

Innovations in Pricing: Energy Service Subscription Pricing

Key Findings

- Subscription pricing is becoming pervasive in many industries.
- Energy Service Subscription Pricing can help cooperatives manage volumetric risk.
- Cooperatives are well-positioned to be leaders in this innovative pricing structure.

Introduction

Subscription pricing is pervasive. With examples in news, transportation, movies, internet service, and mobile phones — subscription offerings are seemingly everywhere but the energy sector. It is time to earnestly explore the value of adapting this customer-friendly pricing trend to in the energy industry.

This advisory outlines the drivers shaping new and innovative subscription pricing models, explains what these models can look like for electric cooperatives and their member-consumers, and highlights their key benefits.

What has changed?

The drivers for pricing innovation encompass three principle factors:

- Shifting customer preferences
- Enabling technologies
- Low cost grid-scale renewable energy

Shifting customer preferences

Customers are shifting their focus towards purchasing products and services that are ‘customized’ to their preferences, including a notable preference for convenience and environmental stewardship. They want simplified choices and have higher expectations of customer service in today’s data-rich world.¹

As a result, a growing number of industries are developing tiered offerings, with varying prices and perks, to meet the changing expectations of their customer base. Many customers are embracing the simplicity and predictability of this style of pricing,² with subscription services recently experiencing phenomenal growth in the U.S.³

¹ <https://www.utilitydive.com/news/moving-beyond-good-enough-in-utility-customer-experience/543555/>

² <http://journals.ama.org/doi/abs/10.1509/jmkr.43.2.212?code=amma-site>

³ <https://www.forbes.com/sites/kimberlywhitler/2016/01/17/a-new-business-trend-shifting-from-a-service-model-to-a-subscription-based-model/#602b18224a5f>

Enabling technologies

Throughout the economy, technologies like machine learning and predictive analytics, as well as infrastructure such as wired (and wireless) broadband networks — are driving new pricing constructs by lowering communication and transaction costs while providing innovative ways for customers to acquire products and services. The energy industry is also seeing its share of new demand-side-centric technology — such as advanced meters, smart thermostats, distributed energy storage, and generation — that yield greater customer choice, control, and satisfaction. Advanced meters, in particular, are expanding the possibilities for how energy providers can communicate with customers and control devices, opening up a wide range of new energy services.

Low cost grid-scale renewable energy

Electricity production economics are changing, with the capital costs of non-fuel-based technologies like grid-scale wind and solar plummeting, greatly increasing the quantity of zero marginal cost energy at certain times of the day.

Xcel Energy made headlines in early 2018 when it attracted solar-plus-storage bids for \$36/MWh and wind-plus-storage for \$21/MWh⁴. In mid-2018, NV Energy filed for approval of a large solar PV plant with a 25-year power purchase agreement for \$23.76/MWh⁵.

These costs should continue to come down as the technology matures; the cost structure of utilities and energy providers is fundamentally shifting, with marginal energy prices generally declining.

What is the impact on cooperatives?

These changes in customer preferences and technology can make it an opportune time for energy providers to introduce subscription pricing as an option for customers. Cooperatives are generally well-positioned to be early movers in introducing customer-centric subscription pricing:

- They are member-owned with a long history of delivering what their member-consumers want.
- Many are not state-regulated, so they are generally more nimble than regulated utilities in offering innovative programs.⁶
- It can be a natural extension of existing member-consumer programs (e.g. community solar, energy efficiency).

What could Energy Service Subscription Pricing look like?

Navigant uses the term Energy Service Subscription Pricing (ESSP) to describe an energy-based offering that presents a multi-year fixed bill for customers.⁷ The bill amount is tailored to each customer and based on the customer's cost of service.

⁴ <https://www.greentechmedia.com/articles/read/record-low-solar-plus-storage-price-in-xcel-solicitation>

⁵ <https://www.utilitydive.com/news/nv-energy-23-cent-solar-contract-could-set-new-price-record/525610/>

⁶ Even in states where electric cooperatives are not subject to state public utility commission jurisdiction, the cooperative attorney can help determine if state law impacts a cooperative's ability to provide energy service subscription pricing.

⁷ A fixed monthly rate offered by the cooperative and paid by the customer with pricing based on a series of data points, customer preferences, and multi-party risk tolerances

ESSP is a truly customized fixed monthly rate. The subscription rate is set at the beginning of the term, and the customer then pays that monthly subscription. The rate is set based on a customer’s expected load profile and the associated cost of serving that load, taking into account weather, fuel, and other considerations. There is no end of term true-up or adjustment if the actual cost of serving a customer differs from the subscription revenue (e.g. due to the customer’s load differing from what was expected), so the utility carries the risk of under recovery or the reward of over recovery. In this way, ESSP differs from traditional flat monthly bills, which include periodic recalibration and true-ups.

ESSP can include tiered services; a mock example is shown in Figure 1. The lowest-cost tier could provide a discounted rate in exchange for greater or more frequent utility load control (e.g. of water heating or HVAC load), while a premium rate could include complete customer control and extras such as renewable energy guarantees and access to public EV charging networks.

	Unlimited Savings	Unlimited Choice	Unlimited Premium + EV
<i>Fixed monthly price based on household profile usage (Your average current bill is \$115/month)</i>	\$115/month for 36 months	\$125/month for 36 months	\$145/month for 36 months
30% Clean Energy with energy portal app	✓	✓	✓
100% Clean Energy	✗	✗	✓
Free Smart Thermostat	✓	✓	✓
Access to free or discounted energy efficiency upgrades	✓	✓	✓
Unlimited EV charging at home and in community	✗	✗	✓
Maximum number of control days	30	15	7
Free control day over rides per year	3	5	7

Figure 1: Mock-up of Navigant ESSP Tiered Services Offerings

While ESSP will center on services related to energy, the pricing structure itself can easily incorporate bundling of additional products and services, a common practice with subscriptions in the telecoms and cable industries. Potential examples include: distributed generation, energy storage, and smart home products. For cooperatives, a rural broadband service could potentially be layered on top of ESSP. Accurate pricing will be crucial to ensure there is no cost shifting to nonparticipating customers under an ESSP, since the utility would take on any difference between the subscription revenue and the cost to serve the customer.

It is important to note that an ESSP rate should be optional, and a customer should always have the option to stay or switch back to a more traditional rate.

Some Early ESSP Examples

We are seeing early examples of elements of ESSP starting to appear from new players in the energy industry and from progressive utilities. Selected examples are presented below:

- Flat-rate for energy usage (Inspire Energy, Origin Energy)
- Access to subsidized smart energy products and services in exchange for some degree of utility control (Green Mountain Power)
- Bundling of additional products and services (Green Mountain Power, Arcadia Power)

Inspire Energy⁸, is an energy supply company currently operating in seven states that offers customers a monthly flat-rate subscription to 100% clean energy. The subscription price is personalized to each customer based on their historical load profile and the energy is backed by Renewable Energy Certificates purchased from wind farms across the U.S.



It markets the key benefits as:

- Custom clean energy plan for your home or business
- One flat energy supply price every month
- 100% clean energy sourced from across the country

Origin Energy⁹, an Australian electricity supplier, offers its Predictable Plan which is a fixed, customer-specific monthly price for electricity and/or gas for a 12-month term. The price is based on the customer's historical usage and the plan includes a fair use policy, which may see a customer's plan discontinued if their usage is excessive.



The Predictable Plan includes additional options for the share of energy from green sources.

Green Mountain Power,¹⁰ a utility in Vermont, until recently offered a flat-rate in-home electric vehicle (EV) charging service for \$29.99 per month. Customers on this service can charge their EV as much and as often as they like during off-peak hours for this flat rate.



It also offers several demand response (DR) pilot schemes, where customers can access subsidized smart devices (e.g. water heater controller, heat pump controller, Tesla Powerwall) in exchange for allowing Green Mountain Power to control these devices during peak events.

⁸ <https://powerup.helloinspire.com/home/>

⁹ <https://www.originenergy.com.au/>

¹⁰ <http://web.archive.org/web/20180807103626/https://greenmountainpower.com/product/home-level-2-ev-charger/>

Arcadia Power,¹¹ an energy supply company operating in all 50 states, offers customers access to smart home products at no upfront cost. As well as clean energy supply, it offers three tiers of ‘Home Efficiency Bundles’ made up of an Ecobee smart thermostat, an Amazon Echo device, and additional devices including smart LED lightbulbs and smart plugs on a 36-month subscription term.



Benefits of an ESSP

ESSP leverages a style of pricing that is well liked and understood by customers, as evidenced by recent stronger growth in subscription service revenue in other sectors. Customers like the simplified choice and predictability of subscription pricing, and they especially like avoiding the discomfort of knowing they are being charged for each incremental unit of usage (the so-called ‘taxi meter effect’).

On top of this base of simple and predictable pricing, energy providers can easily layer options and benefits that customers are demanding: think renewable energy options, access to community EV charging points, and smart home technology. Energy service subscription plans will make some of the most innovative and exciting energy technologies accessible to the everyday energy consumer, while allowing the provider to take advantage of low transaction costs, valuable data, and zero marginal cost energy – a win-win according to surveys.¹² This access to new products at low/no upfront cost and a bundled monthly rate is particularly beneficial for new technology, where ongoing savings are hard for customers to estimate in advance.

For cooperatives, ESSP provides the ability to drive member uptake of the most appropriate energy efficiency measures (like programmable thermostats) to lower overall system costs. And, as more members move to subscription pricing, the cooperative’s cash flows become more stable and easier to manage.

For all cooperatives, including those that own generation, ESSP can also help to reduce the revenue risk associated with declining energy usage. Under traditional two-part rates, utilities have to raise rates to recover the same revenue requirement, which further incentivizes reductions in energy usage. With an ESSP, utilities can price the volumetric risk into the monthly fixed rate.

Challenges of an ESSP

The key perceived challenge with subscription pricing is how the utility can best manage the transfer of volume risk from the customer to the utility. With traditional pricing, every unit of energy the customer consumes increases their bill amount, providing an incentive for them to manage their consumption. With ESSP, this incentive does not exist for the customer, as increased consumption won’t lead to a higher bill, but it will still increase the utility’s energy costs.

¹¹ <https://www.arcadiapower.com/>

¹² <https://www.elp.com/articles/2018/10/informed-utility-customers-want-more-renewable-energy-and-utilities-do-too.html>

However, this challenge may not be as big as it initially seems:

- Utilities across the country are seeing declining usage driven by improving energy efficiency of appliances and buildings. This trend is projected to continue as technology improves and costs continue to fall.
- Low natural gas prices minimize energy price related risk, and demand related cost exposure can be managed through technology due to the small number of hours that drive these costs.
- Zero marginal cost grid scale renewable generation is on the rise which, coupled with greater load flexibility enabled by technology, is reducing energy costs.
- Evidence from other sectors suggests customers are prepared to pay a premium for guaranteed pricing, which goes some way to mitigate the volume risk.
- ESSP could be structured to include fair usage caps to deal with extreme or excessive usage by individual customers.

A related challenge may be concerns from environmental groups relating to removing customer incentives to reduce consumption. However, the energy efficiency incentive does not go away, but rather it is transferred to the utility, which may be better positioned to act. For example, it is likely to be easier for the utility to directly reduce demand during critical peak events (e.g. by controlling customer load) than for the utility to rely on individual customers reducing load in response to a non-optimal tariff or high critical price signal.

What do cooperatives need to know or do about it?

There are three areas of work required to make ESSP options available to customers:

- Interval customer data
- Cooperative load profiles and cost drivers
- Energy efficiency, DR and DG data

Interval customer data

Cooperatives will need to analyze customer data to determine a customer load profile. A one-price-fits-all approach will not be appropriate for ESSP, so customers will need to be segmented into more granular load classes, even down to the individual level. While ESSPs can be offered with non-interval meters, the more data is available the more accurate the pricing of the ESSP will be.

Cooperative load profiles and cost drivers

Cooperatives will need to analyze their overall load profiles and cost drivers, particularly for generation costs: when do peak periods occur and how do certain costs get allocated (e.g. on a four top hours of the year or single-coincident peak basis)? Also, what could the weather impacts and fuels price be in the near future?

Energy efficiency, DR and DG data

Cooperatives will need to review their existing energy efficiency and demand response programs: how much benefit do they bring vs. what does it cost to serve the customer? Is there potential to deliver more through existing program infrastructure? Energy efficiency and demand response will become vital tools as the consumption volume risk starts to transfer from customers to the cooperative. Cooperatives will

need to determine which efficiency programs deliver the best bang for buck in lowering their cost to serve, and which demand response programs they can best leverage to control customer assets during the peak hours of the year.

Reaching the full ESSP model described here may need to come in stages. Navigant identifies three primary stages to ESSPs in the energy sector:

Stage 1 Cost of Service ESSP Rate Structures: Yearly Certainty

Considered the base case, Stage 1 subscription rate structures have an established history of delivering value to involved parties. In the U.S., hundreds of thousands of customers are on tariffs with bills that are fixed for a year and then are recalibrated upwards or downwards at a set anniversary date to align a customer's previous usage with their cost to serve. Georgia Power has been a leader in this space for over 15 years.¹³

Stage 2 Cost of Service EESP Rate Structures: Multi-Year

Stage 2 ESSP rate structures process multi-year fixed bills, adjusted after each rate case cycle and involve moderate additions to base service offerings. Additional services may include smart thermostats and some energy efficiency upgrades.

Stage 3 Cost of Service ESSP Rate Structures: Enhanced Multi-Year

Stage 3 ESSPs have longer-term fixed bills beyond the time between regular rate case cycles. This offering includes heavy on-site customer technology and control (e.g., programmable and controllable thermostats, water heaters, and pool pumps). Products and services outside the traditional utility offering can also be layered on such as home monitoring and smart appliances. Further, longer-term investments can be added to qualified customers for increased monthly premiums like rooftop solar or energy storage.

Concluding Thoughts

ESSPs challenge us to rethink the customer and utility cost/risk swap, as marginal costs to serve continue to decrease (from an energy standpoint). They could develop brand loyalists and compel utilities to use AMI investments to take advantage of customer data. The focus will be on turning data about customers and system cost drivers into a win-win for the customer and utility. This is done by investing in predictive analytics, customer service, and strategic partnerships. The ESSP can put the utility in a position to gain by lowering its customers' cost of service while still collecting a fixed stream of revenue. With greater amounts of zero marginal cost electricity and customer sited demand reduction technology, a new era in rate design can emerge to meet evolving customer expectations and preferences.

Additional Resources

- Navigant Article: *Should Utilities Offer Subscriptions?*
www.navigant.com/insights/energy/2018/should-utilities-offer-subscriptions

¹³ <https://www.georgiapower.com/residential/billing-and-rate-plans/pricing-and-rate-plans/flatbill.html>

Contact for Questions

Allison Hamilton

Senior Principal, Markets and Rates
NRECA

allison.hamilton@nreca.coop

703.907.5824

About the Author

This article was written by Lon Huber, Director, Navigant. Lon is currently leading Navigant's North American retail regulatory offering. He has previously led advances in time-varying rate design, RPS modernization, distributed energy resource compensation and ownership, energy storage and community solar. lon.huber@navigant.com 928.380.5540

LEGAL NOTICE

This work contains findings that are general in nature. Readers are reminded to perform due diligence in applying these findings to their specific needs, as it is not possible for NRECA to have sufficient understanding of any specific situation to ensure applicability of the findings in all cases. The information in this work is not a recommendation, model, or standard for all electric cooperatives. Electric cooperatives are: (1) independent entities; (2) governed by independent boards of directors; and (3) affected by different member, financial, legal, political, policy, operational, and other considerations. For these reasons, electric cooperatives make independent decisions and investments based upon their individual needs, desires, and constraints. Neither the authors nor NRECA assume liability for how readers may use, interpret, or apply the information, analysis, templates, and guidance herein or with respect to the use of, or damages resulting from the use of, any information, apparatus, method, or process contained herein. In addition, the authors and NRECA make no warranty or representation that the use of these contents does not infringe on privately held rights. This work product constitutes the intellectual property of NRECA and its suppliers, and as such, it must be used in accordance with the NRECA copyright policy. Copyright © 2019 by the National Rural Electric Cooperative Association.