electricity Transmission, Distribution, On Selling and Electricity Market Operation* industry to supply the electricity used by the *Manufacturing* industry. The model does not distinguish between big and small businesses or different electricity products offered. The estimated electricity price reductions must be applied only to the portion of each industry accounted for by businesses that use between 20MWh and 50MWh of electricity per annum. Since such information is not publicly available we use data on the number of Western Australian businesses in each industry that fall into different revenue categories to calculate industry-specific electricity price shocks (see Appendix A). The last column in the table below summarises the direct annual electricity cost reductions to the economy under each scenario. For example, in the scenario where electricity prices to businesses in the 20MWh – 50MWh category are assumed to fall by 12.5% the annual total direct cost savings to the economy are estimated to be just under $29.7 million in 2020-21 prices.[1,2]

	20-30MWh	30-40MWh	40-50MWh	**20-50MWh**
Eligible Connections	13,553 (55%)	6,255 (26%)	4,691 (19%)	**24,500 (100%)**
Price reduction	**Savings**			
7.50%	$7,979,268	$5,029,297	$4,781,738	**$17,790,303**
10.00%	$10,639,024	$6,705,729	$6,375,651	**$23,720,405**
12.50%	$13,298,780	$8,382,162	$7,969,564	**$29,650,506**

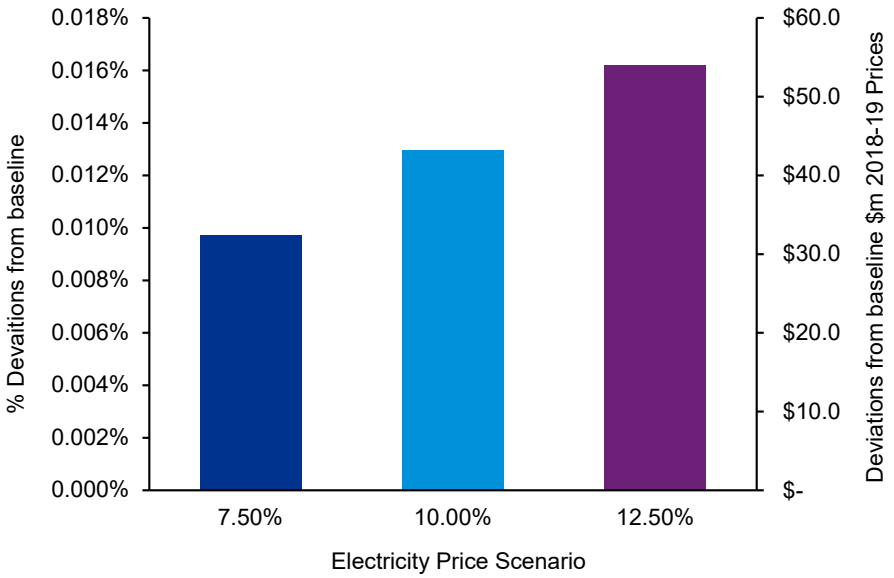
1. These are recurring annual cost savings. The number of eligible connections is expected to grow in line with the economy as is the annual cost savings to the economy.
2. As mentioned earlier we have assumed the switching rate is 100% for the modelling exercise. Thus, the simulation results represent an upper bound on the potential benefits to the economy from this reform. The impact of alternative switching assumptions can be reasonably deduced by scaling the results (e.g., by 0.8 for an 80% switching scenario).

Simulation results - GSP

The headline results for Western Australian GSP are presented in the chart below. The results show for each scenario the percentage increment to real annual WA GSP in 2024-25 and beyond. For example, with real GSP in 2024-25 projected to be $333 billion in 2018-19 dollars in the baseline, (with no change to the contestability threshold) a 0.016% deviation in real GSP means that GSP will be about $54 million higher in that year due to the lowering of the contestability threshold.

The benefits to the economy of the reductions in electricity prices are permanent. That is, each year in the future the economy is bigger than it otherwise would have been if the contestability thresholds had not been lowered. The percentage deviations are useful in this context because they are independent of the level of GSP. As the size of the WA economy grows over time in real terms the absolute size of the benefit from the electricity price reductions increases.

Increment to real WA GSP in a typical year (2024-25): deviations from baseline



Economy-wide Analysis

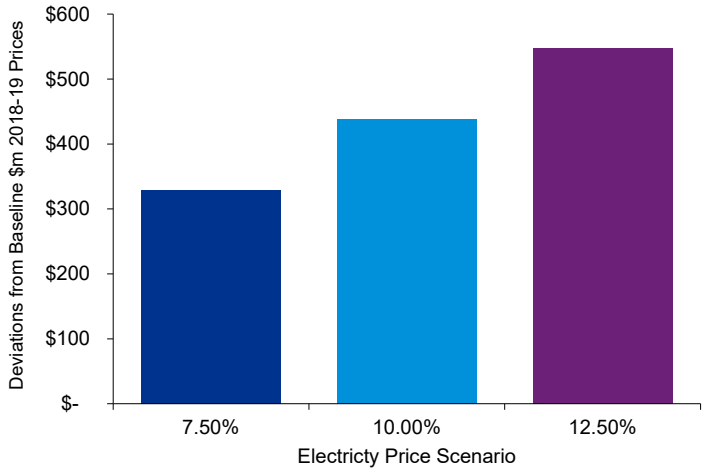
Simulation results - GSP (cont.)

The boost to real WA GSP is ongoing. That is, in 2024-25 and all subsequent years, real WA GSP is higher in the scenarios where contestability is increased than in the baseline. To provide an estimate of the longer term benefits to the WA economy of lowering the contestability threshold we calculate the present value of the increments in real GSP projected over a 15 year horizon starting in 2021-22 using an annual discount rate of 5%. We have assumed that the benefits of the lower contestability threshold ramp up gradually over 5 years until they level out in 2024-25. The present values of the real GSP increments accruing under each scenario are presented in the chart below.

The present value of the real GSP increments accruing under each scenario over the 15 year horizon from 2021-22 to 2035-36 are:

- **$329 million** for the 7.5% scenario;
- **$439 million** for the 10% scenario; and
- **$548 million** for the 12.5% scenario.

Present value of increments to real WA GSP – 2021-22 to 2035-36



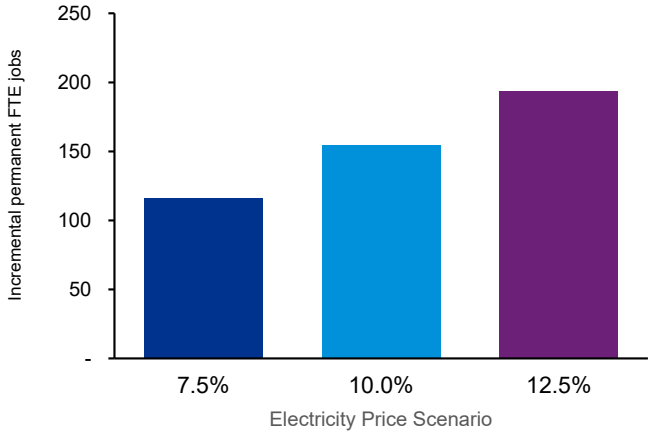
Simulation results – FTE jobs

The boost to the economy driven by lower electricity prices is also reflected in an uplift in the number of FTE jobs in the WA economy. The chart below shows the increment relative to the baseline in the number of FTE jobs for each electricity-price reduction scenario. It is important to note that these incremental jobs are permanent.

As shown in the chart below the increments in permanent FTE jobs in 2024-25 in each scenario are:

- **116 FTE jobs** for the 7.5% scenario;
- **155 FTE jobs** for the 10% scenario; and
- **194 FTE jobs** for the 12.5% scenario.

Uplift in permanent FTE jobs in 2024-25

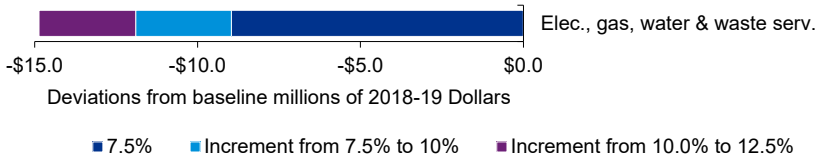


Economy-wide Analysis

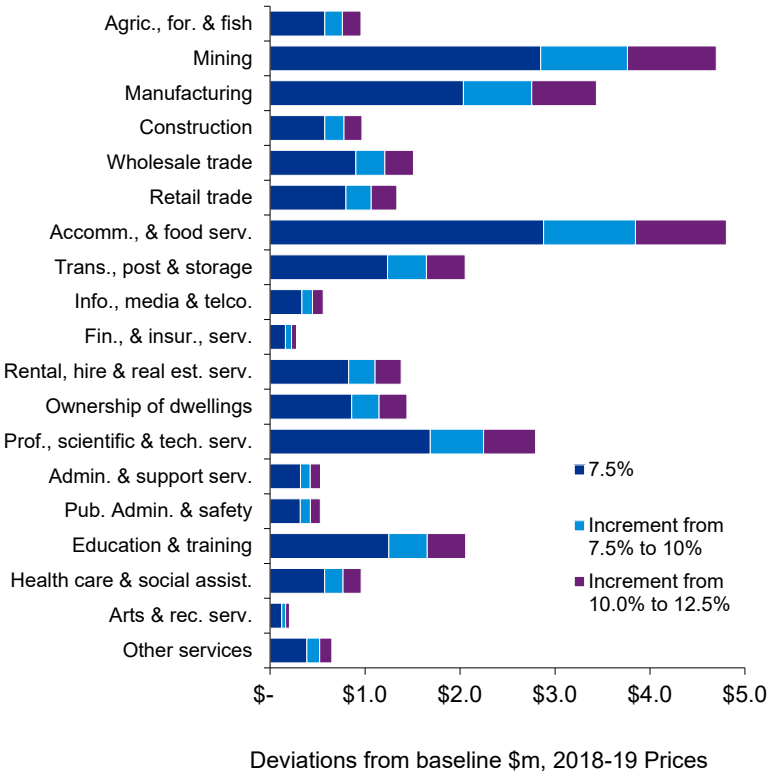
Simulation results – industry value added

In the following charts we show how value added at the industry level is impacted (relative to the baseline) in each scenario. A key result is that value added is transferred from the sector that contains the *Electricity Transmission, Distribution, On Selling and Electricity Market Operation* industry (see chart below) to other sectors in the economy. The chart on the right shows that the sectors that benefit most are: *Accommodation and Food Services*, *Manufacturing*, *Mining* and *Professional, Scientific and Technical services*. Some of these have relatively high electricity intensity and a relatively high share of businesses in the target zone (e.g., *Accommodation and Food Services*) others have relatively high electricity intensity coupled with a low share of businesses in the target zone but are highly cost-sensitive (e.g., *Manufacturing*).

Increment to real value added in 2024-25 for *Electricity, Gas & Water* industry



Increment to real value added in 2024-25 for industries that gain



KPMG

Appendices

Appendix A - Switching Rates

The tables below summarise evidence of switching behaviour by small businesses reported by Colmar Brunton.[1] In 2019 63% of business consumers[2] reported they had switched electricity provider and plan in the last 5 years, down from 70% in 2018 but still well above 2014-2017 range of 44% to 53%. The subsequent table shows that switching rates vary significantly across regions and time.

Colmar Brunton's analysis also indicated that a large number of businesses actively choose their electricity contract or plan – ranging from 66% in 2019 to 80% in 2017. Those business consumers that reported switching energy provider or plan within the past 5 years were generally satisfied with the outcome, with 76% agreeing that their confidence in switching was driven by sufficient and transparent information regarding alternative offers.

This result suggests that customers that can navigate the market and switch, do so relatively easily. This reinforces the importance of efficient information provision and engagement with consumers. When it occurs correctly, it facilitates switching that is more likely to result in improved outcomes for consumers.

	Rates of switching in the last 5 years		
	Electricity company	Electricity plan	Electricity company & plan
2014	38%	35%	51%
2015	38%	33%	50%
2016	34%	23%	43%
2017	37%	29%	45%
2018	54%	41%	70%
2019	48%	31%	63%

	Rates of switching in the last 5 years									
	VIC		NSW		ACT		SA		SEQ	
	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
Electricity company	60%	60%	59%	46%	23%	36%	43%	46%	50%	31%
Electricity plan	40%	23%	51%	37%	28%	32%	26%	33%	40%	32%
Electricity company & plan	74%	64%	76%	67%	39%	47%	52%	59%	71%	53%

Evidence from precedents -overseas

Data reported by the New Zealand Electricity Authority for 2018 shows that the 5 year year switching rates for SMEs and Commercial customers ranges from 75% - 85% depending on location. Switching rates for Industrial customers were closer to 50%.

For Great Britain Ofgem reported that 67% of micro and small businesses have switched supplier at least once in the past 5 years, while over half (56%) have switched tariff but stayed with the same supplier. Just over 80% of micro and small businesses have switched supplier or tariff at least once in the past 5 years.

In its 2017 Scope of Competition in Electric Markets in Texas, the Public Utility Commission of Texas reported that 92% of all customers have exercised their ability to switch retailers since the market opening in 2002. The figure below depicts the percentage of customers in each customer class who have switched retailers at least once since 2002.

1. In the context of the *2019 Retail Competition Review* Colmar Brunton were commissioned by AEMC to provide an overview of small business consumers and their behaviour in the National Electricity Market.
2. Defined by a consumption threshold that varies between regions, ranging from 40 MWh to 160 MWh per annum.

Appendix B - Overview of KPMG-SD

Theoretical structure

KPMG-SD is a detailed Computable General Equilibrium (CGE) model that disaggregates the Australian economy into regional economies. The regional disaggregation of the Australian economy is typically based on the Statistical Area Level 4 geographical areas defined in the Australian Statistical Geography Standard (ASGS) by the Australian Bureau of Statistics (ABS). The industrial structure of each regional economy within KPMG-SD can be represented by up to 114 sectors based on the IOIG classification used by the ABS to produce input-output tables. Primary factors are distinguished by 114 types of capital (one type per industry), up to 348 occupations, land, and natural resource endowments (one per industry).

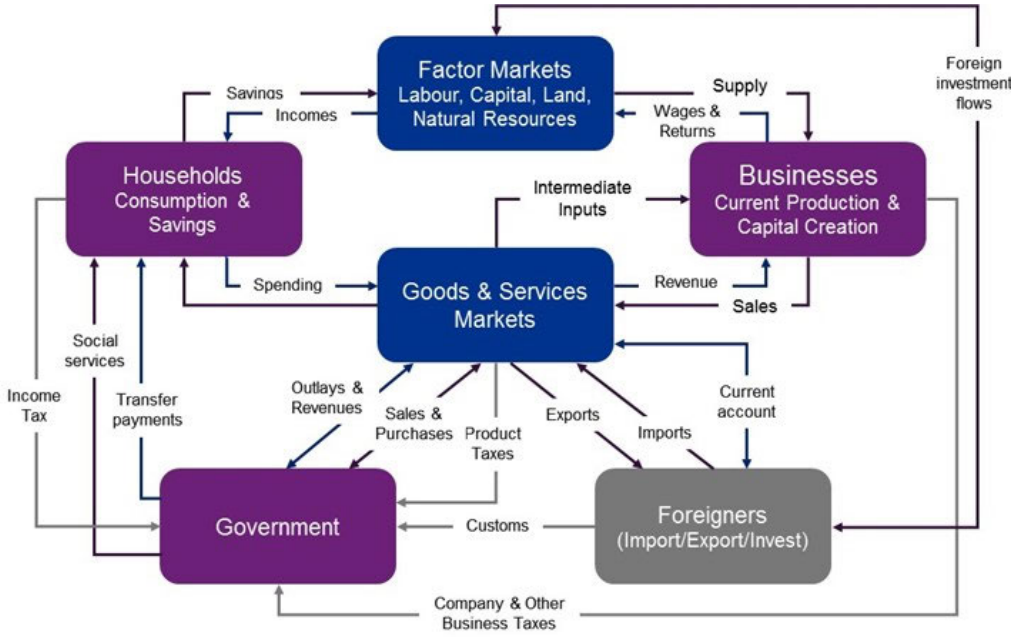
For this assignment KPMG-SD will be configured so that the Australian economy is disaggregated into 3 integrated regional economies: (i) a region that matches the geographic reach of the SWIS as closely as ABS regional data permits; (ii) the rest of Western Australia (RoWA) economy; and (iii) the Rest of Australia (RoA). The industrial structure of each region will be aggregated to around 20 sectors (ANZSIC divisions) and the occupational structure will be aggregated to 8 occupations (ANZSCO major groups).

KPMG-SD models the economy as a system of interrelated economic agents operating in competitive markets. The adjacent figure provides a stylised representation of the types of relationships that are captured in KPMG-SD. Economic theory is used to specify the behaviour and market interactions of economic agents, including consumers, investors, producers and governments operating in domestic and foreign goods, capital and labour markets. Defining features of the theoretical structure of KPMG-SD include:

- Optimising behaviour by households and businesses in the context of competitive markets with explicit resource constraints and budget constraints.
- The price mechanism operates to clear markets for goods and factors such as labour and capital (i.e. prices adjust so that supply equals demand); and
- At the margin, costs are equal to revenues in all economic activities.

The key data inputs used by KPMG-SD are based on the input-output (IO) table published by the ABS which quantifies the flows of goods and services between producers and various users (e.g., intermediate inputs to other producers, inputs to capital creators, households, governments and foreigners) and the flows associated with primary factor inputs (i.e., labour, capital, land and natural resources). Regional detail is provided by the State Accounts and other regional data published by the ABS (e.g., labour force survey and census data).

The outputs that KPMG-SD will generate that are important for this engagement include Gross State Product (GRP), employment and value added at the broad industry level.



Appendix C - SWIS Economic Region

Delineation of the SWIS as an economic region in KPMG-SD

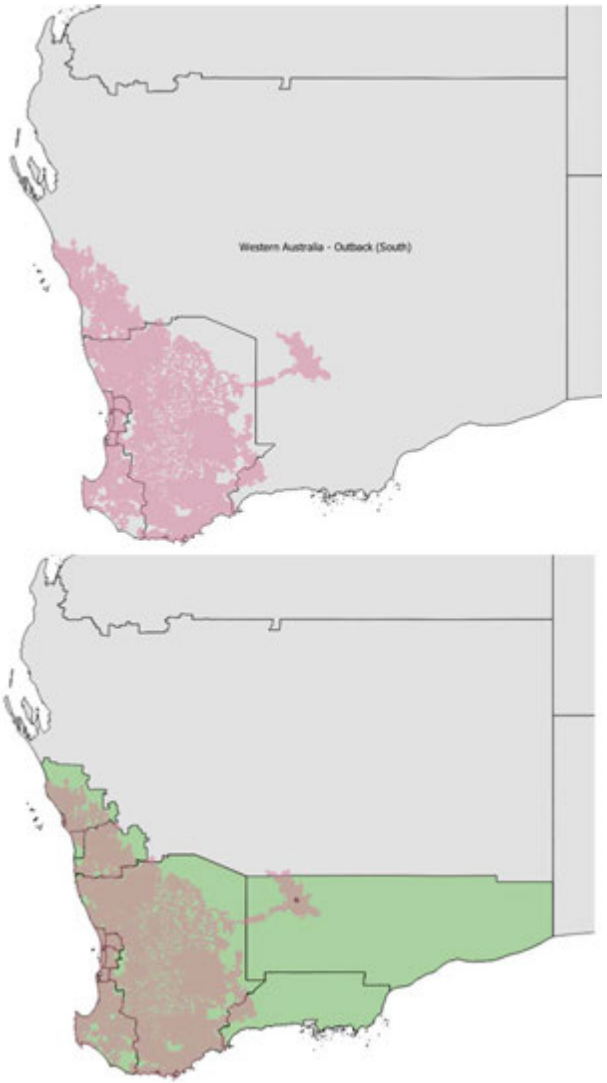
In its standard form KPMG-SD uses the Statistical Area Level 4 (SA4) geographical areas, as defined in the Australian Statistical Geography Standard (ASGS) by the Australian Bureau of Statistics, to delineate regional economies. Electricity users that will be directly impacted by the proposed change to the contestability thresholds are located in the region covered by the SWIS. To model this proposed change we need to delineate an economic region in Western Australia that coincides as closely as possible to the region covered by the SWIS.

The SWIS covers a large portion of south-west Western Australia and spans 9 of the 10 SA4 regions that make up Western Australia. The top map on the right shows that most of the SWIS lies within 8 of the 9 SA4s in the southern half of Western Australia but significant parts of the SWIS in the north and west lie in the geographically large Western Australia – Outback (South) SA4.

Availability of relevant data meant that the closest we could get to delineating a region that matched the SWIS was through aggregation of Statistical Area Level 2 (SA2) geographical areas. The green-shaded area in bottom map on the right shows the closest we can approximate the SWIS catchment using SA2 areas. It is evident that the SWIS region that we have delineated covers area in the west and south west of Western Australia that is not serviced by the SWIS. This regional approximation is unlikely to distort our results significantly and, in so far as it does, will be less so than would be the case if we used SA4 to approximate the SWIS region.

The table below lists the SA4 and SA2 areas that we aggregated to create the SWIS region. This allows us to configure KPMG-SD so that the Australian economy is represented by 3 regions: the SWIS region, the Rest of Western Australia (RoWA) and the Rest of Australia (RoA).

SA4	SA2
Mandurah	Northampton – Mullewa – Greenough
Perth – Inner	Geraldton
Perth - North West	Irwin
Perth - South East	Morawa
Perth - South West	Meekatharra
Bunbury	Esperance Region
Western Australia - Wheat Belt	Kalgoorlie
	Boulder
	Kambalda – Coolgardie - Norseman



Appendix D – Industry-level Electricity Price Reductions

Mapping electricity price shocks into the model

In KPMG-SD the production side of the economy is represented by industries as classified by the ABS in the input-output database. The electricity price impacts estimated in the market analysis relate mainly to businesses that use between 20MWh and 50MWh of electricity per annum. KPMG-SD does not distinguish businesses within an industry category. For example, the model captures an aggregate transaction showing the *Manufacturing* industry purchasing electricity. On the other side of this transaction the output of the *Electricity Generation* industry is combined in fixed proportions with the output of the *Electricity Transmission, Distribution, On Selling and Electricity Market Operation* industry to supply the electricity used by the *Manufacturing* industry. The model does not distinguish between big and small businesses or different electricity products offered. The estimated electricity price reductions must be applied only to the portion of each industry accounted for by businesses that use between 20MWh and 50MWh of electricity per annum. Such information is not publicly available. Our approach is to use data on the number of Western Australian businesses in each industry that fall into different revenue categories. Below we describe how we use this data to calculate electricity price shocks at the industry level.

- **Step 1**: For each industry we calculated the ratio of electricity costs to total revenue. We assumed that 20MWh of electricity per annum costs $6,500 and 50MWh of electricity per annum costs $15,500. This allows us to estimate for each industry an upper and lower revenue in which the target businesses must fall. For example, if electricity costs are equivalent to 1% of an industry's revenues then we can infer that businesses generating revenue between $650,000 and $1,550,000 fall into the 20MWh – 50MWh user range.
- **Step 2**: We then used data showing for each industry the number of Western Australian business in each of 6 revenue ranges to estimate the break-up of total industry revenue into each revenue category. This was done by multiplying the mid-point of each revenue category with the count of business in that category. For the highest revenue category ($10 million or more) we residually determined revenue as the difference between total revenue for that industry in KPMG-SD and the sum of the estimated revenues for that industry that fell in the five categories below $10 million. In some instances there were no businesses counted in the highest revenue category or the residual determination of revenue for the upper category resulted in a negative number. In these cases used either the upper or lower bound of the range (rather than the midpoint) to obtain a revenue estimate.
- **Step 3**: from step 1 we know in which revenue range the upper and lower revenue cut-offs lie (the target range) for each Western Australian industry and from step 2 we know the share of each industry's total revenue that falls in the target range and the count of businesses in that range. We assume that these shares, which are estimated for industries at the state level apply to industries in the SWIS region. For each industry we scale the count of businesses in the target range by the share of that industry's Western Australian output produced in the SWIS region. This gives us an estimate of the total number of businesses in the SWIS region that use between 20MWh and 50MWh of electricity per annum. We then calculate a scale factor as the ratio of the estimated number of target businesses in the SWIS to the number provided by Alinta (about 24,500).
- **Step 4**: We now have all the ingredients to calculate an electricity price shock for each industry in the SWIS region. For each industry we multiply the reduction in the electricity price derived from the market analysis by that industry's share of total revenue that falls in the target range and then scale this number using the scale factor from step 3.

Appendix D – Industry-level Electricity Price Reductions (cont.)

We illustrate this approach with an example. Assume that:

- Electricity costs for the Western Australian *Manufacturing* industry are equivalent to 2.2% of its revenues. This means that businesses within this industry that generate revenues between $295,455 and $704,545 are assumed to use between 20MWh and 50MWh of electricity per year.
- Western Australian businesses in the *Manufacturing* industry fall in this range have combined revenue of $3.5 billion
- the revenue generated by all the businesses in the Western Australian *Manufacturing* industry is $50 billion
- the total number of businesses in the SWIS estimated to fall in the 20MWh – 50MWh range is 50,000 (compared to 24,500 provided by Alinta)
- the lowering of the contestability threshold is expected to reduce electricity prices for impacted businesses by 7.5%.

We can now estimate the electricity price reduction that applies to the *Manufacturing* industry in the SWIS as follows:

$$0.26\% = \frac{\$3.5bn}{\$50bn} \times \frac{24{,}500}{50{,}000} \times 7.5\%$$

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