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# Future Electricity Sector Utility Ownership & Regulation in Hawaii

*Draft Preliminary Results*

Hawaii County

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:**
  - LEI’s analysis is not intended to be a complete and exhaustive analysis of the Project. All possible factors of importance to a stakeholder have not necessarily been considered. The provision of an analysis by LEI does not obviate the need for the stakeholders to make further appropriate inquiries as to the accuracy of the information included therein, and to undertake their own analysis and due diligence.
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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

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About the study

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Ownership models

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Discussions

# DBEDT is directed by the legislation 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

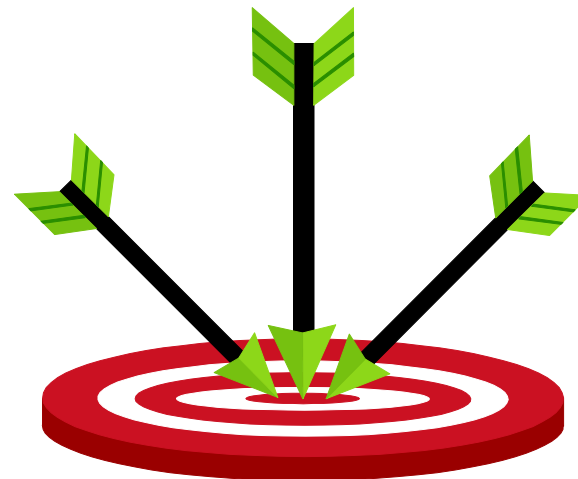
**Regulatory models** include status quo with HERA, independent grid operator, distribution-focused regulatory model, and performance-based regulation

1

## Assess the ability of each model to:

- 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**

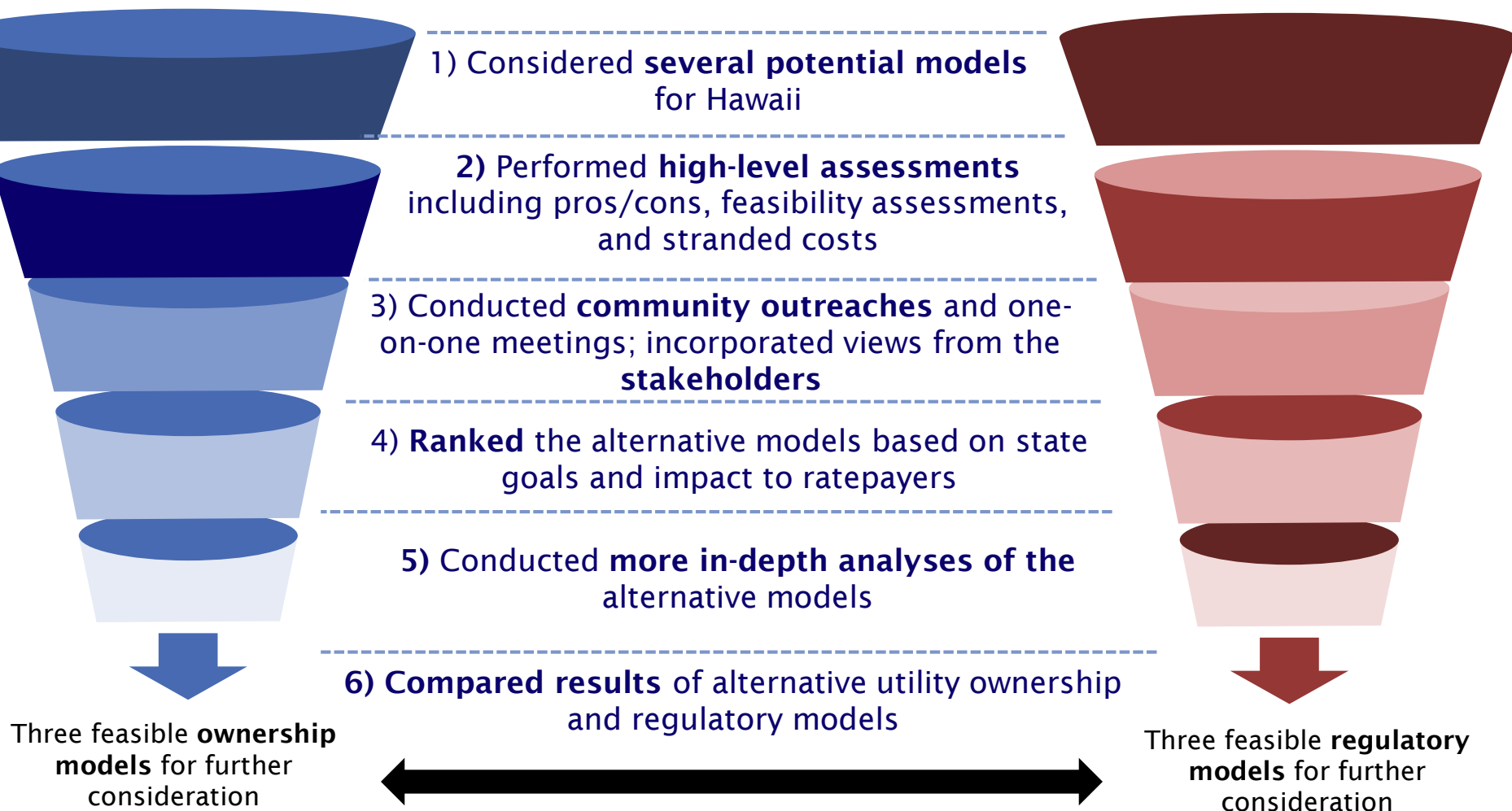
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# The assessment of potential models consists of multiple layers, including various analyses and stakeholder outreaches

## Ownership models

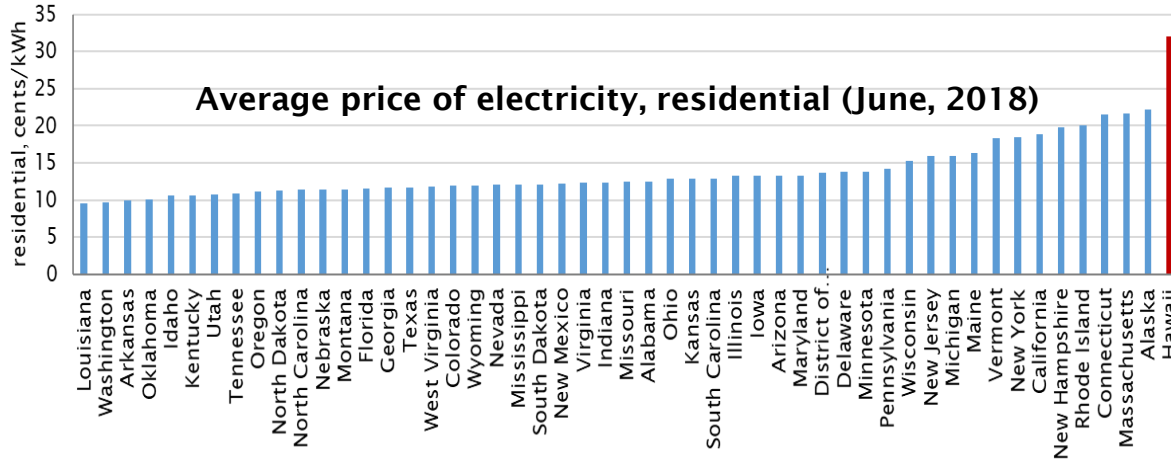
## Key steps taken in the Study

## Regulatory models



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

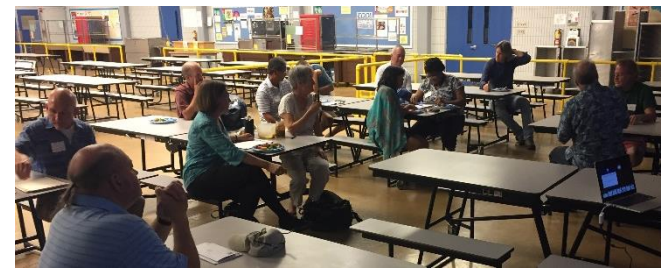
## Highest electricity prices in the country



Source: EIA. HECO Companies, Third Party Databases

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

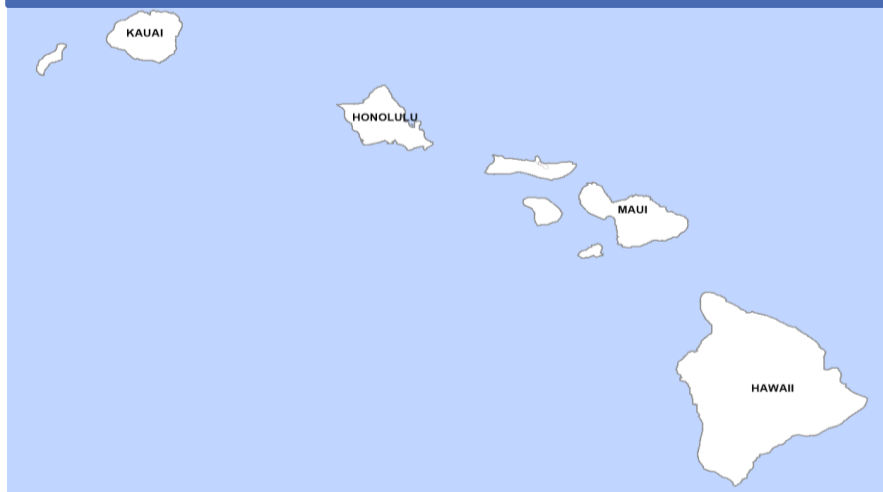
- ▶ Responsiveness/ alignment with community priorities
- ▶ Infrastructure needs to be resilient and improved
- ▶ Local control
- ▶ More renewable energy
- ▶ Innovation and adoption of new technologies
- ▶ Any model must consider the costs





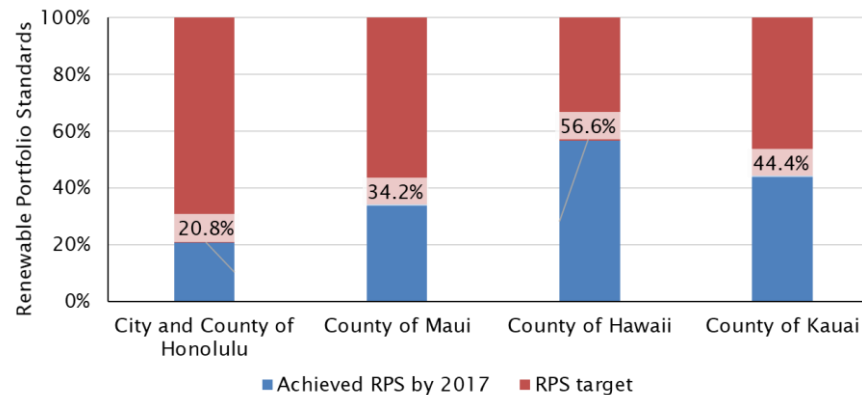
# State's and counties' distinct characteristics are taken into account in the analyses

## Comprise of islands



## 100% clean energy goal

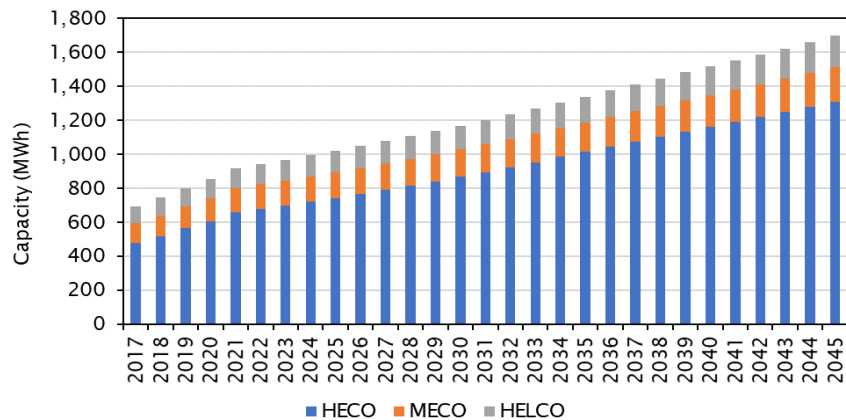
### Achieved RPS vs. 100% RPS target



Source: HECO Companies, KIUC

## Expected high proliferation of DERs

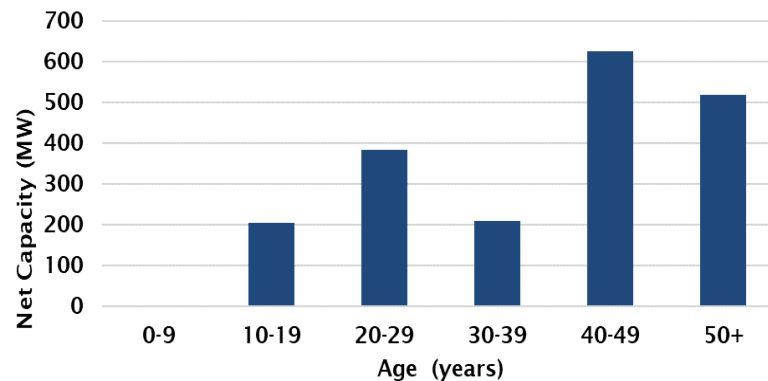
### HECO Companies' forecast cumulative DG-PV capacity



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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# Various utility ownership structures were reviewed including 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>Can often <i>finance larger investments</i> than other types of utilities</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 distributed 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) Muni	✗			✗		✓
4) Co-op						✗
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**
- Has lots of resources**

## Co-ops



- Could be challenging to engage enough citizens to be **active participants**
- Requires a **strong education effort**
- **Direct influence** on the decision-making process
- Serves the **needs of citizens** better
- Motivated to **drive down rates**
- Could secure **more favorable PPAs**

## 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

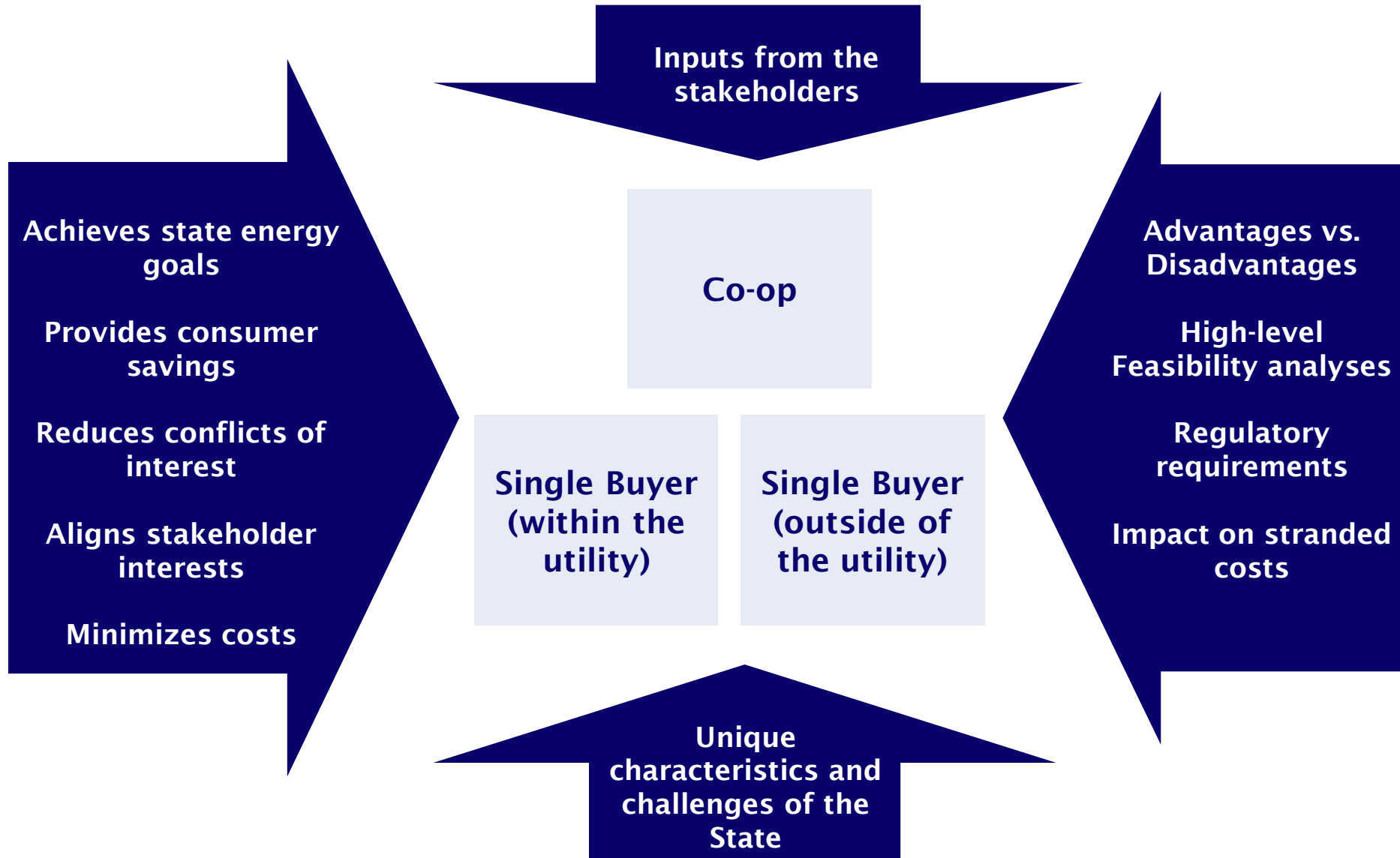
## Wires (IDER and Single Buyer)



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





- Ensures **fair procurement process**

# 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 does not require regulatory changes

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>\$624 million to \$857 million (HELCO)</li> <li>Transaction fees: \$6 million to \$17 million, depending on the size of the acquisition (HELCO)</li> </ul>	<ul style="list-style-type: none"> <li>Approximately \$2.9 million (Year One costs for HELCO), which may be a low estimate of the total establishment cost</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</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>Require 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>	

Any change in ownership models is projected to increase rates on Hawaii County because the additional costs from transition are expected to outweigh potential savings

## HELCO

Change of the Ownership Model	Impact on rates*	Average impact**
Move to a co-op model		12.5%
Move to a Single Buyer within the utility model		0.3%
Move to a Single Buyer outside the utility model		0.3%

\* Relative to the Status Quo

\*\* 2018-2045

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**3 Regulatory models**

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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 ("DSSP")

- ▶ 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
<b>Features</b>	Has some PBR mechanisms ( <i>see below</i> )	<b>Easier to implement</b> given timeline set by the legislation	Going-in rates are set for the first year and increase in base rate would be based on <b><i>inflation less productivity</i></b>	Provides <b><i>flexibility</i></b> to the utilities on how to achieve the target outcomes
<b>Term</b>	3 years			5 years
<b>Rate-setting approach</b>	Cost of service		Revenue cap using indexing formula	Revenue cap using building blocks approach
<b>Performance incentives mechanisms ("PIM")</b>	<ul style="list-style-type: none"> <li>• Reliability</li> <li>• Cost savings in renewable generation procurement</li> <li>• Implementation of DR portfolio</li> </ul>	<ul style="list-style-type: none"> <li>• Outstanding performance would be rewarded while poor performance would be penalized</li> <li>• Expand current PIM list to include: availability, reliability, cost control, service quality, customer engagement, competitive procurement, RPS targets</li> </ul>	Aligns with the target outcomes (e.g., enhance customer experience, improve utility performance, achieve public policies and goals, attain healthy financial performance)	
<b>Earning sharing</b>	Customers share the excess earnings like the current mechanism		Customers share the earnings but sharing is symmetrical	
<b>Treatment of capex and opex</b>	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

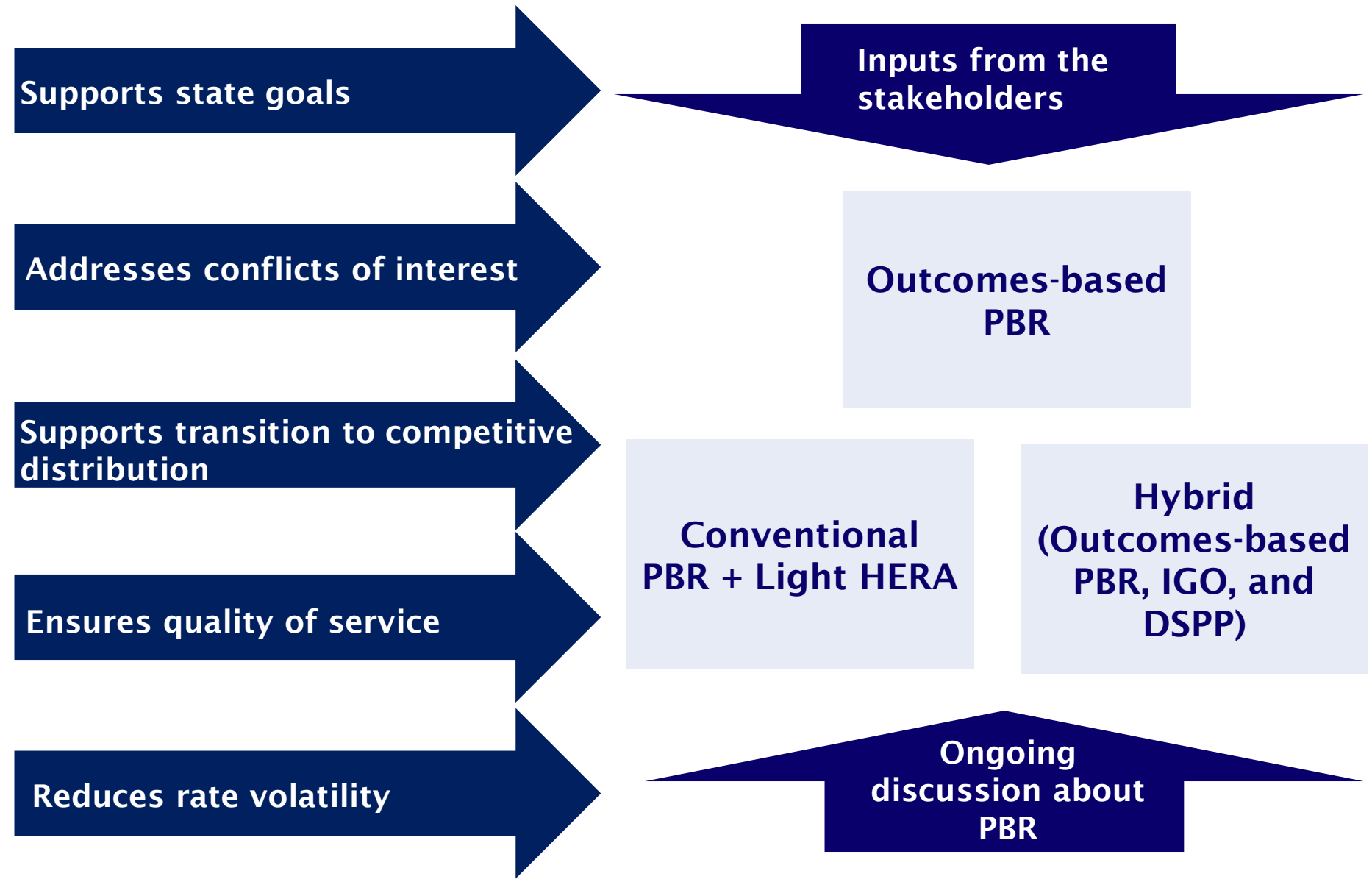
Model	Result to stranded costs on generation?	Result to stranded costs on T&D?	Comply with reliability, adequacy, quality of service?	Entail the creation of a new entity to do a function of the utility or PUC?	Require costs to move to new model?	Require legal or regulatory changes?
1) HERA	✗	✗	✓	✓	✓	✗
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>👎 Driven by politics rather than allowing for market to identify best solutions</p> <p>👎 not successful in lowering electric rates</p> <p>👎 Current way in which electric rates are set is <b>too complicated</b> for most people to understand</p> <p>👎 <b>Does not include representation</b> from each county in PUC decisions</p>
<p>2</p> <p>HERA</p>	<p>👍 might increase grid access and increase deployment of renewables</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 competition</p>	<p>👎 would be <b>too costly to implement</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 competition and deployment of DERs</p>	<p>👎 would not work in Hawaii as the <b>cost would be too high</b></p>
<p>5</p> <p>PBR</p>	<p>👍 Using <b>unique metrics</b> for each island to ensure community-specific goals</p> <p>👍 Incentives could align utility investments with policy goals</p>	<p>👎 would be <b>difficult to design and implement</b> PBR well</p> <p>👎 Would fail if grid defection continue to increase</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
<b>Costs</b>	No significant cost increases	<ul style="list-style-type: none"> <li>Higher PUC average annual expense during transition period;</li> <li>Total transition cost \$1.3M</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, \$1.3M total, no long-term change</li> <li><b>Light HERA:</b> \$164,000 start up cost and \$21,000 in annual funding</li> </ul>	<ul style="list-style-type: none"> <li><b>Outcomes-based PBR:</b> Higher PUC average annual expense during transition period, \$1.3M total</li> <li><b>IGO:</b> \$3.3M in startup and annual operation costs</li> <li><b>DSPP:</b> \$91M total implementation costs over 3-yr period</li> </ul>
<b>Timeline</b>	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>
<b>Legal changes</b>	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 a Hybrid model is expected to provide the greatest rate reductions to customers due to incentives under PBR and increased competition from IGO

## HELCO

Change of the Regulatory Model	Impact on rates	Average impact
Implement an Outcomes-based PBR model		-4.8%
Implement a Conventional PBR + Light HERA model		-4.4%
Implement a Hybrid model		-9.2%

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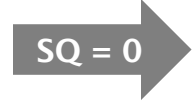




# The more complex the model the longer it takes to set it up



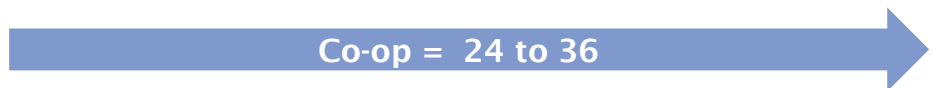
Status quo



Outcomes-based PBR (regulatory model)



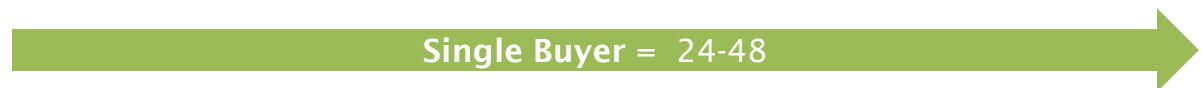
Co-op (ownership model)



Conventional PBR + Light HERA (regulatory model)



Single Buyer (ownership model)



Hybrid (regulatory model)









## 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>

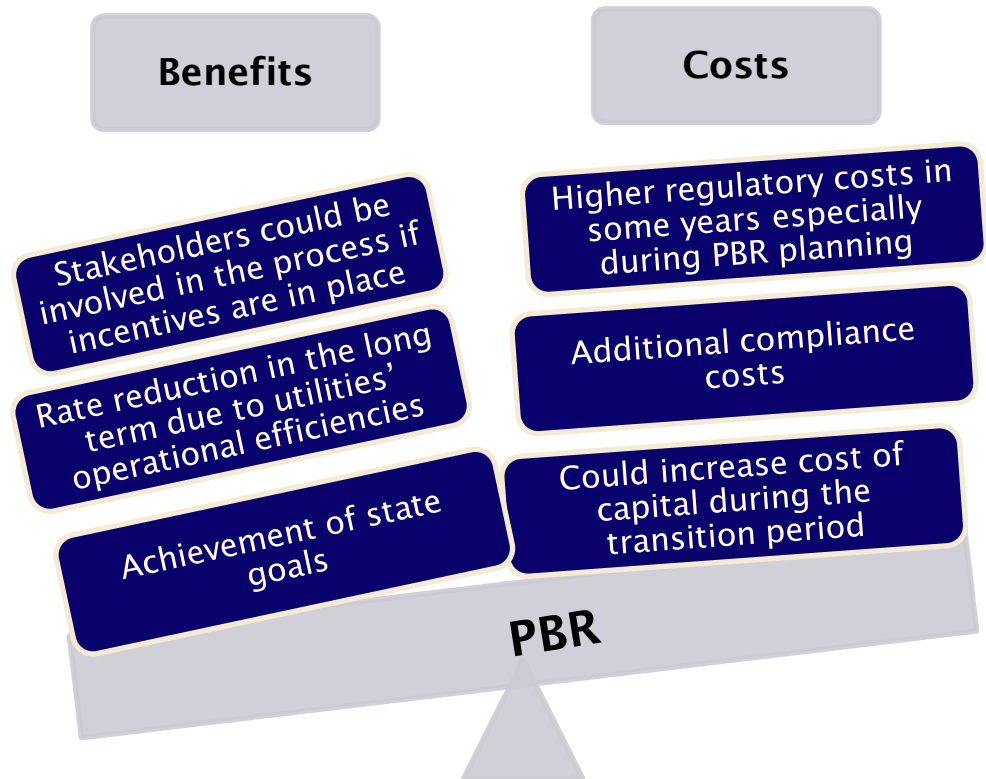
# Change in regulatory models are expected to reduce rates more substantially through better incentives to improve efficiency

## HELCO

Change of the Ownership Model	Impact on rates	Average impact
Move to a co-op model		12.5%
Move to a Single Buyer within the utility model		0.3%
Move to a Single Buyer outside the utility model		0.3%
Change of the Regulatory Model	Impact on rates	Impact on rates
Move to an Outcomes-based PBR model		-4.8%
Move to a Conventional PBR + Light HERA model		-4.4%
Move to a Hybrid model		-9.2%

## 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 in the Hawaii County
- ▶ 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 outweigh the costs in the long run
- ▶ Implementation of PBR mechanisms could be done on a *staggered basis*; no need to implement all the mechanisms all at once



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## Group Discussion

### ► Guiding questions for small groups:

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

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

## 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:  
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