



# Commercial and Industrial Rate Design for Electricity

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Stakeholder Information Session  
On Staff Report to the Board  
March 2019



# Meeting Purpose

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- Provide customers and stakeholders with an opportunity to ask clarifying questions about the Staff Report to facilitate preparation of written comments
- Will provide an overview of the Report
- Review OEB staff's rate design recommendations and proposed implementation/mitigation strategies
- Written comments due March 29, 2019



# Presentation on Commercial & Industrial

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- Rationale for proposing change to rate design
- Consultations
- Staff Report to the Board with recommendations
  - Describes the situation in Ontario and the changes that are causing the need for a new approach to rate design
  - Proposal for GS < 50 kW
    - Analysis, Impacts, and Mitigation
  - GS ≥ 50 kW, Intermediate, and Large
    - Analysis, Impacts, and Mitigation
- Next steps



# The rationale for rate design change

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- Customers' use of the distribution system has been changing and the changes are expected to accelerate with installation of Distributed generation and storage, other DM
  - They are saving money by avoiding consumption charges
- However, distribution **costs** are not lowered
  - The customers with generation still require the same level of capacity available on the distribution grid
  - 17 distributors ( 2 more have applied) have standby charges to address the need to maintain system capacity when a customer installs generation
- Costs are being shifted to other customers
  - The customers' bills go up to pay for the system
- **The current rate design is leading to some customers avoiding paying for the system they require**
  - **Shifting costs to other customers**
  - A rate design change will provide a better price signal and support economic choices by customers – acting now avoids a risk of more entrenched decisions and costs
- OEB staff has prepared a set of recommended changes in rate design for commercial and industrial customers to address these changes and support innovation
  - Follows from an extensive customer consultation
  - Data analysis and modelling to identify affect on customers
  - Mitigation strategies by implementing over 5 year period



# Summary table

Class	Current Rate Design	Proposed Rate Design
<b>General Service Less than 10 kW</b>	Monthly Service Charge + consumption charge (per kWh)	Monthly Service Charge (fully fixed – average cost)
<b>General Service 10 to less than 50kW</b>		Monthly Service Charge + demand charge (per kW)
<b>General Service 50kW and Over</b>	Monthly Service Charge + demand charge (per kW)	Monthly Service Charge + demand charge (per kW) + Capacity Reserve Charge
<b>Large (over 5000 kW)</b>	Monthly Service Charge + demand charge (per kVA)	Monthly Service Charge + demand charge (per kVA) + Capacity Reserve Charge <ul style="list-style-type: none"> <li>• Emergency Backup</li> <li>• Maintenance</li> <li>• Bypass</li> </ul>



# Getting Customer Input



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# Staff Discussion Paper

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- Issued a discussion paper setting out a variety of options for stakeholder feedback
  - Comments suggested refinements which lead to further analysis => recommendations
- Additional staff analysis in response to comments and stakeholder discussions
  - Develop concept of Capacity Reserve Charge for  $GS \geq 50$  and Large consumers
  - $GS < 10$  is comparable primarily on average peak demand to residential
  - Analysis for typical load profiles (grouping plots)
    - $GS < 50$  and  $GS > 50$  customer groupings
  - Regional and provincial demand curves showing fall in demand
- Navigant analysis
  - Develop mock tariffs designed to recover the same distribution revenue using profiles for 103,000 customers from a variety of distributors
    - $GS < 10$  and  $GS$  10 to 50 kW subclasses
  - Calculated rate impacts compared to status-quo rate design
  - Sensitivity analysis for effects on revenue for conservation, and 2 levels of load displacement generation for large customers



# Customer meetings-2017/18

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- Fall of 2017 held series of meetings with customers and customer associations
  - AMPCO and SEC representatives
  - CME Standing Committee on Energy
  - Environmental Defence
  - AMPCO Board meeting
  - Ontario Association of Physical Plant Administrators
  - CHP consortium of APPrO
- Staff used those comments to inform the current proposals.
- Also met with EDA and CLD to get utility implementation view
- CFIB hosted two webinars in October that had a total of 70 business owners participate





# Customer survey – January 2018

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- OEB staff retained **Ipsos to undertake a qualitative customer survey** to gather direct customer input on rates and electricity issues for customers in the <50kW class
  - In depth interviews with business owners
    - 6 with 2 to 15 employees (< 10 kW)
    - 9 with 5 to 50 employees (10 to >50 kW)
    - Mostly owners wearing many hats

## **Top line comments from General Service < 10 kW**

- Representatives from restaurants, car repair, craft manufacturer, professional services, internet startup
  - Electricity use is low to minimal
    - Not a lot of specialized equipment
    - Exception is restaurants because of refrigeration use
  - Review their bills month to month with focus on general consistency in amounts
  - Value reliability over cost since outages cost revenue
    - Interested in conservation not generation
    - Interested in batteries for reliability and arbitrage but capital costs are high
  - Not particularly price sensitive on electricity
  - Don't want to pay for someone else's use – fairness and transparency
  - Any change should take place over time – not all at once

# Customer survey (2)

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## Top line comments from General Service 10 to 50 kW

- Representatives from restaurant, farm, car dealership, manufacturer, wholesale distributor, multi-use retailer, hotel with restaurant
  - Electricity prices are in top 3 concerns
    - HVAC, refrigeration, lighting, power tools, farming equipment, machinery
    - Business hours dictate use (i.e. no shifting)
    - Have taken steps to control use
    - Interested in new technologies and generation
  - Understand the rationale for changes
    - Mitigation to make changes gradual
    - Want OEB to provide information and programs to help them control costs

# Staff Recommendations



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# Policy objectives for rate designs

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- Support innovation for customers by
  - ensuring all commercial and industrial customers of every class can reduce their bill through conservation of the commodity,
  - allowing some customers to reduce their bill through lowering overall demand through conservation, and
  - allowing customers who do not have the opportunity to reduce their bill through lowering demand to benefit from a simpler, more predictable bill.
- Increase efficiency of the system by
  - ensuring that customers who install distributed energy resources do not shift costs to other customers
  - maintaining a reliable and flexible distribution system through a fair and balanced recovery of system costs
  - encouraging cost effective investment in distributed energy resources
- Facilitate investments to modernize the grid in a paced and prioritized manner that will support customer choice and efficiency



# General Service < 10 kW

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- Currently a monthly service charge + rate x kWh consumed in a month
- Recommendation is to move to fully-fixed distribution rate
- These customers are very similar to residential
  - Similar system use in average maximum demand
  - Similar connection for hardware, voltage, and current
- **Mitigation proposal to manage impacts of change**
  - Change over 5 years, in same fashion as residential rate design change
  - Increase the Monthly Service Charge by 1/5 of the difference each year
  - Decrease the volumetric rate proportionally
  - Distribution revenue remains unchanged
- Typical bill is \$171 and about 31% of the bill is distribution
- Customers with high consumption will see a decrease while low use consumers will see an increase
- Because the biggest increases are on the smallest use customers (almost no consumption), the increase as a percentage is large.
- The IPSOS survey identified this customer group as not particularly price sensitive

# General Service 10 to 50 kW

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- Currently a monthly service charge (MSC) + rate x kWh consumed in a month
- Opportunity to move these customers to a more cost reflective charge
  - previously limited by metering but now have Smart Meters
- Recommend change to MSC + rate x maximum consumption in an hour
- Many other jurisdictions are moving to a 3-part bill for smaller customers (fixed charge, demand charge, and consumption charge)
  - Rely on fixed/demand for network and consumption (kwh) for commodity
- **Mitigation proposal to manage impacts of change**
  - Over 5 years, introduce and gradually increase a rate for maximum consumption in an hour (20% of the change per year). Outliers would see much larger changes
  - Decrease the monthly consumption rate proportionally
  - No change in distribution revenues
- Flat load customers will see a decrease while peaky customers will see an increase to reflect their demand on system capacity requirements
- Our analysis of distributor data has identified a few outlier customers (<1%) with large total bill increases – these are exceptionally peaky customers who are not paying their share of costs – target these customers for programs and technology
- Based on survey and customer meetings we recognize these are a more price sensitive group – changes in pricing will cause behavior changes that will reduce their costs and system costs

# General Service 50kW and Over Intermediate and Large Customers

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- Customers varied as to whether they are considering distributed generation.
  - Larger customers are more likely to consider it. There is a long time from considering it to having installed generation.
- Load Displacement Generators shift costs to other customers
- Staff recommendations
  - No change to underlying rates
    - No impacts for existing customers without generation
  - New Capacity Reserve Charge for customers with self-generation
    - Replace current standby charges with a fairer and more efficient price signal
    - Phase-in for existing customers with self-generation without standby charges
    - Factor into the economic decision for new generation



# Capacity Reserve Charge

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- Load Displacement Generators (LDG)
  - Helps customers control costs, participate in ICI
  - Effect of reducing distribution charges but not system costs
  - These customers still rely on the distribution system
- Objective of our Proposal
  - Reflect the cost of maintaining capacity in the distribution system to provide emergency backup capacity for an LDG without double charging them
  - Avoid cost shifting from advanced customers (LDG/storage) to more traditional customers
  - Support distributors in right sizing the system to control or reduce costs – end of life and replacement decisions





# Staff Recommendation

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- Take into account the expectation that the customer will reach and pay for full or partial load at some point in the billing cycle
- Capacity Factor (CF): the ratio of a generator's actual output over a period of time, to its potential output if it were possible for it to operate at full nameplate capacity continuously over the same period of time
- $CRC_E = \text{Faceplate capacity} \times \text{Capacity Factor} \times \text{underlying demand rate of the distributor}$ 
  - OEB determines a table of technology based CFs
  - Customer and LDC could agree on CF for over 3 MW
- Staff expects further discussions with the IESO to refine the CF both in terms of technology specificity and appropriate %

# Large customer options (over 5 MW)

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- Allow customers choice in the service they want and how much they will pay
- Maintenance service (partial bypass)
  - $CRC_M = \text{Faceplate capacity} \times CF \times \text{underlying demand rate of the distributor} \times \text{off peak factor}$
  - Off peak factor: some lesser amount than full backup
    - Start with 50% for consultation; could be off peak cost
- Bypass: following the rules of the Cost Responsibility Notice
  - Only over 5 MW
  - Pays Net Book Value of connection assets
  - Renewable exempt
  - Distributor has to have involved customer in 5 year planning exercise (see slide 20)

# Maintenance and Bypass Issues

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- A customer who has chosen maintenance instead of emergency service should face some consequences if it draws full load at peak times otherwise it can game the system – proposing two options for consideration
- Option 1: Physical restraint e.g. a load limiter
  - An LDC with restricted feeder capacity may want this option
  - Customer takes full risk of not having enough power
  - May result in frequent changes to infrastructure to meet customer needs
  - Has been used in Ontario before
- Option 2: Penalty rates for above contract load e.g. 3X demand rate
  - An LDC with excess capacity may want this option
  - Additional revenue for LDC to offset costs
  - Does not allow LDC to right-size system as capacity needed
  - Used by Ofgem to manage Agreed Supply Capacity

# Link to Distribution System Plans

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- Large customers have a capital planning process
  - Based on input we understand that it can be up to 7 years for LDG from idea to operation
- Distribution System Plans have a 5 year horizon
  - End of life or capacity expansions are key to optimizing investments – right sizing
  - New rules under DSC require distributors to consult with large customers on forecast needs, including potential for LDG/storage
    - Otherwise LDC is not entitled to bypass payment



# CRC implementation and mitigation plans

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- New CRC would apply to all newly installed generation once tariff is approved
- CRC would replace the existing stand by charges where they previously applied
- For previously installed generation for which a standby charge has not applied
  - Recognition of customer investment
  - CRC applies with factor that increases by 10% each year i.e. year 1: 10%, year 2: 20%
    - to account for depreciation of asset
- LDC could waive all or part of CRC if system benefits from customer generation



# Next Steps

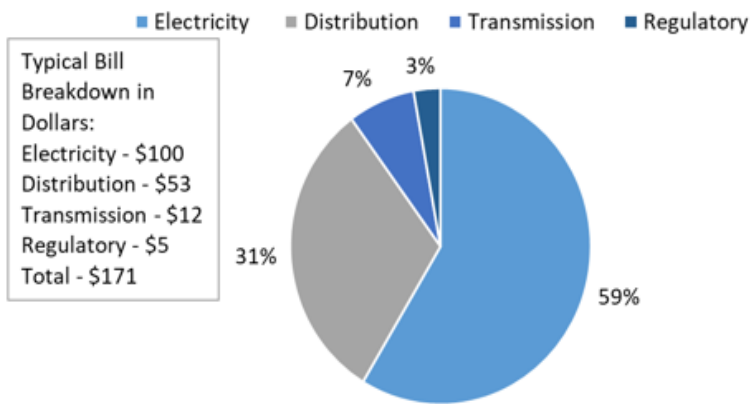
- Meetings with stakeholders
- Written comments from stakeholders



# Average total monthly bill and distribution impacts for GS less than 10 kW customers

Note: For graphs below bill decreases are represented by negative values; bill increases are positive

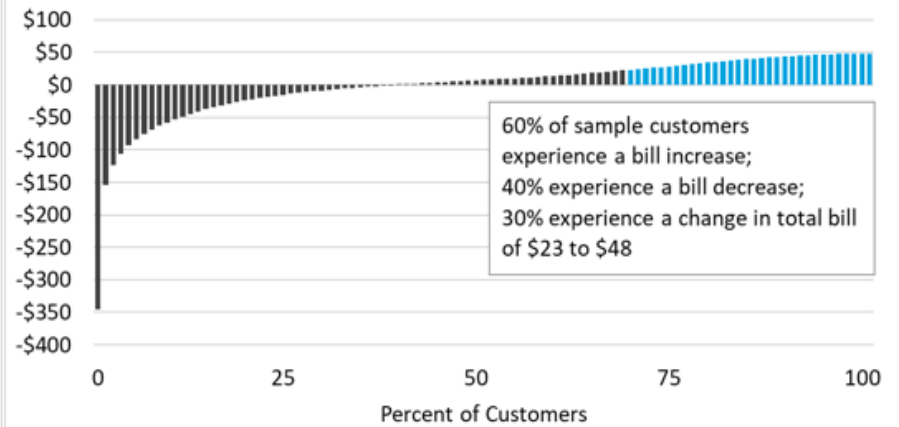
**Total GS Less Than 10 kW Bill, Broken Down by Component**  
Based on a typical GS 10 kW customer consuming 1000 kWh/month; averaged across all distributors in the province



Typical Bill Breakdown in Dollars:  
Electricity - \$100  
Distribution - \$53  
Transmission - \$12  
Regulatory - \$5  
Total - \$171

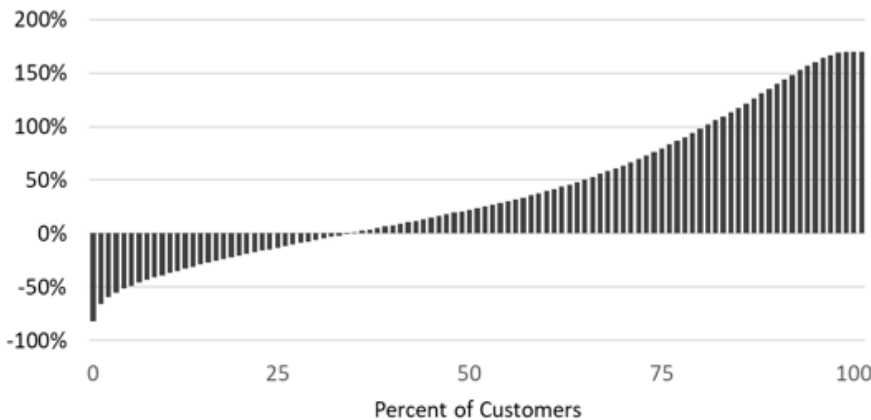
**Difference in Total Monthly Bill, in Dollars, for GS Less Than 10 kW Customers**

Source: Navigant Analysis



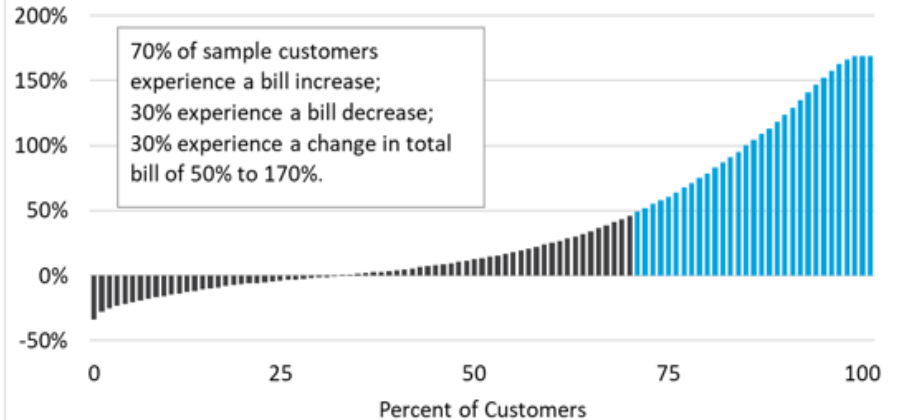
**Difference in Distribution Charge, in Percent, for GS Less Than 10 kW Customers**

Source: Navigant Analysis



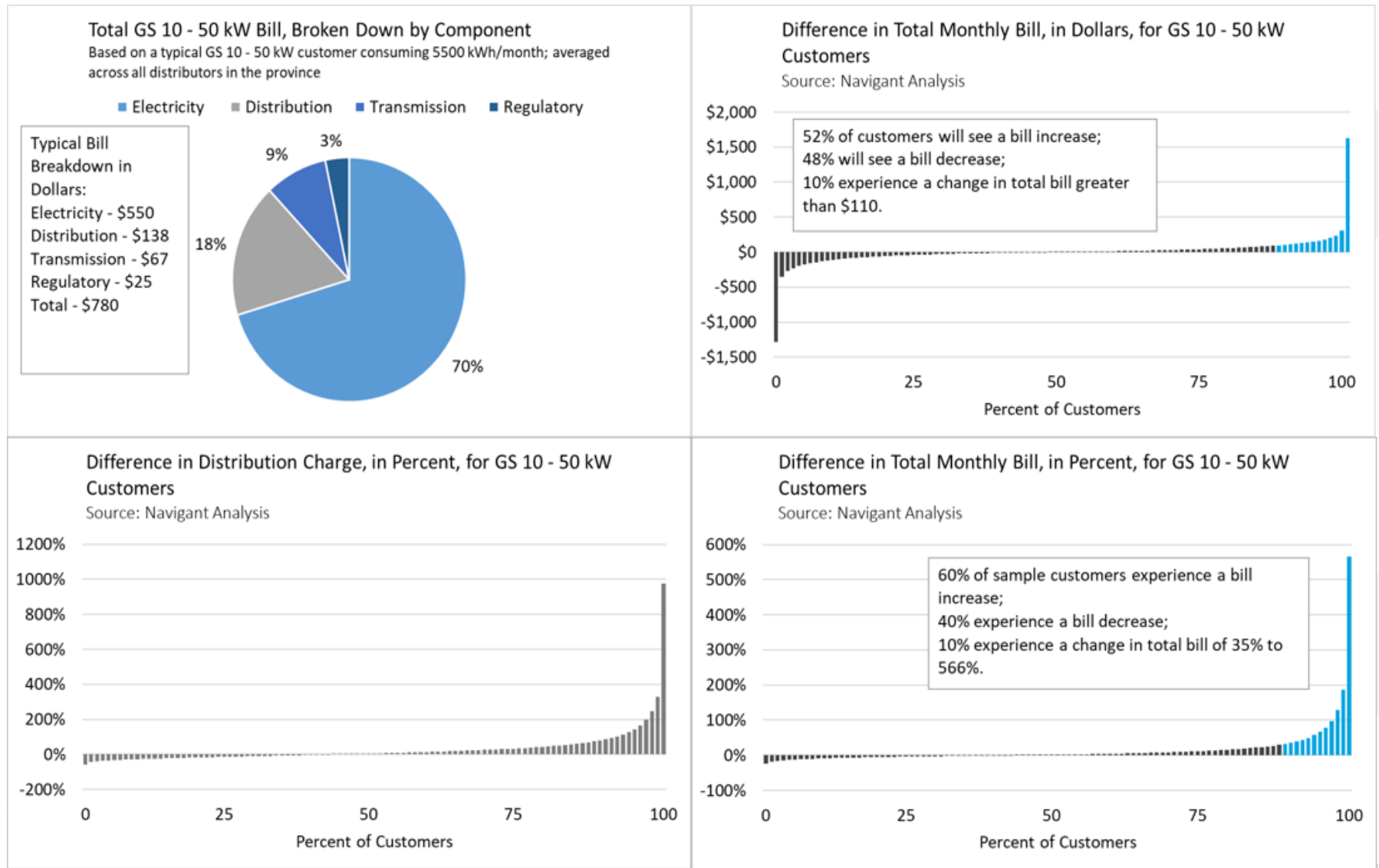
**Difference in Total Monthly Bill, in Percent, for GS Less Than 10 kW Customers**

Source: Navigant Analysis



# Average total monthly bill and distribution impacts for GS 10-50 kW customers

Note: For graphs below bill decreases are represented by negative values; bill increases are positive





# Samples of Potential Capacity Factors

Type	Installation	Capacity Factor
<b>Solar</b>	Rooftop – fixed	10
	Ground mounted – tracking	20
	With storage	50
<b>Wind</b>	Onshore	30
	With storage	50
<b>Bioenergy</b>	Standard	40
	With storage	50
<b>Combined Heat and Power</b>	Heat following	50
	Full operation	65
<b>Fossil</b>	Certificate of approval limited	15
	Full operation	65