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# Future Electricity Sector Utility Ownership & Regulation in Hawaii

*Draft Preliminary Results*

**City and County of Honolulu**

Prepared for Hawaii Department of Business, Economic Development,  
and Tourism (“DBEDT”)

## Disclaimer notice

- ▶ **London Economics International LLC (“LEI”) was engaged by the Department of Business Economic Development and Tourism to look at various ownership and regulatory models for the State of Hawaii (also referred to herein as the “Study” or “Project”). LEI has made the qualifications noted below with respect to the information contained in this preliminary presentation and the circumstances under which the presentation was prepared.**
  
- ▶ **While LEI has taken all reasonable care to ensure that its analysis is complete, power markets are highly dynamic, and thus certain recent developments may or may not be included in LEI’s analysis. Stakeholders should note that:**
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The primary goals of today's outreach are to provide preliminary results and obtain final feedback from stakeholders

**1** Provide an overview of analyses performed for the Study



**2** Share insights on the preliminary results of the Study



**3** Solicit stakeholders' input for the final report



# Agenda

**1**

**About the study**

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Ownership models

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Regulatory models

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Discussions

# DBEDT is directed by the legislation to:

## Assess the ability of each model to:

### Evaluate alternative utility ownership and regulatory models

**Ownership models** include: co-ops, investor-owned utilities, Single Buyer, and integrated distribution energy resources ("IDER") system operator

**Regulatory models** include status quo with HERA, independent system operator, distribution-focused regulatory model, and performance-based regulation

1

- 1) Achieve **state energy goals**
- 2) Maximize **customer cost savings**
- 3) Enable a **competitive distribution system**
- 4) Eliminate or reduce **conflicts of interest**
- 5) **Align interests**

2



### Conduct a long-term cost benefit analysis

- **Costs** required to change from current model to new model
- **Legal and regulatory approvals** needed for the change
- Impact on **revenue requirements and rates**
- Effects on **distributed energy resources**

3

# The assessment of potential models consists of multiple layers, including various analyses and stakeholder outreaches

## Key steps taken in the Study

### Ownership models

### Regulatory models

1) Considered **several potential models** for Hawaii

2) Performed **high-level assessments** including pros/cons, feasibility assessments, and stranded costs

3) Conducted **community outreaches** and one-on-one meetings; incorporated views from the **stakeholders**

4) **Ranked** the alternative models based on state goals and impact to ratepayers

5) Conducted **more in-depth analyses** of the alternative models

6) **Compared results** of alternative utility ownership and regulatory models

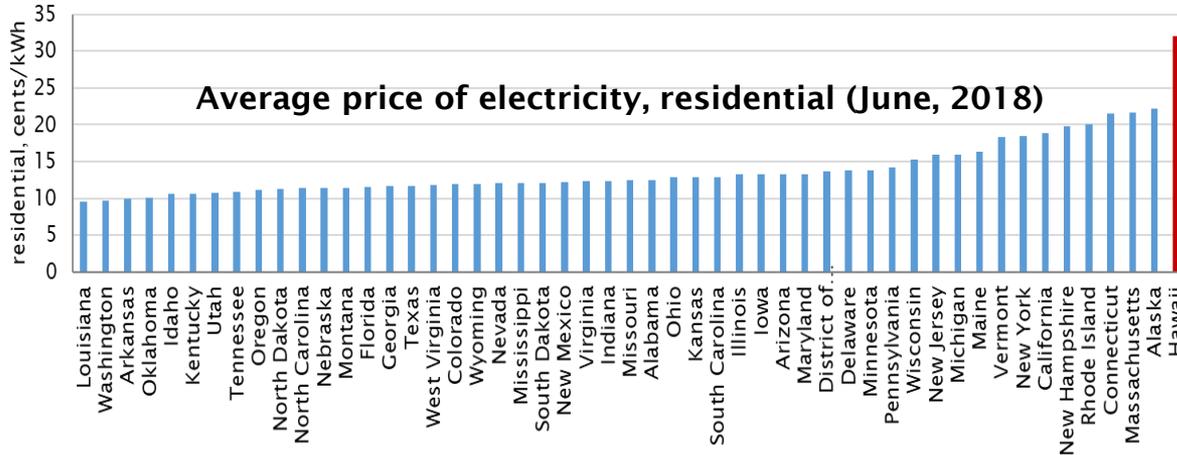
Three feasible **ownership models** for further consideration

Three feasible **regulatory models** for further consideration



# According to the stakeholders, lowering the rates now and in the future is a priority

## Highest electricity prices in the country



Source: EIA. HECO Companies, Third Party Databases

## Other priorities raised by stakeholders (not arranged in any particular order)

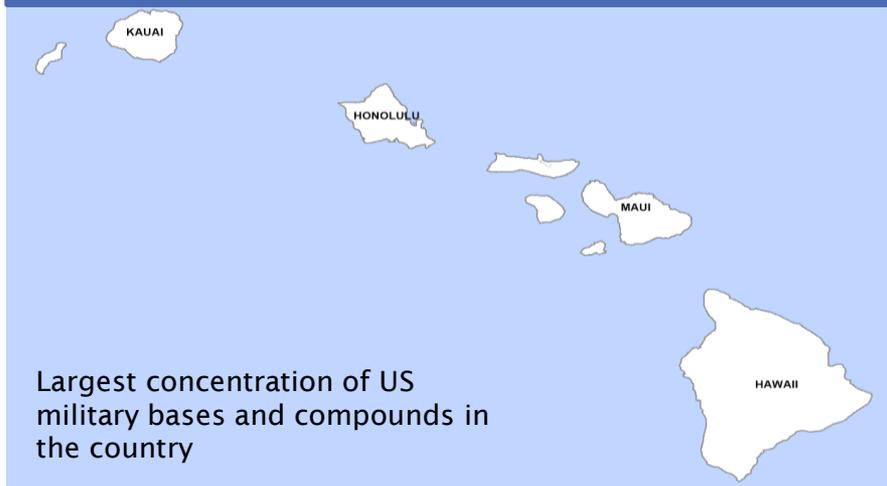
- ▶ Responsiveness/ alignment with community priorities
- ▶ Infrastructure needs to be resilient and improved
- ▶ Local control
- ▶ More renewable energy
- ▶ Innovation and adoption of new technologies
- ▶ Any model must consider the costs





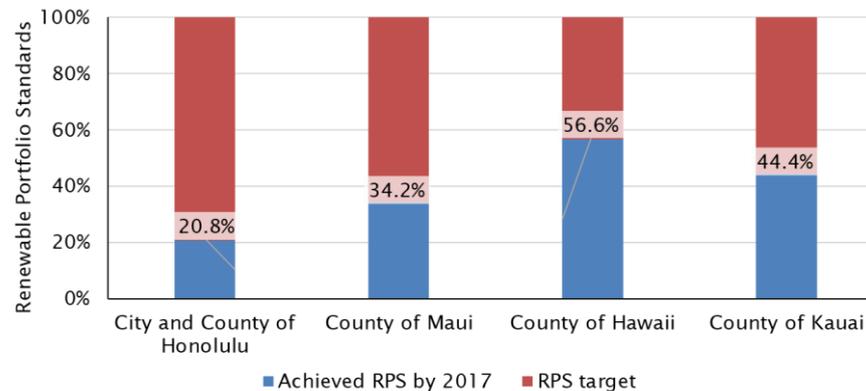
# State's and counties' distinct characteristics are taken into account in the analyses

## Multiple islands



## 100% clean energy goal

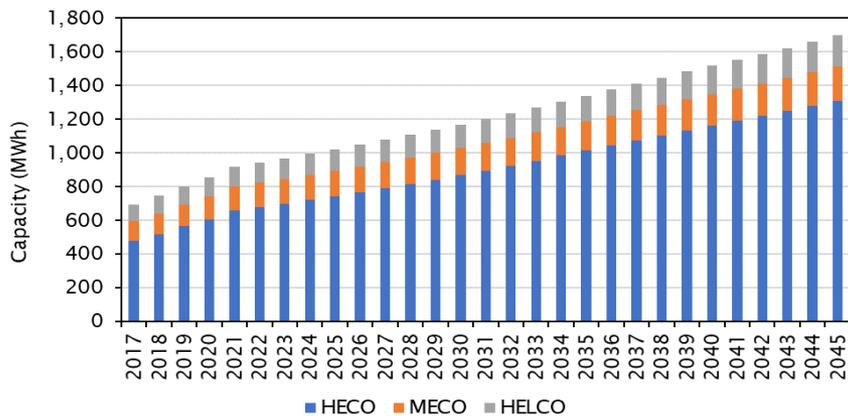
### Achieved RPS vs. 100% RPS target



Source: HECO Companies, KIUC

## Expected high penetration of DERs

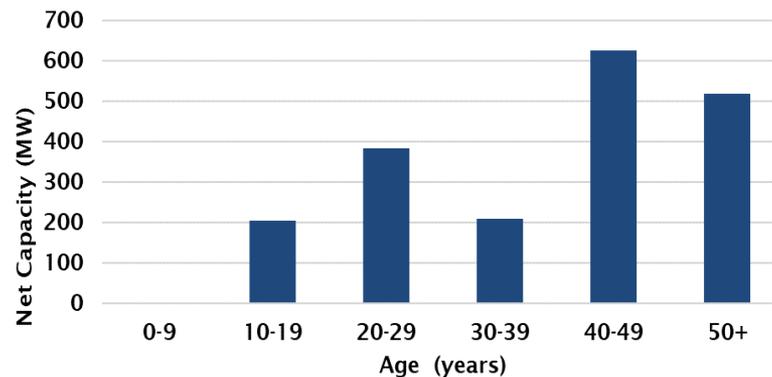
### HECO Companies' forecast cumulative DG-PV capacity



Source: HECO Companies

## Aging generation and transmission assets

### Age of thermal plants as of 2017



Source: HECO Companies; Third-party database provider

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1 About the study

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# Various utility ownership structures were reviewed ranging from traditional utility-centric models to grid defection

Model	Owner	How does it work?
1) Investor-owned utility ("IOU")	<ul style="list-style-type: none"> <li>Shareholders (publicly traded or privately held)</li> </ul>	<ul style="list-style-type: none"> <li>Management is <i>appointed by the Board</i>, which has a fiduciary duty to its shareholders</li> <li>Access to capital market to <i>finance large investments</i></li> </ul>
2) New parent	<ul style="list-style-type: none"> <li>Private or not-for-profit</li> </ul>	<ul style="list-style-type: none"> <li>Could be <i>not-for-profit, a limited dividend, or a benefit corporation</i></li> <li>Management is appointed by the Board</li> </ul>
3) Municipal utility ("muni")	<ul style="list-style-type: none"> <li>Owned by the city or the town</li> </ul>	<ul style="list-style-type: none"> <li>Governed by <i>local elected or appointed officials</i></li> <li>Finance energy improvements with <i>government bonds</i></li> <li>Benefit from access to <i>tax exempt debt financing</i> and they may also be tax exempt</li> </ul>
4) Cooperative ("co-op")	<ul style="list-style-type: none"> <li>Owned by the members-customers</li> </ul>	<ul style="list-style-type: none"> <li>Management has oversight by its <i>Board</i> and in some cases, from <i>regulators</i></li> <li>have access to low cost debt and <i>special federal financing programs</i></li> </ul>
5) Hybrid (majority government-owned)	<ul style="list-style-type: none"> <li>Owned majority by the <i>government</i></li> </ul>	<ul style="list-style-type: none"> <li>Management is appointed by the <i>Board</i></li> </ul>
6) Integrated distribution energy resources ("IDER")	<ul style="list-style-type: none"> <li><i>Utility</i> (wires assets)</li> </ul>	<ul style="list-style-type: none"> <li>Coordinating flows across the grid can either be done by the utility or another entity</li> </ul>
7) Single Buyer ("SB")	<ul style="list-style-type: none"> <li>Utility or independent, not-for-profit entity</li> </ul>	<ul style="list-style-type: none"> <li>SB within the utility is still owned by the utility but have stricter <i>ring-fencing mechanisms from other businesses</i></li> <li>SB could also be outside the utility</li> </ul>
8) Grid defection	<ul style="list-style-type: none"> <li>Diverse (generation)</li> <li>Utility (wires)</li> </ul>	<ul style="list-style-type: none"> <li>Utility would still provide services to customers connected to the grid but at a higher costs</li> </ul>

# The “friendliness” of the acquisition plays a significant role in the feasibility of the ownership model

Model	Stranded costs on generation?	Stranded costs on T&D?	Comply with reliability, adequacy, quality of service?	Require separation of some businesses?	Require costs to move to new model?	Require legal or regulatory changes?
1) Status quo (IOU)					✗	
2) New parent	✗			✗		✗
3) Co-op						
4) Muni						
5) Hybrid		✗	✓		✓	✓
6) IDER				✓		
7) Single Buyer	✗					
8) Grid defection		✓	✗	✗	✗	✗

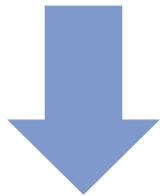
 Positive
  Negative
  Can be positive or negative

# “Ownership change will not entirely address our concerns; there is a need for regulatory changes and strong leadership” - Stakeholders

## IOUs (Status quo)



- **Lack of competition**
- **Misalignment** between utility incentives and community interests or policy priorities



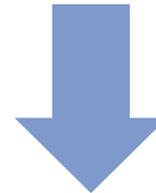
- **Stable**
- **Economies of scale**
- Can attract a **talented workforce**



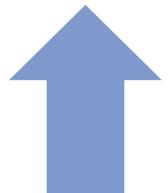
## Co-ops



- Concerns on the **acquisition costs**
- In Oahu, population and size raised concerns of a co-op working on the island



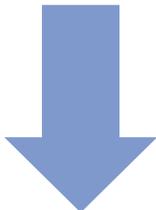
- **Direct influence** on the decision-making process/local control
- Access to **low cost financing**
- **Nimble** and **innovative**



## Munis



- **Politicization**
- Not interested because of **distrust in political leaders** and concerns about them managing a utility
- Issue on ability of government to **operate the utility**



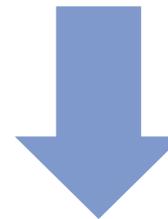
- **More responsive** to community interests
- **Stable**
- Focused on **long-term planning**



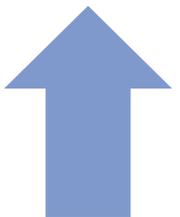
## Wires (IDER and Single Buyer)



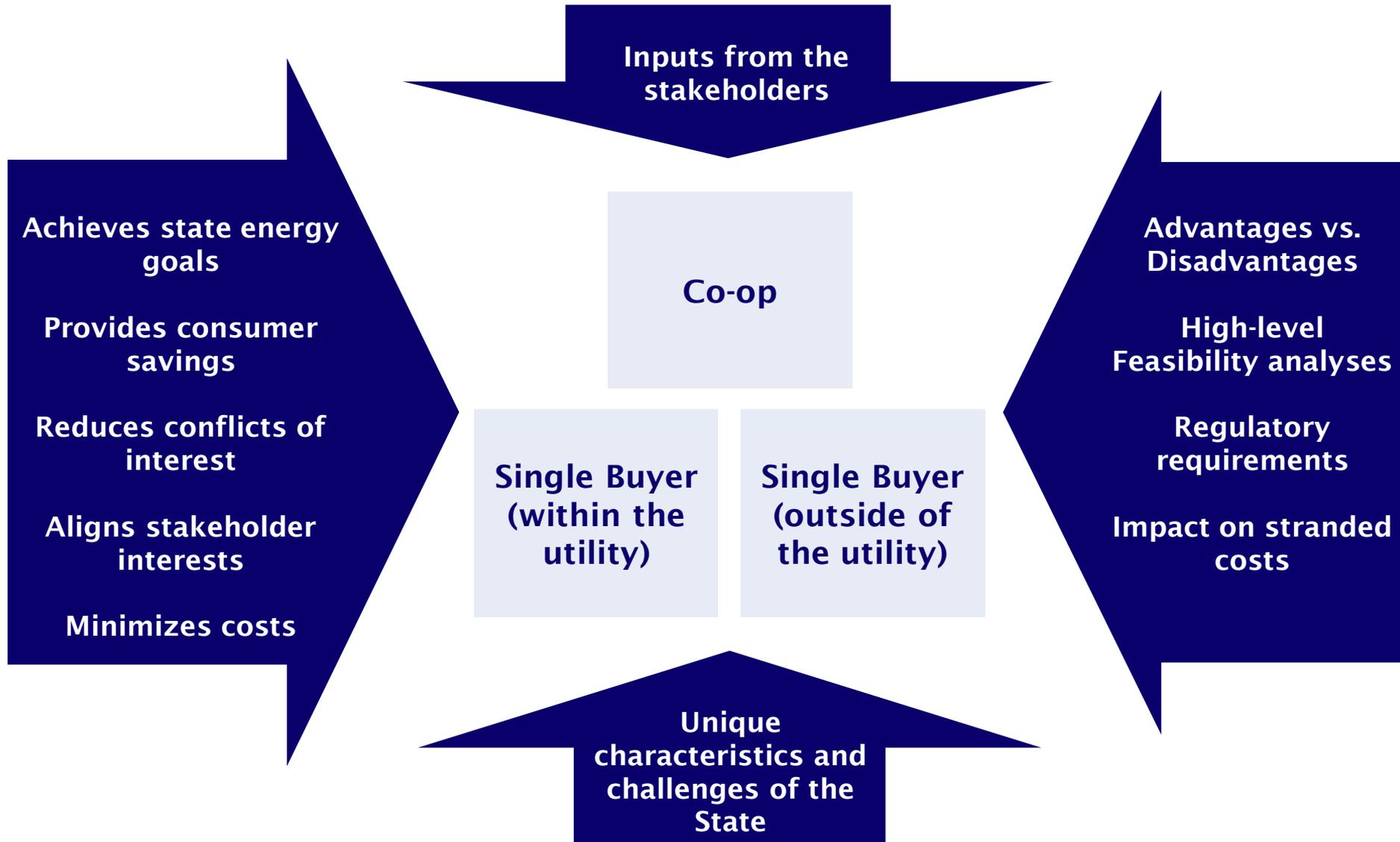
- **Complexity and novelty** of the model (IDER)
- **Limited** examples (Single Buyer)



- Ensures **fair procurement process**
- Provide opportunities for a **peer-to-peer energy marketplace**



# Four ownership models, including IOU, co-op, and SB (within and outside of the utility) were selected for additional review





# The SB approach is assumed to have lower cost than the co-op model, but the co-op model possesses greater certainty in implementation

Models	 INVESTOR-OWNED UTILITIES <b>Status quo</b>	 RURAL ELECTRIC COOPERATIVES <b>Co-op</b>	 <b>Single Buyer (outside of the utility)</b>	 UTILITY <b>Single Buyer (within the utility)</b>
Costs	No costs	<ul style="list-style-type: none"> <li>• Cost to acquire assets (\$2.9 - 3.4 billion) for HECO</li> <li>• Transaction fees representing 1%-3% of acquisition cost</li> </ul>	<ul style="list-style-type: none"> <li>• Setup costs of at least \$3 million (Year One costs) for HECO</li> </ul>	
Timeline	No steps	<ul style="list-style-type: none"> <li>• Approximately 24-36 months</li> </ul>	<ul style="list-style-type: none"> <li>• 24-48 months with significant uncertainty due to the legislative and regulatory processes to establish the single buyer entity</li> </ul>	
Legal changes	No legal changes	<ul style="list-style-type: none"> <li>• No changes to regulation are necessary</li> <li>• The burden of proof rests on the co-op to demonstrate that it can meet the laws and regulations already in place</li> </ul>	<ul style="list-style-type: none"> <li>• Requires a PUC proceeding</li> <li>• Requires legislative action to establish a new entity to undertake the planning and procurement responsibilities of the utility</li> </ul>	

# Moving to a co-op model could increase rates but the Single Buyer models can lower rates by reducing the costs to procure generation from IPPs

## HECO

Change of the Ownership Model	Impact on rates*	Average impact**
Move to a co-op model		9.7%
Move to a Single Buyer within the utility model		-0.7%
Move to a Single Buyer outside the utility model		-0.8%

\* Relative to the Status Quo

\*\* From 2018 to 2045

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# Various regulatory models appropriate to the State and are not mutually exclusive were assessed

## HERA Model

- ▶ A **dedicated body** (HERA) would enforce and oversee compliance with formal reliability standards
- ▶ HERA would **support the PUC** in carrying out critical functions related to reliability and grid access oversight functions
- ▶ The PUC may **contract** with a person, business, or organization, (but not a public utility) for the performance of HERA's functions

1

## Distribution System Platform Provider ("DSPP")

- ▶ Distribution utilities are **required to provide a platform for third-party participation** in a distribution system marketplace
- ▶ Utilities would continue **own and operate** the distribution **system** and become the Distributed System Platform Provider ("DSPP")
- ▶ DSPP is **responsible for planning and designing its distribution system** to be able to integrate DER

3

## Integrated Grid Operator Model ("IGO")

- ▶ An independent entity would be **responsible for planning and operations**, including the dispatch of both the transmission and distribution system
- ▶ IGO would also **determine the investment requirements** of both transmission and distribution networks
- ▶ Utilities would **continue to own** the wires assets, but the operations would be under the IGO

2

4

## Performance-based regulation ("PBR")

- ▶ PBR **strengthens financial incentives to lower rates** and improve non-price performance
- ▶ It allows the adjustment of utility revenues **based on the utility's performance**



# Three potential Hawaii-specific PBR options were identified based on the requirements of the Act and PUC goals

According to the PUC, the PBR should result in:

1 Greater *cost* control and reduced *rate volatility*

2 Efficient *investment and allocation of resources* regardless of classification as capital or operating expense

3 *Fair distribution of risks* between utilities and customers

4 Fulfillment of *State policy goals*

	Status quo	Light PBR	Conventional PBR	Outcomes-Based PBR
Features	<i>Some</i> PBR mechanisms	<i>Easier to implement</i>	Rate changes based on <i>inflation less productivity gains</i>	Provides <i>flexibility</i> to the utilities on how to achieve the target outcomes
Term	3 years			5 years
Rate-setting approach	Cost of service		Revenue cap	
Performance incentives mechanisms (“PIM”)	<ul style="list-style-type: none"> <li>Reliability</li> <li>Cost savings in renewable procurement</li> <li>Demand response</li> </ul>	<ul style="list-style-type: none"> <li>Performance rewards and penalties</li> <li>Expand current PIMs: availability, reliability, cost control, service quality, customer engagement, competitive procurement, RPS targets</li> </ul>		Aligns with the target outcomes (e.g., customer experience, achieve public policies and goals, financial health)
Earning sharing	Customers share the excess earnings		Customers share the earnings but sharing is symmetrical	
Treatment of capex and opex	Biased towards capital expenditures due to the revenue requirements formula		No distinction between capital and operational expenditures (total expenditure approach or “totex”)	

# Potential regulatory models are feasible, and some may require additional legislative processes

Model	Result to stranded costs on generation?	Result to stranded costs on T&D?	Comply with reliability, adequacy, quality of service?	Entail the creation of a new entity to do a function of the utility or PUC?	Require costs to move to new model?	Require legal or regulatory changes?
1) HERA	✗	✗	✓	✓	✓	✗
2) IGO	✗	✗	✓	✓	✓	✓
3) DSPP	✗	✗	✓	✓	✓	✓
4) PBR	✗	✗	✓	✗	✓	✗

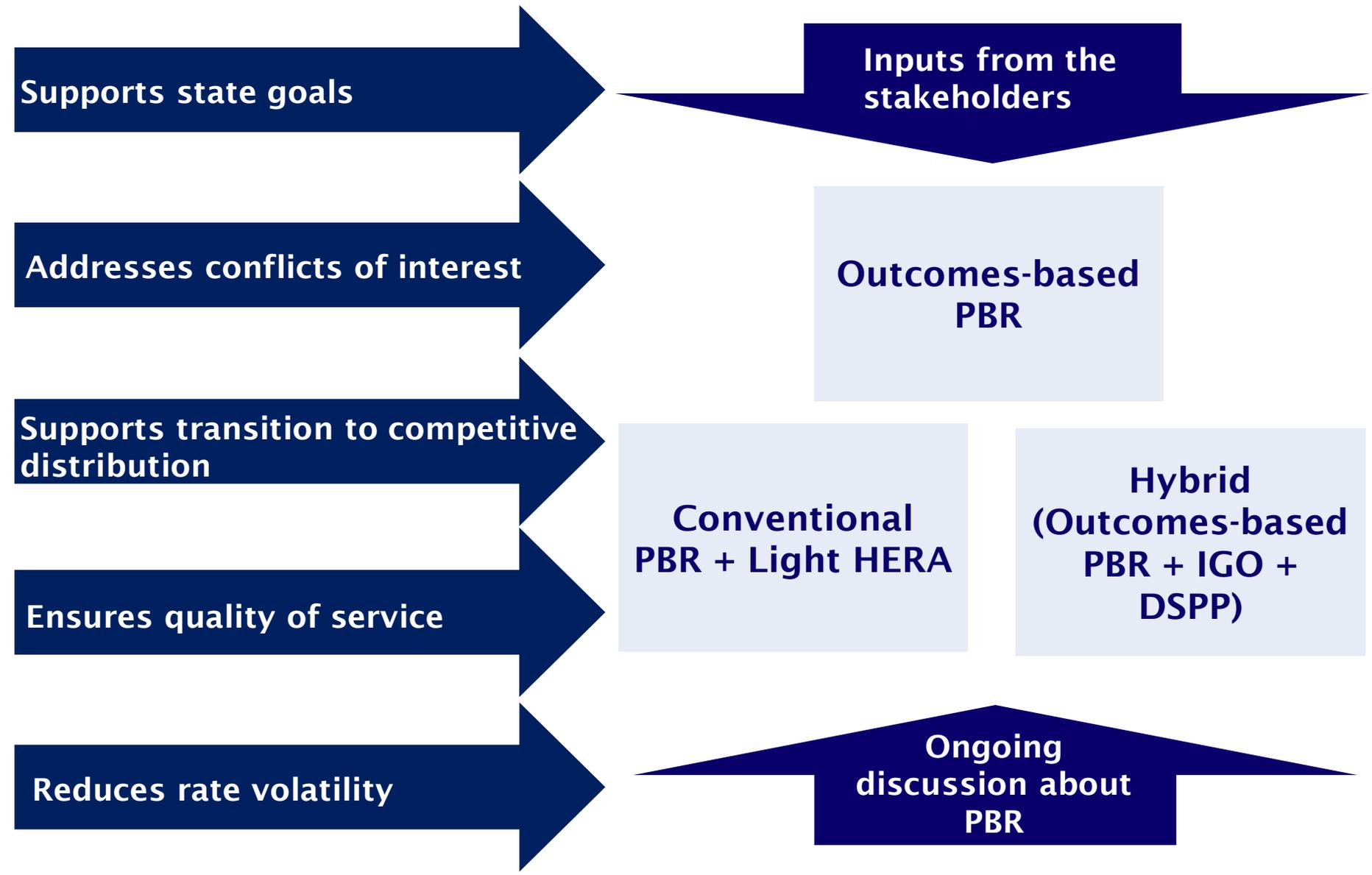
 Positive  
 Negative

# Stakeholders believe that there is a need to make changes to the current regulatory framework to achieve state goals

Models	Positive	Negative
<p>1</p> <p>Status quo</p>	<p> Reliable electricity</p> <p> Low volatility in electricity rates</p>	<p> does not encourage the utilities to invest sufficiently in improving <b>grid resiliency</b></p> <p> not successful in lowering <b>electric rates</b></p> <p> utility is not incentivized to take action or make investments in line with <b>community priorities</b></p> <p> does not allow <b>sufficient access</b> to the grid for IPPs</p>
<p>2</p> <p>HERA</p>	<p> might <b>increase grid access and increase deployment of renewables</b>, and provides <b>accountability</b></p>	<p> would be <b>redundant</b>, since the PUC already assumes much of the role</p> <p> might <b>increase costs</b></p>
<p>3</p> <p>IGO</p>	<p> would increase <b>competition</b></p>	<p> would be <b>too costly to implement and would increase risk and price volatility</b></p> <p> the <b>market is too small in Hawaii</b> for an ISO to work</p>
<p>4</p> <p>DSPP</p>	<p> would increase <b>competition and deployment of DERs</b></p>	<p> would not work in Hawaii as the <b>cost would be too high</b></p>
<p>5</p> <p>PBR</p>	<p> would be able to <b>link utility revenues to its performance</b></p> <p> Incentives <b>could align utility investments with policy goals</b></p>	<p> would be <b>difficult to design and implement PBR well</b></p> <p> It might be <b>too risky</b></p> <p> Increased <b>complexity and bureaucracy</b></p>



# Analysis on the state criteria showed that combining some of the regulatory models would be more effective in facilitating the achievement of state goals





# Costs and timeline for the proposed regulatory models increase with the complexity of the model, with Outcomes-based PBR requiring the least time and money

Models	Status quo	Outcomes-based PBR	Conventional PBR + Light HERA	Hybrid
Costs	No significant cost increases	<ul style="list-style-type: none"> <li>Increase in PUC average annual expense during transition period;</li> <li>Total transition cost \$1M-\$2M (HECO)</li> <li>No long-term cost changes beyond transition</li> </ul>	<ul style="list-style-type: none"> <li><b>Conventional PBR:</b> Higher PUC average annual expense during transition period, \$1M-\$2M total, no long-term change (HECO)</li> <li><b>Light HERA:</b> ~\$150k - \$200k start up cost and similar amount in annual funding (HECO)</li> </ul>	<ul style="list-style-type: none"> <li><b>Outcomes-based PBR:</b> Higher PUC average annual expense during transition period, \$1M-\$2M total, IGO:~\$3M in startup and annual operation costs (HECO)</li> <li><b>DSPP:</b> ~\$90M total implementation costs over 3-yr period (HECO)</li> </ul>
Timeline	No steps	<ul style="list-style-type: none"> <li>~21 months*</li> </ul>	<ul style="list-style-type: none"> <li>~21 months for Conventional PBR*</li> <li>~33 months for entire model</li> </ul>	<ul style="list-style-type: none"> <li><b>Outcomes-based PBR:</b> ~21 months*</li> <li><b>IGO:</b> 18-24 months (2023 target implementation)</li> <li><b>DSPP:</b> 3+ years (2028 target implementation)</li> </ul>
Legal changes	No legal changes	<ul style="list-style-type: none"> <li>No legal changes needed because PBR falls under existing PUC legal authority</li> </ul>	<ul style="list-style-type: none"> <li>No legal changes needed for Conventional PBR</li> <li>No legal changes needed for Light HERA</li> </ul>	<ul style="list-style-type: none"> <li>No legal changes needed for Outcomes-based PBR</li> <li>Legislation likely required to authorize creation of IGO</li> <li>Legislation recommended to authorize creation of DSPP</li> </ul>

\*January 1, 2020 is the deadline imposed by the State for PBR implementation. Although it is possible that the PUC meets this deadline, it is also possible that they will incur delays that lengthen the process)

# Moving to all three highly ranked regulatory models would lower rates for customers due to incentives, increased competition, or other PBR mechanisms

## HECO

Change of the Regulatory Model	Impact on rates*	Average impact**
Implement an Outcomes-based PBR model		-2.1%
Implement a Conventional PBR + Light HERA model		-2.2%
Implement a Hybrid model		-0.4%

\* Relative to the Status Quo

\*\* From 2018-2045

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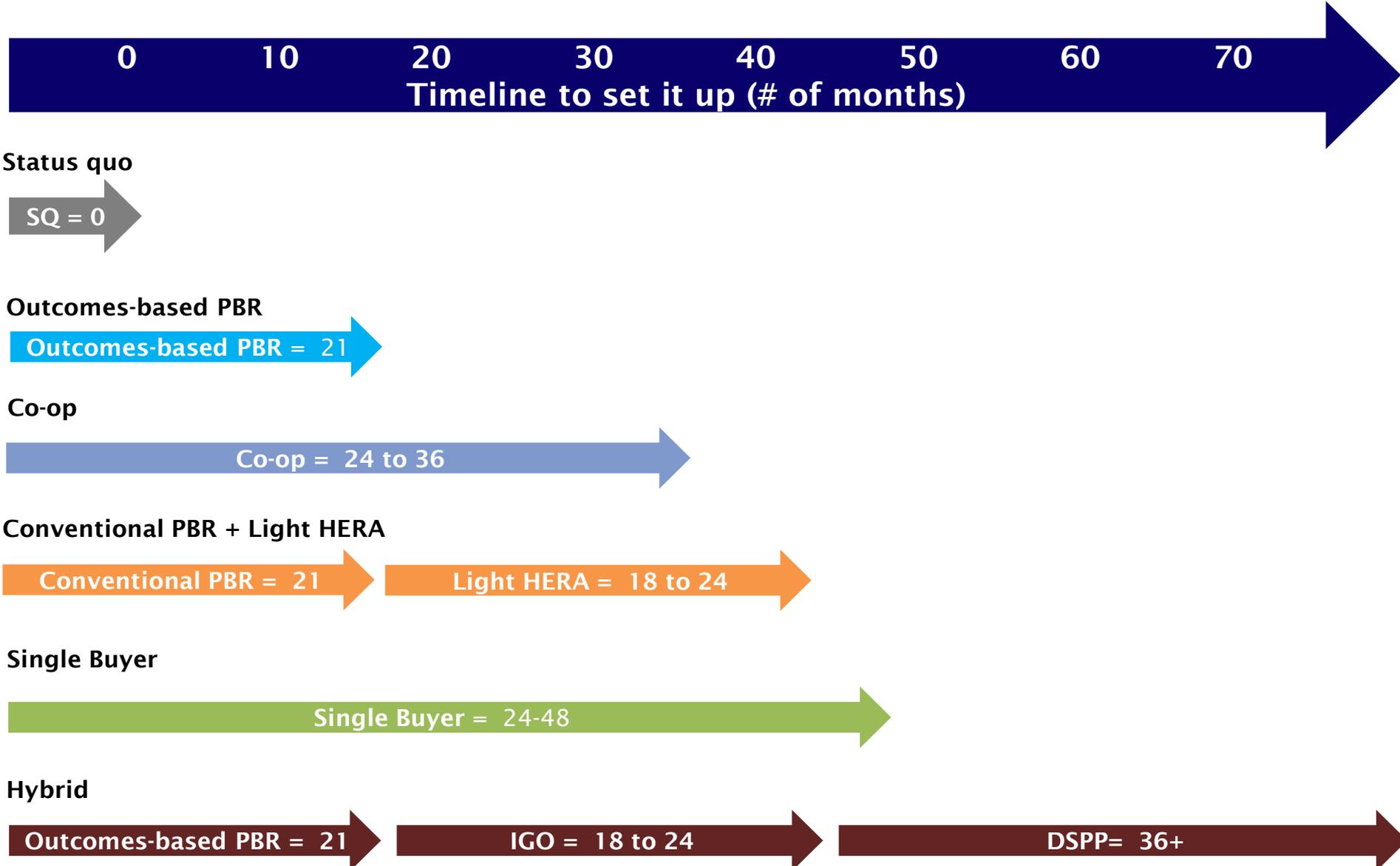
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# The more complex the model the longer it takes to set it up



## Most of the ownership and regulatory models considered are already authorized and legal under Hawaii law

	Models	Legal Changes Required?	Additional Information
Ownership Models	Status Quo (IOU)		No
	Co-op	No	<ul style="list-style-type: none"> <li>Burden of proof rests on the co-op to demonstrate that it can meet the laws and regulations already in place</li> </ul>
	Single Buyer	Yes	<ul style="list-style-type: none"> <li>Legislative action is required to establish a new entity (for the “outside” SB model) to undertake planning and procurement responsibilities from the utility.</li> </ul>
Regulatory Models	Status Quo (COS with some PBR mechanisms)		No
	Outcomes-based PBR	No	<ul style="list-style-type: none"> <li>No legal changes needed because PBR falls under existing PUC authority</li> </ul>
	Conventional PBR + Light HERA	No	<ul style="list-style-type: none"> <li>There is existing regulation already for both PBR and HERA</li> </ul>
	Hybrid	Yes	<ul style="list-style-type: none"> <li>Legislation needs to be enacted that authorizes and clarifies the DSPP</li> <li>PUC is not currently authorized to create an IGO, so legislation is needed for the PUC to create that entity</li> </ul>

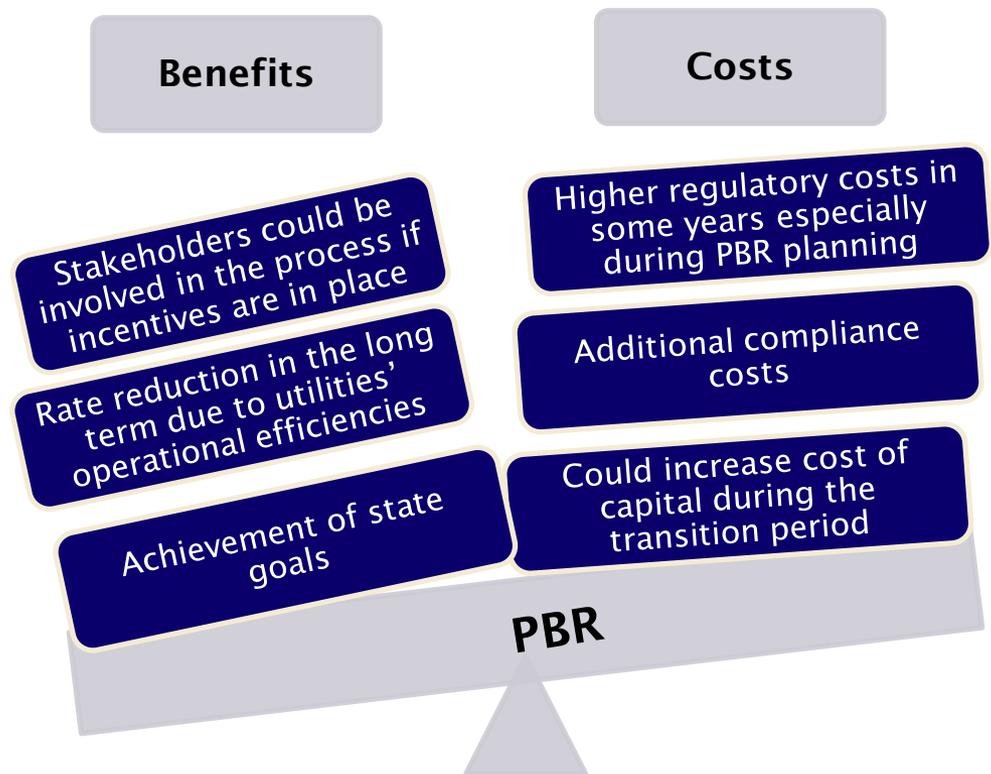
# Change in regulatory models are expected to reduce rates more substantially through better incentives to improve efficiency

## HECO

Change of the Ownership Model	Impact on rates	Average impact
Move to a co-op model		9.7%
Move to a Single Buyer within the utility model		-0.7%
Move to a Single Buyer outside the utility model		-0.8%
Change of the Regulatory Model		
Move to an Outcomes-based PBR model		-2.1%
Move to a Conventional PBR + Light HERA model		-2.2%
Move to a Hybrid model		-0.4%

## Key conclusions

- ▶ The current ownership and regulatory framework has been *successful* at ensuring utilities *provide reliable service*
- ▶ A change in ownership model *does not necessarily address the #1 concern of the stakeholders*, which is to lower the electricity rates now and in the future
  - In fact, a move to the co-op model would likely be more expensive for Honolulu
- ▶ On the other hand, regulatory changes have *a greater impact in lowering the electricity rates* due to the PBR incentives
- ▶ Benefits of moving to any of the PBR options generally outweigh the costs
- ▶ Implementation of PBR mechanisms could be done on a *staggered basis*; no need to implement all the mechanisms all at once



## How to Engage

- ▶ **We encourage you to submit your feedback and input throughout the stakeholder engagement process:**
  - During the event, please fill out your worksheet to the best of your ability during discussion with your colleagues. After this event, we plan to collect your worksheets to gather input for our study.
  - We will also be available for feedback up to an hour after the event if you would like to provide additional comments.
  - You can also submit feedback via the following email:  
[dbedt.utilitybizmodstudy@hawaii.gov](mailto:dbedt.utilitybizmodstudy@hawaii.gov)
  - Finally, the presentation will be available at:  
<http://energy.hawaii.gov/utility-model/community-outreach>
  - Questions? Concerns? Contact Us:
    - Bridgett Neely, [Bridgett@londoneconomics.com](mailto:Bridgett@londoneconomics.com)
    - Cherrylin Trinidad, [cherrylin@londoneconomics.com](mailto:cherrylin@londoneconomics.com)
    - Gabriel Roumy, [Gabriel@londoneconomics.com](mailto:Gabriel@londoneconomics.com)

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**Discussions**

## Group Discussion

### ► Guiding questions for small groups:

**1. What do you think are the benefits and drawbacks of the preferred models?**

**2. Any other comments or concerns?**