Basic Monthly Charge Objective Review

SaskEnergy Inc.

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EXECUTIVE SUMMARY

1. SaskEnergy Inc. ("SaskEnergy") retained Chymko Consulting Ltd. ("Chymko") to review SaskEnergy's policy for setting the residential basic monthly charge is appropriate, and if not, to recommend an appropriate policy. SaskEnergy's current basic monthly charge of $24.50 for the residential rate class is set based on a target to recover seventy-five percent of fixed customer costs.[1] Chymko analyzed SaskEnergy's basic monthly charge target through financial, short-term efficiency, long-term efficiency, equity, and feasibility considerations that consist of James C. Bonbright's ten rate design principles. Chymko also compared SaskEnergy's basic monthly charge with fifteen other residential natural gas rates across Canada, and with the rates of other utilities within Saskatchewan. Lastly, Chymko considered the application of three alternatives to increasing the basic monthly charge objective.

2. After reviewing the basic monthly charge and comparing it with the fixed rates of other Canadian utilities, Chymko believes that SaskEnergy's policy is satisfactory. However, because of new and emerging public policies encouraging conservation, there is also an argument to set the charge higher than the current seventy five percent target. The basic monthly charge could be raised to recover as much as one hundred percent of incremental per-customer cost, subject to further study of the impact on low-use customers, and only in phased increments subject to the principle of gradualism. This conclusion is based on consideration of the following evaluation criteria in Table 1:

[1] SaskEnergy Inc. "2022 Delivery Service and Commodity Rate Application," (Saskatchewan Rate Review Panel, 2022), p. 39.

Table 1 Rate Design Principles Considerations of Raising the Basic Monthly Charge Target Recovery		
	Strength(s)	Weakness(es)
Financial Considerations (Section 2.1)	- Stabilizes revenue - Improves the utility's ability to predict revenue - Stabilizes rates - Allows customers to better predict and prepare for future rates	- Gives customers less control over their total bills
Short-Term Efficiency Considerations (Section 2.2)	- Sends a price signal that better matches the average customer costs for each rate class - Recovers a greater portion of fixed cost from net-zero emission sites that is otherwise not recovered	- Actual costs will vary due to the unique characteristics of the site and its usage behaviour
Long-Term Efficiency Considerations (Section 2.3)	- Allows the utility to recover revenue even if customer usage decreases	- May incentivize more usage - May cause customers to seek cheaper utility alternatives.
Equity Considerations (Section 2.4)	- Allows more sites that share similar costs to be treated more similarly - Decreases cross-subsidization	- Disproportionally raises prices for low-use sites
Feasibility Considerations (Section 2.5)	- The billing system does not require changing - Customers are already familiar with the billing system	- May result in rate shock

3. Among the considerations above, Chymko places greater emphasis on the principle of efficiency in light of current public policy to encourage energy conservation and an emerging trend of net-zero emission homes. Given that such homes would consume less energy but still require the same (or similar) distribution infrastructure, a higher basic monthly charge target allows SaskEnergy to recover a fairer share for sunk costs that would not be recovered through a usage charge. This means that SaskEnergy would not receive enough revenue in usage charges to pay for the infrastructure that connects the site to the distribution system. Therefore, a higher basic monthly charge target is justifiable in recovering these sunk costs. This also helps ensure that similar sites, in terms of infrastructure costs, are treated more equitably.

4. Recovering more cost through the basic monthly charge and less through the energy charge arguably dulls the price signal to conserve energy over the long run, but the tariff examined here only concerns distribution cost, not the commodity. Taking a broader view to include the whole customer bill, including commodity cost and the federal carbon charge, the incentive to conserve energy remains.

5. This review also compared the basic monthly charge among Canadian natural gas utilities. Weighted by each utility's customer base, the national average basic monthly charge is

$22.61.[2] SaskEnergy's current basic monthly charge is $24.50 by comparison. Nevertheless, this observation is intuitively rational considering the largely rural customer base SaskEnergy serves and the subsequent greater cost of fixed assets on a per customer basis. However, SaskEnergy's basic monthly charge is low when compared to Saskatchewan's electric, water, and mobile phone utilities, and the natural gas utilities in neighbouring province of Alberta, whose utilities also serve a large rural customer base.

6. Chymko finds SaskEnergy's basic monthly charge target satisfactory, and recommends that SaskEnergy consider raising its charge target, subject to further study and the principle of gradualism, for the following reasons:

- Raising the basic monthly charge target aligns with several aspects of the rate design principles, particularly the financial, short-term efficiency, and feasibility principles.

- Raising the basic monthly charge target allows a greater degree of cost recovery from net-zero-emission communities that may otherwise not generate enough revenue through usage charges to recover the cost of fixed infrastructure.

- Raising the basic monthly charge target is reasonable within the context of other utility services in Saskatchewan and the comparable rural Alberta natural gas utilities.

- Raising the basic monthly charge target is a more suitable than developing a rate design alternative, such as a residential demand charge or implementing one hundred percent fixed charges.

[2] Section 3.1.

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1 SASKENERGY'S BASIC MONTHLY CHARGE POLICY OBJECTIVE

7. SaskEnergy Inc. ("SaskEnergy") retained Chymko Consulting Ltd. ("Chymko") to review SaskEnergy's policy to set the residential basic monthly charge is appropriate, and if not, to recommend an appropriate policy. SaskEnergy's current residential basic monthly charge is set based on a target to recover seventy-five percent of fixed customer costs.[3]

8. One rationale important to SaskEnergy is that a significant basic monthly charge provides a greater degree of financial stability for the utility. Once this monthly charge is calculated and implemented, it provides an unchanging and reliable revenue stream that is less affected by usage patterns or other external factors. The alternative, which is maintaining a high delivery charge that is associated to natural gas usage, means that the utility's revenue is more susceptible to sudden changes that disrupt the natural gas consumption.

9. Deciding whether to adjust the basic monthly charge target, or to maintain the status quo, is a balancing act between two potentially competing interests. On one hand, increasing the basic monthly charge benefits SaskEnergy by providing a more stable revenue stream – this is in the interest of SaskEnergy's owners, who are the province's citizens. However, these citizens are also SaskEnergy's customers and are directly affected by rate changes. Therefore, determining whether a change is necessary, and to what degree any change is implemented, requires considering these potentially competing interests.

[3] SaskEnergy Inc. "2022 Delivery Service and Commodity Rate Application," (Saskatchewan Rate Review Panel, 2022), p. 39.

2 RATE DESIGN PRINCIPLES

10. A utility may undertake rate adjustments for several reasons that range from regulatory decisions to responses to regional or global events. When it is evident that a rate adjustment is necessary, a utility uses a rate design process to produce new rates that address the new circumstances. These new rates, and their justification, require approval from the utility's regulator; however, a regulator is not responsible to ensure that these rates conform to a particular rate design or structure. This means that utilities may not be provided a standardized rate design framework to guide their ratemaking process. Yet, over time a collection of generally accepted best practices has been developed by utilities and regulators that is based on the extensive history of rate proceedings and utility experiences. The principles described by James C. Bonbright in his *Principles of Public Utility Rates* (1961) are a sum of these tried-and-true guiding principles. These principles are not intended to mechanistically determine a rate design; rather they assist utilities with considering the impacts, costs, and benefits of selecting rates that meet their specific goals. A review of these principles may clarify whether SaskEnergy should consider a different basic monthly charge policy.

2.1 FINANCIAL CONSIDERATIONS

11. Bonbright lists three principles that relate to the financial expectations of both the utility and customers:[4]

- Revenue requirement: the utility's ability to develop rates that provide an opportunity to recover its cost-of-service and a fair return.
- Revenue stability and predictability: the reducing of variations between forecast and actual revenue.
- Rate stability and predictability: minimizing unexpected rate changes for existing customers.

12. The underlying concern of these principles is whether the utility can collect the revenue it needs, and how that revenue is collected from customers in a financially sustainable way.

Revenue Requirement

13. Establishing a utility's revenue requirement is a separate exercise from the rate design process. Revenue requirement includes the utility's cost of operations, maintenance, administration, depreciation, interest, and tax expenses, as well as the utility's approved rate of return. After establishing its revenue requirement, a utility needs to consider whether its

[4] Bonbright, "Principles of Public Utility Rates," (1961, New York, NY, Columbia University Press), p. 291.

current rate design can collect this revenue. One significant risk to revenue collection is whether forecast revenue requirement and forecast rate collection is accurate. Forecast accuracy itself is a product of the number of factors a utility considers in their rate design.

14. In addition to considering its total revenue requirement, SaskEnergy may consider the revenue requirement of each rate class and whether the rates applied to each class are intended or able to collect the portion of revenue requirement allocated to them. In context of the whole utility, it is not necessary for rates to collect one hundred percent of each class's revenue requirement; some may under-collect so long as others subsidize this difference. There are other principles that suggest it is better to design rates that collect one hundred percent of each classes revenue requirement, but this is not necessary from a purely financial perspective.

Revenue Stability and Predictability

15. The utility should consider the degree to which its rates will produce stable and predictable revenue. It is important for utilities to maintain stable revenue from month to month and year to year because it prevents the utility from operating at a short-term deficit. Most utilities prefer this stability because most of their investment is upfront and regular financial loss makes these assets a liability. SaskEnergy may increase its financial stability by raising its basic monthly charges because these rates do not change in proportion to a site's usage, which is affected by weather or other external events. Energy and demand charges, on the other hand, are both tied to usage, which is partially dependent on weather. These rates fluctuate and the revenue they collect will vary from a utility's forecast; the degree to which they vary is dependent on the accuracy of the forecast. A larger energy charge may benefit a utility if the forecasted usage is low and a windfall is realized; however, regulators disapprove of this practice because of the risk of loss that results if the forecast is inaccurate. Therefore, the variation in energy and demand rates makes them less stable; having a significant portion of revenue associated with these rates is riskier and can result in short-term revenue losses. For these reasons, collecting a larger portion of revenue through a basic monthly charge is often preferred by utilities.

16. Bonbright argues that predictability is even more important to utilities than stability. Where stability is associated with short-term financial cycles, predictability is associated with long-term revenue. This is an important distinction because revenue requirement is typically forecast a few years in advance, which means variances can even out over a regulatory period. Predictability is about the utility's ability to forecast long-term revenue requirement accurately. Utilities have long financial cycles, so revenue stability is not as important as collecting all the revenue a utility has forecast over the regulatory period. A basic monthly charge allows for more accurate long-term forecasting because it only requires the utility to accurately predict the number of sites it will serve, and fewer forecasting factors generally increases forecast accuracy. Predicting system usage and demand is more challenging and more likely to be inaccurate because these forecasts not only require the accurate prediction of the number of sites a utility will serve, but also collective site usage which is influenced by weather and other external factors – more variables mean there is more risk to revenue requirement. However, the predictability improvements made by an increased basic monthly

charge may not be significant or obvious because, as previously discussed, energy and demand charges are more likely to produce surpluses and deficits that cancel each other out over longer periods – this includes surpluses produced by a basic monthly charge. The advantages gained by an increased basic monthly charge may be obscured by the effects of energy and demand charges over a long-term period.

Rate Stability and Predictability

17. Good rate design also considers the stability and predictability of the rates from the customers' perspective. Stable rates are consistent and change infrequently or by small degrees; they allow users to plan and prepare payment for their next bill and, in the case of commercial sites, incorporate utility prices into their business models. Short-term stability is typically more important than long-term predictability because customers typically plan for shorter financial cycles in comparison to utilities. In this regard, customers may prefer a total bill that consists of a larger basic monthly charge and smaller usage or demand charges. A basic monthly charge does not change from month-to-month, which makes it more stable than usage or demand charges that fluctuate with every billing period; increasing the basic monthly charge makes a customer's total bill more stable.

18. When rate design changes are required, stability considerations would result in changes being implemented incrementally and gradually. An occasional minor change is probably tolerable by the general population, but frequent or significant increases may be perceived as unfair.

19. The long-term predictability of rates from a customer's perspective is another financial factor in rate design. Some customers may prefer a higher usage charge that makes them feel as though they have control over their bill and that they can minimize the price. Ultimately though, customer behaviour is more affected by weather and other external factors, rather than the bill itself. Other customers may alternatively believe that a larger basic monthly charge will minimize their long-term bills because it protects them from paying higher prices during periods of high usage, such as during a significantly cold winter. However, a consumer might only prefer a larger basic monthly charge if their final utility bill is a small portion of their household expenses, but less so if the utility bill is a magnitude higher.

Basic Monthly Charge Financial Analysis

20. Table 2 identifies several strengths and weaknesses of raising SaskEnergy's basic monthly charge target related to these financial principles.

Table 2 Financial Considerations of Raising the Basic Monthly Charge Target	
Strength(s)	Weakness(es)
- Stabilizes revenue - Improves the utility's ability to predict revenue - Stabilizes rates	- Gives customers less control over their total bills

21. Raising the basic monthly charge is a favourable option when one only considers these financial principles. An increased basic monthly charge improves revenue stability for the utility and may improve the utility's long-term revenue forecast. It may also improve rate stability and long-term predictability for those customers. The main weakness of an increased basic monthly charge is that customer control over their bills through usage or demand charges is diminished. Ultimately, SaskEnergy's objective to collect seventy-five percent of unit costs through their basic monthly charge across all rate classes aligns well these financial principles.

2.2 SHORT-TERM EFFICIENCY CONSIDERATIONS

22. Short-term efficiency, which Bonbright calls *static efficiency*, considers the importance of collecting revenue from each rate class that is only associated to the costs attributed to each rate class, and the degree to which specific rates recover costs associated to specific cost drivers. This principle is important because it encourages the efficient use of limited resources so that a utility only spends time and resources on what is necessary in the provision of its service.

The Economic Efficiency Theory

23. Economic theory suggests that an outcome is efficient when the price of a good is equal to both the benefit received from the good and the marginal cost of production (i.e., the cost of producing one additional unit of the good). Assuming new firms can enter and exit the market without additional costs, in this state there is enough supply available for all consumers willing to pay the market price, and no supplier is willing to produce any more of the product at that price. Supply and demand are in balance and no resources are wasted because the market price equals the marginal cost of production; an equilibrium is reached, and the outcome is considered static efficient (i.e., efficient in the short-term).

24. However, this theoretically efficient outcome does not necessarily apply to utilities. First, the cost to enter the utility market is prohibitive because it requires a large up-front investment in infrastructure; once built, operating costs are comparatively low. With production costs being sunk, the short-term marginal cost of delivering one additional unit is virtually zero. As such, pricing at marginal cost is not feasible because consumer demand is high when a price is essentially free, but no utility supplier is willing to risk insolvency by providing free delivery service. Therefore, this theoretical equilibrium is unattainable for utility companies, and they require regulation to produce a price that could have resulted if they were not natural monopolies.

25. For the consumer, an efficient price is no higher than it needs to be to acquire access to a safe and reliable utility system. For the utility, a sustainable price is no lower than the cost incurred to build, own, and operate a utility network, plus a reasonable return. An additional consideration for the utility, however, is that their costs are accrued over time (depreciation) because most of their cost is incurred up front. Therefore, in the practice of rate regulation, a utility's revenue requirement is a long-run average (instead of a short-term marginal) cost of production.

Costs and Average Cost per Cubic Metre

26. One aspect of static efficiency is ensuring that rates recover each class's own costs. An acceptable standard when setting rates is to maintain revenue-to-cost ratios as close to or at one hundred percent for each rate class so that each class is paying their own total fixed costs. The degree to which the revenue-to-cost ratio departs from one-to-one is the degree to which the rate class is no longer efficient in the short-term because rates are no longer recovering the average cost of production. However, small deviations from this ratio are often acceptable to a regulator because perfect revenue-to-cost ratios require the precise and accurate measurement of every possible billing determinant.

27. It is also important to consider how well rates reflect the costs of serving sites *within* a rate class because individual site costs may not equal class average costs. If the utility recovers the full cost attributed to the rate class, and sites within the rate class are uniformly the same, then there is little need to further examine this issue. Bonbright considers this the optimum utilization of the utility network, whereby each site takes the service they want so long as they only pay for their portion and no more or less.[5] Sites within a rate class tend to be similar in terms of cost-to-serve, but they are never completely uniform. To this end, it is not possible to achieve perfect static efficiency for each individual site because doing so would require the utility to calculate and apply a unique rate for each customer. In considering these differences between individual sites, increasing SaskEnergy's basic monthly charge is unlikely to improve static efficiency. For some sites, an increase to the basic monthly charge may result in less static efficiency if the site's actual costs significantly differ than the average cost per m^3.

28. A utility's cost allocation study, which attributes a utility's revenue requirement to rate classes, includes the classification of revenue requirement into cost drivers which informs the allocation of the revenue requirement. These cost driver classifications typically include:

- Site costs: for SaskEnergy, these are fixed customer costs associated to the minimum natural gas network required to connect customers to the system and provide service (such as service lines, meters, and a portion of mains). This represents the degree to which costs are affected by the addition of new distribution sites or customers. These are fixed costs in the sense that system capacity will not change in the short run. However, this does not mean that these costs will not ever change over a long-term period; they

[5] Bonbright, p. 295.

will change when large investments are made into assets or infrastructure, especially when these additions are made when adding a new site to the network.

- Energy costs: these are costs tied to the volume and use of the natural gas itself. This represents the degree to which costs are affected by the increase of natural gas usage.

- Demand costs: these are costs associated with the natural gas distribution network that is required above the minimum network needed to serve customers – specifically, the capacity required during peak periods (this may include a portion of town border stations and mains that are needed above the minimum amount required). This represents the degree to which costs are affected by the increase of natural gas usage during peak periods.

29. Costs associated with these classifications are then allocated to each of the utility's rate classes in proportion to how each class is understood to utilize the system. Residential classes are usually allocated a larger share of site related costs because a network is largely built to accommodate many residential sites. High-use classes, such as industrial classes, are typically attributed a larger portion of demand costs because these sites use greater amounts of gas that contribute to peak periods and drive the need for increasing system capacity. SaskEnergy's cost-of-service allocation model allocates revenue requirement to its four rate classes along these site, energy, and demand cost drivers.

30. A standard practice that is usually understood as a measurement of economic efficiency is to develop rates that mirror the unit costs of these cost drivers in the form of:

- A **basic monthly** charge that collects **site** classified costs.

- A **usage** charge that collects **energy** classified costs.

- A **demand** charge that collects **demand** classified costs.

31. After these costs are attributed to each rate class, each class will have an average cost per m^3 that is based on some combination of these classified costs. Site costs are typically fixed and are a larger portion of the average cost per m^3 for low-use classes (such as the residential rate class). Therefore, a utility's average cost per m^3 of serving a site decreases as a site uses more m^3s. This is illustrated in Figure 1. To be efficient in the short-term, the utility needs to develop rates that match this average cost as closely as possible.

Figure 1: Average Cost per m³

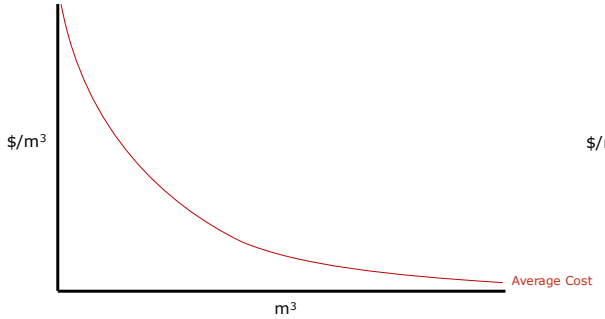
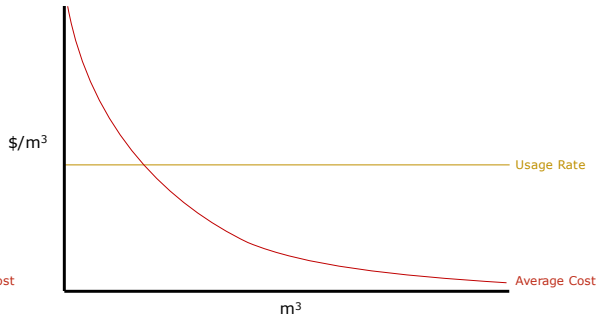
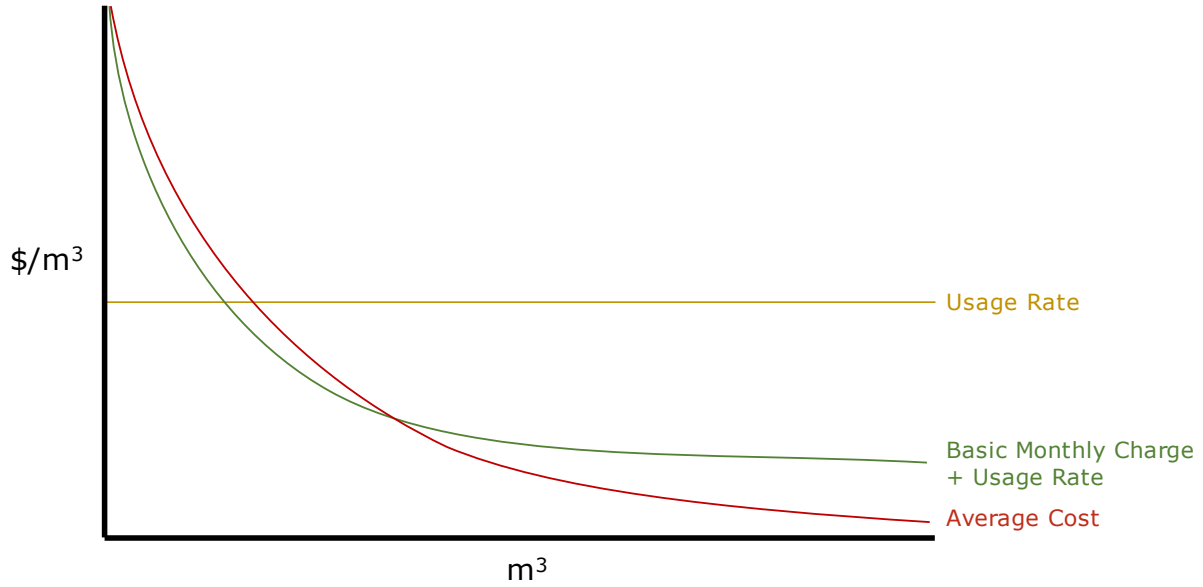


Figure 2: Applying a Usage Rate



32. Using a simple $ per m³ usage rate alone, as shown in Figure 2 produces a different shape than average cost. The point where these two lines intersect is the only level of consumption where price is equal to cost. This means that every customer in the rate class, except for those consuming the exact amount at the intercept, is either paying significantly more or significantly less than the average cost per m³. To better match the average cost, which results in static efficiency, a utility may introduce a basic monthly charge. Figure 3 illustrates this effect.

Figure 3: Applying a Basic Monthly Charge and a Usage Rate



33. Figure 3 illustrates that the combination of a basic monthly charge and usage rates produces a shape that is comparable to the average cost per m³. While the point where these two lines intersect continues to be the only level of consumption where price is equal to cost, the variances between cost and price for every other consumption level is greatly reduced. This demonstrates one facet of static efficiency, whereby price is made to match the average cost per m³ as closely as possible.

34. It is also important to consider how the total rates applied to a rate class are a price signal for new customers, even if the price is not reflective of what the customer's actual cost will be. The customer's actual costs will vary from the average cost due to the unique characteristics of their site and their own usage behaviour. The risk for the utility is that the customer may only request a connection if the price is lower than the actual cost to service the site; this may result in a significant deficit if the utility can only obtain new customers by maintain prices below cost. The addition of a new customer will lower the average cost throughout the rate class by distributing fixed costs among more sites, but this may only result in an incremental change that is not enough to justify a below-cost price.

Net-Zero Emission Sites

35. One final consideration related to short-term efficiency is the development of net-zero emission homes and businesses. The challenge is sending the right price signal to potential new customers in newly developed net-zero communities. A net-zero community might rely on geothermal as their heating source, but then only request gas service for convenience items such as fireplaces or gas stoves or as a safeguard against intermittent service. Nevertheless, whereas a typical household might consume 2,600 m^3 per year, a net-zero household might only consume a fraction of this total. If a net-zero home consumes only 320 m^3 per year, SaskEnergy's annual revenue with the basic monthly charge at the current level would be less than $300 annually, which is not enough revenue to pay for the infrastructure that connects the site to the distribution system even after developer levies. For these reasons, there is a case to be made for raising the basic monthly charge above the current level. However, raising the basic monthly charge may be perceived as unfair by these sites because from their perspective they are being charged for only the occasional use of the utility's services.

Basic Monthly Charge Short-Term Efficiency Analysis

36. The main benefit of raising the basic monthly charge is that it promotes short-term efficiency when it comes to SaskEnergy's customer costs. According to this principle, a utility should ideally recover all fixed customer and sunk costs through a basic monthly charge. Currently, SaskEnergy's basic monthly charge recovers seventy-five percent of customer costs.[6] If static efficiency is the only consideration, the basic monthly charge should be increased to at least recover one hundred percent of the site-related costs identified in SaskEnergy's cost study. There is also an argument for recovering more than the site costs through the basic monthly charge. One weakness with increasing this charge is that short-term efficiency can only be reasonably attained for rate classes, but not necessarily for individual sites. Increasing a basic monthly charge above the current level is more static efficient for sites with average or above average fixed costs, but not for sites with below average fixed costs.

[6] SaskEnergy Inc. "2022 Delivery Service and Commodity Rate Application," (Saskatchewan Rate Review Panel, 2022), p. 39.

Table 3 Short-Term Efficiency Considerations of Raising the Basic Monthly Charge Target	
Strength(s)	Weakness(es)
- Sends a price signal that better matches the average site cost for each rate class - Recovers a greater portion of fixed cost from net-zero emission sites that is otherwise not recovered	- Actual costs will vary due to the unique characteristics of the site and its usage behaviour

2.3 LONG-TERM EFFICIENCY CONSIDERATIONS

37. The Bonbright principles considered under the concept of long-term efficiency include:

- Dynamic efficiency: the efficiency of a utility network over time and its ability to maintain reasonable rates for all connected sites.

- Private and social costs and benefits: the internal and external costs and benefits that may influence rate making decisions.

38. Long-term efficiency is about how utility rates might affect end-user behaviour in a way that facilitates the efficient utilization and long-term development of the utility system. This can be a better service at the same cost or the same service at a lower cost. One expression of long-term efficiency is behaviour that better utilizes existing infrastructure so that future infrastructure upgrades are not needed, or are at least deferred, leading to the average cost of service declining when averaged over years. Another expression may be the consideration of the utility's impact on the environment, both directly and in how its rates reward customer behaviour. What differentiates long-term from short-term efficiency is that it considers the utility's viability over years and decades, and in some circumstances may account for costs that are outside of a utility's revenue requirement.

Dynamic Efficiency

39. Dynamic efficiency in the context of deciding on a higher or lower basic monthly charge, requires considering what a price signal communicates to existing customers going forward and how they should efficiently use existing resources. Practically, dynamic efficiency considers what encourages customers to minimize their peaks and maintain consistent usage levels. For a residential customer, this means that SaskEnergy's primary tools to affect dynamic efficiency is the basic monthly charge and the usage charge.

40. The basic monthly charge, by its nature, does not vary with usage or peak demand. Additionally, while the usage charge does not reflect peak demand, there is a correlation between usage and demand. This means that customers who conserve and manage their usage are rewarded with a lower bill through their usage charge; conservation does not affect the basic monthly charge. Therefore, the dynamic efficiency argument supports a lower basic monthly charge and a higher usage charge, but there are limits to this argument. The basic

monthly charge only collects the costs of the distribution network, and not the cost of the gas commodity itself. For residential customers, the basic monthly charge is only a percentage of their total bill; customers respond to their total bill and not components of it. For higher use commercial customers, the basic monthly charge is a smaller percentage of the total bill when compared to residential customers, which means they are even less responsive to changes in the basic monthly charge. While dynamic efficiency is arguably lessened by raising the basic monthly charge, the real impact may not be as significant.

The Environment and Conservation

41. When Bonbright describes the principles of social costs and benefits, his main concern is for the utility to consider those costs that are outside of, or not reflected in, the utility's revenue requirement. In SaskEnergy's case, these are costs that are unrelated to the direct activity of providing distribution pipeline service. The most relevant and current example is social policy that pertains to the environment and conservation.

42. Utilities are typically only responsible to their stakeholders to recover their revenue requirement, which generally accounts for its own internal costs and benefits. For SaskEnergy, as with most utilities, their mandate does not explicitly require the consideration or implementation of social policy. However, SaskEnergy is a crown corporation, which means it is not unreasonable to consider whether, and to what degree, social costs and benefits will be factored into their rate design. As it pertains to environmental costs, SaskEnergy could be required to implement demand-side management strategies that encourage conservation. One way demand-side management could be implemented is by increasing usage rates to discourage usage. This is already being introduced into SaskEnergy's rates through Canada's Greenhouse Gas Pollution Pricing Act ("GGPPA"), which includes a carbon charge on natural gas usage. In this matter, the federal government quantified a social cost to producing greenhouse gases. On behalf of the federal government, SaskEnergy includes a Federal Carbon Charge on its bills that it remits to the federal government in the same way SaskEnergy collects and remits general sales tax on utility bills – SaskEnergy does not record this money as revenue.

43. An unintended consequence of raising the usage charge to discourage usage is that usage less than what was contemplated when prices were set results in less revenue for the utility. Encouraging conservation may require that the utility decouple revenue from usage so that it can recover costs. One way to do this is by increasing the basic monthly charge so that revenue is not diminished by lower usage. However, a larger basic monthly charge can also be associated with increased usage because it suggests to customers that it is okay to consume more since their total bill is less affected by usage. This behaviour may produce a larger strain on system capacity, requiring expansion in the long term. Furthermore, increased usage may result in a greater negative impact on the environment from the need for more production and resources.

Uneconomic Bypass

44. Another external factor to consider is uneconomic bypass, where customers leave a utility network that has become unaffordable because rates improperly set.[7] Knowing that the amount customers pay in total usage charges will already increase due to the federal carbon charge, it is possible that raising the basic monthly charge could result in customers choosing to leave the network for alternative affordable heating sources.

45. Due to Saskatchewan's geography, natural gas is still one of the most cost-efficient ways to heat a home or business. Alternatives, such as heat pumps, geothermal, and biomass heat systems are dropping in price and being marketed as 'greener' options for those who can currently afford them.[8] However, these options are not necessarily suitable for Saskatchewan's climate, especially during throughout the coldest winter months when heat pumps and geothermal systems are insufficient to heat a home or business. Nevertheless, some customers may be motivated to switch to alternative heat sources despite the higher costs due to their own private consideration of social costs and benefits – perhaps their own evaluation of what is more sustainable drives their decision. For these customers, an increased basic monthly charge may be the final push that motivates them to change to a new energy source. Some customers that make this change may keep their natural gas connection as a backup option while primarily relying on their alternative heating source. For these customers, it is worth considering whether staying connected to the system remains beneficial to the utility because the rates collected from these sites may not cover the costs of infrastructure. In this case it may be better for the utility to have customers rely entirely on a cheaper alternative (i.e., economic bypass).

46. Except for economic bypass, the loss of sites from a utility network tends to adversely affect everyone because the site leaving the system typically pays more than what the utility service *should* have cost. The remaining sites are also worse off because the average cost per site increases. Finally, the utility is worse off because the loss of sites increases the risk of stranded assets, the costs of which will need to be absorbed by shareholders. It is necessary, then, that a rate design is efficient in the long-term by ensuring rates are no higher than they ought to be.

Basic Monthly Charge Long-Term Efficiency Analysis

47. Arguably, a higher usage rate and a lower basic monthly charge sends a more efficient long-term price signal where customers may decrease their usage since doing so has a greater effect on their total bills. If changes in customer usage do not result in significant changes to

[7] In other words, bypass is uneconomic when rates when it remains possible for a utility to recover its cost and all customers pay a price that makes them better off than the next-best energy alternative, but a segment of customers are not better off and switch to an alternative; these customers are then paying more than what is necessary. If this occurs, the loss of customers means that the average cost per site increases for everyone who remains on the network. This sort of bypass is uneconomic because all customers are made worse off when the utility fails to retain all potential customers.

[8] It is debatable whether current electric heating options are more environmentally sustainable because the electricity used to power these heat sources is largely generated by burning fossil fuels. Additionally, biomass heating systems are only considered sustainable in that their fuel is renewable, but they still produce carbon emissions.

their total bill, there is little reason for these customers to limit their usage. Yet, one tangential benefit that may result from increased usage, due to a comparatively larger basic monthly charge, is increased productivity from small businesses who may be able to afford longer opening hours. Longer business hours may also be associated to more wages for employees, and more purchases by consumers – which all contribute to more economic productivity. However, this affect may be minimal, and it may even be offset by the increase in usage charges due to the GGPPA.

48. However, there are weaknesses with raising the basic monthly charge that may include less sustainable environmental practices associated with an increase in activity, and the possibility of uneconomic bypass whereby some sites may find it more financially practical to leave the network for an alternative to natural gas.

Table 4
Long-Term Efficiency Considerations of Raising the Basic Monthly Charge Target

Strength(s)	Weakness(es)
- Allows the utility to recover revenue even if customer usage decreases	- May incentivize more usage - May cause customers to seek cheaper utility alternatives

49. Long-term efficiency principles arguably support a lower basic monthly charge, but the actual impact may be minimal. Energy commodity costs and the GGPPA charge on emissions will continue to help maintain a strong price signal for more efficient usage, even if the basic monthly charge is raised. In raising basic monthly charge, uneconomic bypass is a risk, but not immediate; and this risk might exist with or without a change to the basic monthly charge. The primary motivation that causes customers to leave SaskEnergy might be their own environmental consideration (i.e., private social cost) to adopt a green technology.

2.4 EQUITY CONSIDERATIONS

50. Considerations for equity include the Bonbright principles of:

- Fairness: the degree to which similar sites are afforded similar treatment and dissimilar sites are afforded different treatment.

- Non-discriminatory: the degree to which rates account for the differences and similarities between sites.

51. Equity is achieved in part when sites that are like one another in terms of cost-to-serve, usage, capacity, or profile, are afforded similar rates. Equity is also achieved when sites that differ from one another by these same terms are afforded different rates that reflect their differences. No two sites are perfectly identical, so some discrimination is inevitable in any rate design. To avoid any discrimination implies that all sites should pay their own unique tariff, but this is neither practical nor cost-effective. Most regulators, therefore, evaluate rate design in terms of *undue* discrimination rather than *any* discrimination. Undue discrimination

may be characterized by charging sites substantially different rates for what is essentially the same service under similar conditions, or similar rates for different service under differing conditions,[9] and where "no reasonable distinction can be found between those favoured and those not favoured."[10]

52. Equitable rates are those that reasonably account for the similarities and differences between sites and ensure that each site is paying its fair share of costs. To that end, Bonbright acknowledges that rates designed to reflect individual site costs (short-term efficiency) are widely accepted, but it is more popular to design rates that reflect the 'fairness' felt by customers' own self-interests.[11] Expectations about what is fair and reasonable are also formed from current and historical rates, and from rates in neighbouring jurisdictions to a lesser degree. Previous and parallel experiences regarding the structure, format, and total cost of a monthly bill affect how one perceives how rates should change, regardless of what a cost allocation study reveals.

Cross-Subsidization

53. Cross-subsidization occurs when one rate class is attributed costs that are better attributed to a different rate class. Cross-subsidization is usually not desired by regulators or a utility; however, some cross-subsidization is inevitable because the time and resources needed for a utility to perfectly attribute the costs of shared assets to each site do not result in a material difference. Therefore, utilities often opt to minimize, rather than eradicate, cross-subsidization.

54. Cross-subsidization is often described in how it occurs *between* rate classes, but it may also occur *within* a rate class. If a rate reflects the average of the aggregate costs incurred by the rate class, individual sites with service costs below the average effectively subsidize those sites with above-average costs. As is the case between rate classes, a degree of cross-subsidization is inevitable within a class. Therefore, the degree of cross-subsidization permitted within a rate class is a policy-level decision.

Fairness and Rate Mixes

55. Finding the correct balance of fixed, usage, and demand rates in a way that supports a high degree of equity is one of the more challenging aspects of recovering a high percentage of revenue through a basic monthly charge, especially when it comes to residential sites. A basic monthly charge may result in a wide range of customers receiving similar charges despite their differences in sunk assets and infrastructure; although, there may be no actual difference between sites. The biggest variance between customers in Saskatchewan is probably the differences between urban and rural sites. It is commonly accepted that it is unfair to charge a different rate between these two sets of customer types due to their

[9] Bonbright, p. 370.
[10] Alberta Utilities Commission, "Village of Delia: Appeal of Utility Charges by Heide Peterson and Yvon Fournier" (2019, Decision 24678-D01-2019, Alberta Utilities Commission eFiling System), §5.2.1.2, p. 11, para. 42.
[11] Bonbright, p. 295.

locations. It is too difficult to draw a firm line between urban and rural; and even if you could, an urban connection could still be more costly than a rural one for different reasons. Either way, recovering all costs on a basic monthly charge is not necessarily fair. Customers might not think it fair that a large house with two furnaces pays the same distribution charges as a house across the street with one furnace. The two houses might be served by the same distribution infrastructure, but one uses more gas. Therefore, fairness suggests that not all fixed cost should be recovered on a basic monthly charge, even if doing so is arguably less discriminatory. One may argue that the purpose then of usage rates is to reflect the differences in customer usage and the purpose of demand rates is to ensure that rates reflect the intrinsic differences between the pipes of each site and customer.

56. Additionally, increases in the basic monthly charge tend to have a more significant impact on low-use sites within a rate class because a basic monthly charge makes up a larger portion of their bill; therefore, increasing this charge can be interpreted as being unfair to low-use customers. Commercial and industrial rate class equity is not as affected by changes in the basic monthly charge because asset and infrastructure costs are a significantly smaller portion of their total bills. Since it is known that an increased basic monthly charge will disproportionately affect low-use customers, one can anticipate that larger increases will result in disproportionately larger bill increases for these customers, and thus less perceived equity.[12] This does not necessarily mean that raising SaskEnergy's basic monthly charge is unreasonable, but such a policy may require incremental implementation.

57. A proper combination of fixed, usage, and demand rates accounts for the differences and similarities between sites that warrant similar or unique treatment. But what constitutes the 'best' combination varies by utility, regions, stakeholders, and the perspectives of individuals. It is difficult to judge whether SaskEnergy's current basic monthly charge is equitable without knowing if there are any significant complaints against the current mixture of fixed and variable rates. However, it is possible to anticipate whether an increase to the monthly fixed charge would be considered equitable.

Basic Monthly Charge Equity Analysis

58. The strengths associated with increasing SaskEnergy's basic monthly charge include greater assurance that similar sites, in terms of overall costs to serve and infrastructure costs, are treated more equitably. The diminished effect of usage charges that comes with increasing the fixed charge means that sites with similar costs will receive total rates that diverge less due to different usage patterns. Additionally, increasing the basic monthly charge allows rate class revenue to vary less over time, which means there is less opportunity for cross-subsidization to occur where the over or under-collected usage or demand rates from one class results in cross-subsidization from another class.

[12] Customers tend to perceive equity in reference to the status quo; therefore, even if an increase to a basic monthly charge results in less cross-subsidization (and more equitable rates from the perspective of the utility), low-use customers may still perceive the change as unfair.

59. Some weaknesses associated with raising the basic monthly charge include its disproportionate effect on low-use sites. Low-use sites will have an increase in their total bill that is greater than the increase for high-use sites which might be perceived as unfair. However, one can mitigate this effect by phasing in a large basic monthly charge over time. Additionally, a utility needs to be wary of increasing fixed charges to where they recover more than one hundred percent of fixed costs – this results in sites that are more dissimilar to each other within a rate class receiving treatment that is more like each other. This similar treatment of dissimilar sites additionally means that more cross-subsidization may occur within rate classes because sites that differ from the average cost to serve will be under or overcharged in proportion to how different their costs to serve are from the average. One way to avoid this scenario is to instead require sites that have larger sunk costs to pay a contribution, thus lowering their rates.

Table 5
Equity Considerations of Raising the Basic Monthly Charge Target

Strength(s)	Weakness(es)
- Allows more sites that share similar costs to be treated more similarly - Decreases cross-subsidization	- Disproportionally raises prices for low-use sites

60. If discrimination were the only consideration, this would support increasing the basic monthly charge to recover all fixed cost. But fairness should also be considered. Overall, equity supports something in between recovering one hundred percent of all site costs, and the current level at which SaskEnergy maintains its basic monthly charge.

2.5 FEASIBILITY CONSIDERATIONS

61. Lastly are the Bonbright principles associated with feasibility, these include:

- Acceptability and ease of administration: the degree to which rates are simple, understandable, and acceptable to customers.
- Freedom from controversy: the importance of ensuring rates, and the ratemaking process, are easily understood.

Rate Shock

62. The nature of a basic monthly charge is intuitive, which makes it easy for customers to accept. A basic monthly charge is also relatively simple to implement, making it preferred by utilities and some users. But there are other aspects of feasibility that require consideration. One factor that can impact acceptability is 'rate shock', which is understood to occur when rates increase by ten percent or more. Some regulators measure rate shock on the total utility bill (i.e., including the commodity), but others define rate shock as just the portion of the

consumer's bill that is under scrutiny.[13] As it applies to the process of changing rates, rate shock may be a significant factor in determining whether a rate is acceptable to an end-user because they expect to pay a certain bill regularly. Sudden increases, whether justified or not, break this expectation and undermine a customer's trust in the utility to provide them with service at the lowest necessary cost. However, once a rate adjustment has been completed, the rate shock is no longer a concern because the new rates become the new standard. For SaskEnergy, a general rate increase of five percent to the basic monthly charge could translate into more than ten percent for low-use residential customers if SaskEnergy raises the basic monthly charge. The basic monthly charge is already a higher proportion of the low-use customer's monthly bill (which means these customers have lower total per m^3 charges); so, increases to the basic monthly charge will have a greater impact on this segment of the population.[14]

Understandability

63. Additionally, ensuring that rates are presented and explained to regulators and customers with clear and definitive language is one way a utility can ensure feasibility. Rates that are unclear in their definition and scope are open to wider interpretation, this can prompt confusion and disputes regarding rates and their applications. Moreover, one reason that may contribute to why a regulator may not accept a rate proposal is a failure of the utility to sufficiently explain the rationale behind the proposal. A cost allocation study might illustrate the possibility of charging cost-of-service rates based on any number of methods and billing determinants, such as distance to a regulating station, the technical specifications of a service connection, and daily consumption profiles. However, customers generally expect their monthly bills to be simple, easy to understand, and easy to compare to those of other customers. Therefore, customers perceive rates to be fair and reasonable if their bill is based on the same basic features of fixed and usage-based charges billed by any number of regulated and unregulated utilities and services such as electric, water, wastewater, telephone, and mobile phones. Moreover, the fixed and usage-based charges should be consistent within a service area so that two similar customers receiving the same service pay the same monthly bill. To further analyze whether SaskEnergy's basic monthly charge is understandable and acceptable to customers, Section 3 of this report includes a comparative analysis between SaskEnergy's basic monthly charge of those of other Canadian natural gas utilities and other Saskatchewan utilities.

64. In SaskEnergy's case, the basic monthly charge and the usage charge are likely already understandable to their customers and are widely accepted, given the long history of their use; increasing one and decreasing the other generally should not change this.

[13] Alberta Utilities Commission, "AltaGas Utilities Inc.: 2008-2009 General Rate Application – Phase II Negotiated Settlement," (2011, Decision 2011-073), §5.3.1 p. 29, para. 129.
[14] See Table 11 for an illustration of this effect.

Basic Monthly Charge Feasibility Analysis

Table 6 Feasibility Considerations of Raising the Basic Monthly Charge Target	
Strength(s)	Weakness(es)
- The billing system does not require changing - Customers are already familiar with the billing system	- May result in rate shock

65. For SaskEnergy, the basic monthly charge as it currently stands is not a concern, but the feasibility of increasing this charge is worth examining. One aspect of feasibility concerns itself with the application of developing or changing a rate billing system. The current system is self-evidently feasible because the current billing and accounting systems currently work with it. Additionally, increasing or adjusting SaskEnergy's basic monthly charge will continue to be feasible in this regard because it is only a matter of adjusting the fixed monthly charge factor in the billing system for each rate class. However, any alternatives to the basic monthly charge that propose a new methodology may not be feasible, or they may be more challenging to implement, due to the need to restructure the billing system accordingly, or to accommodate a new system of accounting.

3 RATE SURVEY

66. In addition to the rate design principles, another way to analyse SaskEnergy's basic monthly charge is to compare SaskEnergy's customers' monthly bill with those of other natural gas distribution companies and consider the ratio of fixed to variable charges that each customer pays on average. While this report is mainly focused on the cost-to-revenue ratio of customer costs that are collected by the basic monthly charge, comparing bills to other companies is only possible in the context of a customer's entire bill because this data is publicly available. Each company's fixed unit costs, and the percentage of these costs recovered by a basic monthly charge are not necessarily made available to the public.

3.1 BASIC MONTHLY CHARGES IN OTHER JURSIDICTIONS

67. The most straightforward comparison between SaskEnergy's basic monthly charge and those of other Canadian natural gas utilities is between the rates of each company's residential rate class. Using only this class for comparison is ideal because only two types of charges are typically applied to these sites – fixed and usage. Sites in larger usage classes usually have more complex rates that vary in structure between jurisdictions, making comparisons difficult and less meaningful. High-use commercial and industrial sites are charged various demand rates that vary significantly from month-to-month and are not necessarily good comparators.

68. Table 7 compares residential natural gas rates and bills across Canada from each residential natural gas utility provider that utilizes a pipe distribution network. The rates in this table were published as of September 1, 2022. Some companies' fixed charges are billed as a daily charge – these have been converted into a basic monthly charge by multiplying them by 30.4. Additionally, some companies do not include the cost of natural gas itself in their published rates because they are not directly responsible for gas supply; Chymko ascertained gas supply rates from third-party sources and included these charges in the table because this is more representative of the customer's total bill.[15] Some companies also feature separate monthly and fixed administration rates while others combine these together; for simplicity, these charges of been combined for every company. Similarly, some utilities feature separate federal and facility carbon charges; these have also been combined into a simple carbon charge. Several companies also measure customer usage in GJs, those usage rates from companies east of Saskatchewan have been converted into m^3 by dividing GJs by 0.0373 as per Government Canada's approximate natural gas conversion factors.[16] For the provinces of Alberta and British Columbia, a natural gas conversion factor of 0.0275 was used instead to account for the richer content of gas in these provinces. Lastly, we assume that the average household consumes approximately 95 GJs, or 2,600 m^3 of natural gas a year.

[15] Government of Alberta, "Natural Gas Price," (n.d.), https://economicdashboard.alberta.ca/naturalgasprice, Accessed September 2, 2022. The most current natural gas prices posted are from June 2022.
[16] Government of Canada, "Natural Gas: A Primer," (2015) https://www.nrcan.gc.ca/energy/energy-sources-distribution/natural-gas/natural-gas-primer/5641#conversion, Accessed May 16, 2022.

Table 7 Comparison of Residential Natural Gas Rates Across Canada ($)					
Utility (Province)	Basic Monthly Charge	Combined Usage Charge[17] per m^3	Estimated Total Monthly Usage Charge	Estimated Total Monthly Bill	% Collected by Basic Monthly Charge
Apex Utilities (AB)	50.49	0.2507	54.31	104.80	48.2%
ATCO Gas North (AB)	32.35	0.2087	45.22	77.56	41.7%
ATCO Gas South (AB)	28.70	0.2074	44.93	73.62	39.0%
Energir (QC)[18]	35.38	0.4610	79.88	115.26	30.7%
ForitsBC – Fort Nelson (BC)	11.25	0.2558	32.31	43.56	25.8%
Enbridge – Union South (ON)[13]	23.18	0.3544	76.45	99.63	23.3%
Enbridge – Toronto, Ottawa, Niagara (ON)[13]	22.12	0.4084	86.42	108.54	20.4%
Enbridge – Union North West (ON)[13]	23.18	0.4223	91.20	114.38	20.3%
Enbridge – Union North East (ON)[13]	23.18	0.4319	93.28	116.46	19.9%
Manitoba Hydro / Centra Gas (MB)[19]	14.00	0.3137	67.98	81.98	17.1%
ForitsBC – Mainland & Vancouver (BC)	12.82	0.3516	76.17	88.99	14.4%
ForitsBC – Revelstoke (BC)	12.82	0.3516	76.17	88.99	14.4%
Liberty Gas (NB)	20.00	0.7635	165.43	185.43	10.8%
Heritage Gas (NS)	21.87	1.2423	198.97	220.84	9.9%
SaskEnergy (SK)	24.50	0.2774	60.10	84.60	29.0%
Simple Average	23.72				
Weighted Average[20]	22.62				

[17] These usage charges are each the sum of each company's published delivery, commodity, storage & transport, and carbon charges. Some Enbridge rates also include a cost adjustment that reflects the true-up between actual and forecast prices for prior periods.
[18] Enbridge and Energir utilize tiered rate structures for their delivery charges. For these companies, the Delivery Charge per m^3 represents the most expensive delivery charge tier for a household with an annual consumption of 2,600 m^3. However, the Total Monthly Variable Charge is calculated according to the tiered format, this means lower Delivery Charges have been factored into this total as per the tiered structure.
[19] Manitoba Hydro's commodity charge consists of two parts: a primary gas charge and a supplemental gas charge; these have differing rates. Primary gas makes up approximately ninety-four percent of a customer's annual gas use, and supplemental gas makes up the remaining six percent. The differences between these two charges has been taken into account in Manitoba Hydro's Commodity Charge per m^3.
[20] Weighted average by customer base.

69. SaskEnergy's $24.50 basic monthly charge is slightly greater than the simple and weighted average when compared to other Canadian natural gas distribution companies. As a percentage, SaskEnergy's basic monthly charge recovers on average about twenty-nine percent of a customer's bill, which is less than each natural gas utility in the provinces of Alberta and Quebec, but more than the basic monthly charge of every other natural gas utility.

3.2 THE BASIC MONTHLY CHARGE IN OTHER SASKATCHEWAN UTILITIES

70. Where a utility may tend to compare its rates to those of companies of similar size and scope, customers might compare their rates with the other utility services they receive. To that end, we also provide a comparison of other utility rates found in Saskatchewan so that SaskEnergy's basic monthly charge may be compared in a localized context.

71. For electric utilities, it is assumed that the average residence consumes approximately 1,000 kWh per year. For water utilities, it is assumed that the average residential household uses approximately 350 litres, or 0.35 m^3, of water per day.[21] In choosing comparators to mobile phone, we opted to choose four phone plans sold by SaskTel that are representative of their phone plan classes; however, it is worth noting that customers can significantly affect their monthly phone bill by removing or adding various features.

72. It is important to remember that there are limitations in drawing comparisons between SaskEnergy's basic monthly charge and those from other industries. For instance, one hundred percent of costs are recovered through SaskTel's basic monthly charge for mobile cellular phone plans, which may be acceptable to depending on the percentage of total household expenses dedicated to their mobile phone and to the degree that their phone plan is considered a necessary expense and not a luxury good. However, Chymko believes that there is value in making these comparisons because they show the types of charges customers are willing to pay for certain services on a fixed monthly basis.

[21] Government of Saskatchewan, "Water Consumption and Conservation," (n.d.) https://www.saskatchewan.ca/residents/environment-public-health-and-safety/state-of-the-environment/saskatchewans-state-of-the-environment/water-consumption-and-conservation#:~:text=Saskatchewan%20water%20usage%20decreased%20in,by%204.7%20million%20cubic%, Accessed May 16, 2022.

Table 8 Comparison of Residential Utility Rates Across Saskatchewan ($)					
Utility Company	Basic Monthly Charge	Combined Usage Charge[22]	Estimated Total Monthly Usage Charge	Estimated Total Monthly Bill	% Collected by Basic Monthly Charge
SaskTel – VIP 20[23]	95.00	-	-	95.00	100.0%
SaskTel – Total 5[24]	80.00	-	-	80.00	100.0%
SaskTel – shareMore Nationwide[25]	60.00	-	-	60.00	100.0%
SaskTel – Talk + Text + Data 35[26]	35.00	-	-	35.00	100.0%
Saskatoon Light & Power	28.72	0.1688 / kWh	14.07	42.79	67.1%
SaskPower - Rural	26.11	0.1534 / kWh	12.79	38.90	67.1%
SaskPower - Urban	26.11	0.1534 / kWh	12.79	38.90	67.1%
Regina Water	21.30	2.21 / m^3	23.21	44.51	47.9%
Saskatoon Water	25.62	4.84 / m^3	50.78	76.40	33.5%
SaskEnergy	24.50	0.2774 / m^3	60.10	84.60	29.0%
Simple Average	42.24				

73. SaskEnergy's basic monthly charge in comparison to these other utilities maintains one of the lowest dollar-amount fixed values. It is also low in terms of percentage recovered through a basic monthly charge – suggesting that there is room for increasing the basic monthly charge objective.

[22] Includes published delivery, commodity, and carbon charges.
[23] The VIP 20 plan includes unlimited Canada-wide data that is reduced to a speed of 2 MBps after consuming 20 GB. It also includes 2 GB of U.S. data, and unlimited calling and text messaging in both Canada and the U.S.
[24] The Total 5 plan only differs from the VIP 20 plan in that data speed is reduced to 512 KBps after consuming 5 GB.
[25] The shareMore Nationwide plan differs from the VIP 20 and Total 5 plans by only granting 1 GB of shareable data a month, with the option of purchasing unlimited data in 100 MB amounts priced at $5 each.
[26] The Talk + Text + Data 35 plan also features unlimited calling and messaging to Canada and the U.S.; however, picture messaging is no longer included. This plan also comes with 3 GB of data that is not shareable.

4 RATE DESIGN ALTERNATIVES

74. This section includes a brief review of alternative basis monthly charge trends and rate design options that have been considered in other jurisdictions or used in other industries that Chymko considered while evaluating the merits of adjusting SaskEnergy's basic monthly charge target. Here, we discuss the advantages and challenges of these options and why they may not be feasible options for SaskEnergy at this time.

4.1 RESIDENTIAL DEMAND CHARGE

75. One alternative to increasing the basic monthly charge target is to implement a demand charge on residential sites. Like the basic monthly charge, a demand charge is also intended to collect costs associated to fixed infrastructure. The main difference between the basic monthly charge and a demand charge is that a demand rate charges customers for the specific parts of the utility network that were added to accommodate their peak-usage. A demand charge may arguably be the most economically efficient way to recover these fixed customer costs because it ensures that those sites that are the primary cause of network capacity increases are those from whom rates are collected. Additionally, this decreases individual site cross-subsidization within the residential rate class and may be considered more equitable in the sense that customers are charged different amounts for their use of capacity.

76. The implementation of this practice requires building upon the current systems that measure peak daily demand for high-usage sites. This would require significant investment in advanced metering infrastructure ("AMI") and information technology ("IT") systems for residential sites that can measure daily peaks and that allow for data to be pulled once a month so that a site's demand charge is based on their highest peak of the month. Additionally, updates to the billing system would be required to include the calculation of these demand rates. Furthermore, SaskEnergy's database would require additional expansion for it to accommodate the daily peak data of every residential site. Additional investment into data security measures may also be a consideration for the protection of customer privacy. Lastly, the implementation of a residential demand charge would initially require extensive customer education and may include the expansion of the customer call centre to address consumer concerns and confusion; to this extent, implementing a residential demand charge is not feasible considering the Bonbright principles discussed in Section 2.5.

77. The time, costs, and resources needed to implement a residential demand are likely far greater than the potential efficiencies and savings that may result. While a residential demand charge may have the potential to align with financial, short-term, long-term, and some equity considerations, implementing such a rate is largely not feasible for SaskEnergy for the above-mentioned reasons.

4.2 CONSERVATION INCENTIVE MECHANISM

78. Another alternative to increasing the basic monthly charge is to develop a conservation incentive mechanism; this was once proposed by Gaz Metro (now Energir) to address the conservation concerns that were discussed in Section 2.3. One way to incentivize conservation is to decouple the usage rate of a utility from customer usage so that the utility is no longer incentivized to encourage usage to increase its profits.[27] Revenue is forecast by usage per customer, and the weather forecast is factored and normalized into this revenue. For example, a customer's usage may be estimated, and normalized for weather, to consume 3,200 m^3 per year. However, if the site's actual annual consumption for one year is 3,000 m^3, 200 m^3 of usage revenue is lost to the utility. Under a conservation incentive mechanism, SaskEnergy may defer this lost revenue and include it into the following year's revenue requirement. The usage rates the following year are then made slightly higher for everyone.

79. A conservation incentive mechanism like this may be utilized as an alternative to increasing the basic monthly charge and makes SaskEnergy less dependent on usage charges. However, from a theoretical standpoint, this type of conservation incentive mechanism does not have a limit on how high usage rates may increase over time. The goal of such a program is to reward conservation in the short term, but over time usage rates only increase if the program is working. Granted, these increases will only be a few cents every year, meaning that it would take a significant number of years before usage rates would be raised to a level that may be unacceptable to customers, but there is a limit to how high rates can go before they are unacceptable to customers. Additionally, an added difficulty in implementing a conservation incentive mechanism is measuring and attributing what portion of usage change can be attributed to conservation, and how much a decrease in usage is attributable to other external factors such as weather. This is both an administrative and regulatory issue that makes this option challenging to implement.

4.3 ONE HUNDRED PERCENT FIXED CHARGES

80. One more alternative, that expands upon the basic monthly charge, is to develop a fixed rate that recovers all site and energy costs. This approach was implemented in the mid-2010s by the Ontario Energy Board ("OEB") as an alternative to an electricity conservation incentive mechanism. Under the previous rate structure, revenues were decreasing when conservation measures were successful in reducing load, but the actual distribution costs changed very little with declined usage. Distributors were then deferring this revenue to future rate increases but found that customers complained that there was little reason to conserve if the

[27] Mark N. Lowry and Matt Makos," Review of Distribution Revenue Decoupling Mechanisms. Pacific Economics Group Research LLC." (2010) https://www.oeb.ca/oeb/_Documents/EB-2010-0060/Report_Revenue_Decoupling_20100322.pdf. p. iii.

distribution rates increased as a direct result.[28] For these reasons, the OEB implemented a monthly charge that recovered one hundred percent of site and usage related costs.

81. Under this rate design, the distribution utilities continued to collect the same total revenue as they did before, and most customers only saw a small change in their total bill. Customers who were already using little electricity saw their bills increase more significantly. Others, who used far more electricity than before, found that their bills decreased. Because of these expected changes, the OEB planned to implement the changes over four years.[29] The OEB decided that the proposal was a more accurate way to recover the cost of distribution and that it had the benefit of being more understandable to customers.[30]

82. A few drawbacks that may be associated with this type of rate design is that it is less efficient in the short term, according to Bonbright, to have energy costs recovered through a basic monthly charge, because the practice results in several sites overpaying for energy that they are not using and cross-subsidizing sites that are using larger amounts of energy. Furthermore, in consideration of the equity principles discussed in Section 2.4, implementing one hundred percent fixed rates for only the residential rate class could be viewed as undue discrimination in relation to the other classes. However, one hundred percent fixed charges may not be financially feasible for higher-use classes because their infrastructure needs are comparably smaller. Additionally, applying this type of rate to the residential rate class requires further consideration for multi-unit residential buildings, dividing this cost fairly among apartment owners may result in further undue discrimination. Lastly, while one hundred percent fixed charges decouple revenue from conservation efforts, customers become less incentivized to conserve because their rates do not change with increased usage.

[28] Ontario Energy Board. "EB-2012-0410: Board Policy: A News Distribution Rate Design for Residential Electricity Customers," (2012), p. 8.
[29] Ontario Energy Board, p. 3.
[30] Ontario Energy Board, p. 9.

5 CONCLUSION AND RECOMMENDATION

83. Maintaining the current basic monthly charge target cost recovery ratio would continue to allow SaskEnergy to reasonably recover its approved revenue requirement. The current rate levels are likely considered fair and equitable to most ratepayers since customers are familiar with the current rate structure. It is also self-evident that these rates are feasible since they are relatively acceptable and SaskEnergy can administrate these rates in their current state.

84. However, with the introduction of the federal carbon charge on natural gas, per-m^3 rates will increase for SaskEnergy's customers. This will presumably encourage more conservation, so distribution rates will recover less revenue. If the shortfall is made up by increasing the distribution usage charge (i.e., the per-m^3 charge), then this will exacerbate the issue and require more rate increases in the future. In other words, rates become less stable.

85. Furthermore, maintaining the current basic monthly charge is less efficient in recovering fixed site costs. Only recovering seventy-five percent of fixed unit costs from the residential rate class means that the remaining twenty-five percent is being recovered through a usage-based charge or is being cross-subsidized from another rate class; this means that there is a risk that this portion of revenue may not be collected if site usage is low and that the price signal for fixed site costs is not an accurate reflection of the infrastructure and service needed to supply these sites with natural gas.

86. There are several benefits associated with increasing the objective that include improvements to revenue stability and predictability that are less affected by external events and weather. Raising the basic monthly charge target also promotes static efficiency because it allows a greater proportion of fixed site costs to be recovered through a fixed charge; this also helps ensure that similar sites, in terms of infrastructure costs, are treated more equitably.

87. In the consideration of net-zero emission homes and conservation, there is a further case to be made for increasing the basic monthly charge target level so that these sites are paying a fair share for sunk costs that may not be recoverable through a usage charge. Furthermore, an increased basic monthly charge target allows the utility to encourage conservation without risking revenue stability because it frees the utility from depending too much on usage-based rates.

88. There are some potential drawbacks to raising the basic monthly charge target. Increasing rates to meet this target may potentially encourage more usage because total bills are less affected by the usage charge – this may offset any gains made in conservation. However, this behaviour itself may be offset considering the addition of the federal carbon charge and increases to commodity. While SaskEnergy's current basic monthly charge is above average in comparison to Canadian natural gas utilities, this is not unexpected since SaskEnergy's customer base is largely rural and requires more fixed infrastructure. However, among Saskatchewan's other utilities, and the neighbouring province of Alberta, SaskEnergy's basic

monthly charge is relatively low which means makes an increase to the objective more acceptable to its customers.

89. Therefore, by considering the rate design principles and comparing SaskEnergy's basic monthly charge with the fixed charges of other utility companies, we conclude that the current policy is satisfactory. Given the new and emerging issues in the gas distribution utility industry, all related to conservation, there is also an argument to set the charge higher than the current seventy five percent target.

90. We recommend that SaskEnergy consider raising its basic monthly charge. Such an increase may be as high as one hundred percent of fixed, per-customer cost, subject to two conditions. First, each proposed increase to the basic monthly charge should include detailed analysis to fully understand the impact on low-use customers: who will be affected, how many will be affected, and by how much. Second, raising the basic monthly charge objective is only recommended subject to the principle of gradualism whereby the rate increases themselves are done incrementally over time.

Table 9
Increasing SaskEnergy's Residential Basic Monthly Charge Target in Increments

	Basic Monthly Charge Target ($)	Dollar Amount Increase ($)
Current Charge	24.50	-
Recover 80% of fixed cost	26.13	1.63
Recover 90%	29.40	4.90
Recover 100%	32.67	8.17

91. Table 9 illustrates how increasing SaskEnergy's basic monthly charge in five and then ten percent increments would affect the fixed portion of residential customer bills. The point of this analysis is to demonstrate the importance of gradualism: an increase to the basic monthly charge might appear at first glance to be manageable, given that it would be revenue neutral and the per-GJ energy charge decreases at the same time. However, increasing the basic monthly charge by $8.17 per month is $98.04 per year and is likely a high-impact for a low-use household, particularly if low-use correlates to low-income. Further analysis would reveal how many households face a high percentage rate increase and allow SaskEnergy to manage the transition with fewer unexpected impacts.

92. In summary, Chymko finds SaskEnergy's basic monthly charge target satisfactory, and recommends that SaskEnergy consider raising its charge target, subject to further study and the principle of gradualism, for the following reasons:

- Raising the basic monthly charge target aligns with several aspects of the rate design principles, particularly the financial, short-term efficiency, and feasibility principles.

- Raising the basic monthly charge target allows a greater degree of cost recovery from net-zero-emission communities that may otherwise not generate enough revenue to recover the cost of fixed infrastructure.

- Raising the basic monthly charge target is reasonable within the context of other utility services in Saskatchewan and the comparable rural Alberta natural gas utilities.

- Raising the basic monthly charge target is more suitable than developing a rate design alternative, such as a residential demand charge, or implementing one hundred percent fixed charges.