London Economics International LLC

Future Electricity Sector Utility Ownership & Regulation in Hawaii

Draft Preliminary Results

Maui island

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

MEISTER CONSULTANTS GROUP | A CADMUS COMPANY

BOOTH CLEAN ENERGY

Yamamoto Caliboso
A LIMITED LIABILITY LAW COMPANY

13 November 2018

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 "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.
  - No results provided or opinions given in LEI's analysis should be taken as a promise or guarantee as to the occurrence of any future events.
  - There can be substantial variation between assumptions and market outcomes analyzed by various consulting organizations specializing in power markets. LEI does not make any representation or warranty as to the consistency of LEI's analysis with that of other parties

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**
2	Ownership models
3	Regulatory models
4	Summary of preliminary findings
5	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

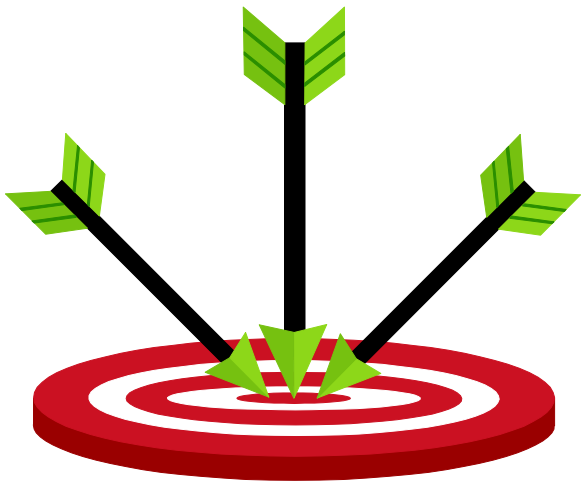
Regulatory models include status quo with HERA, independent system operator, distribution-focused regulatory model, and performance-based regulation

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**

3

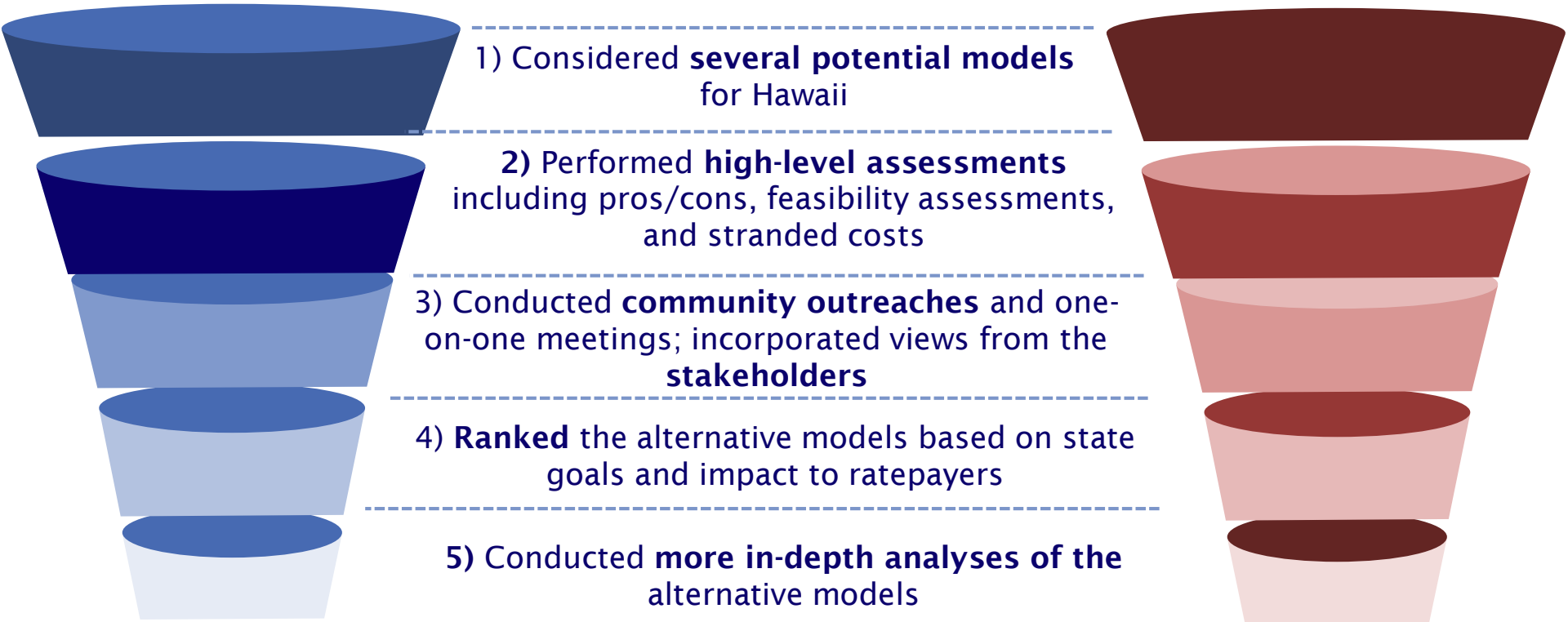
Source: House Bill 1700

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



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

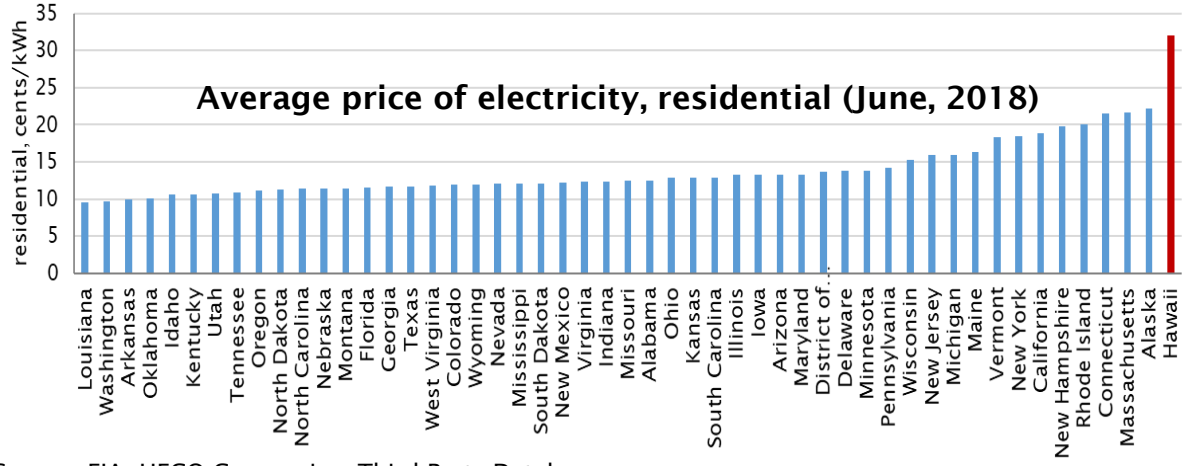
6) Compared results of alternative utility ownership and regulatory models

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



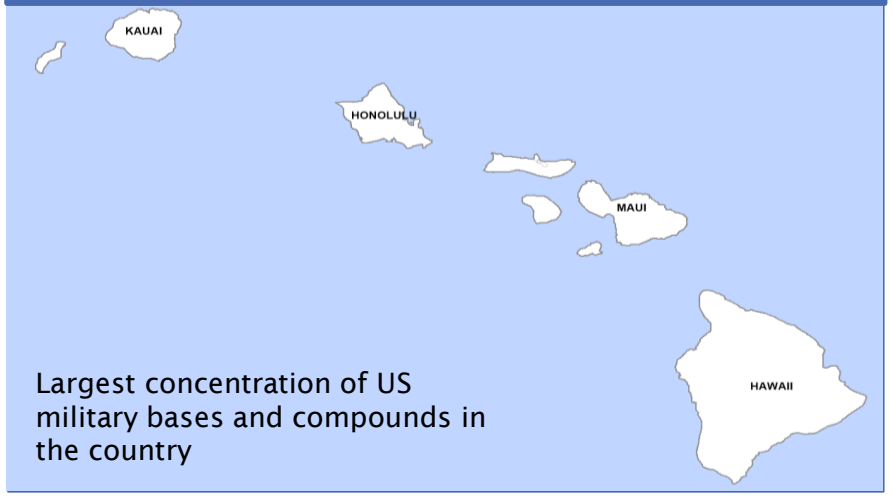
Source: EIA. HECO Companies, Third Party Databases

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

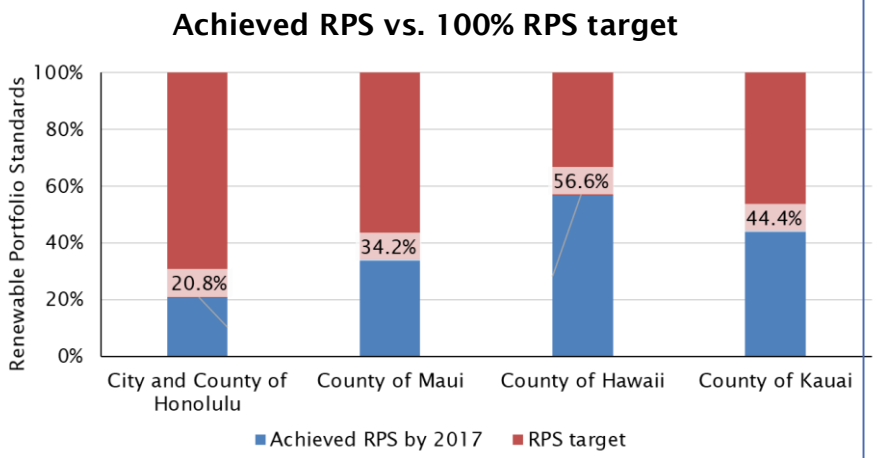
State's and counties' distinct characteristics are taken into account in the analyses

Multiple islands



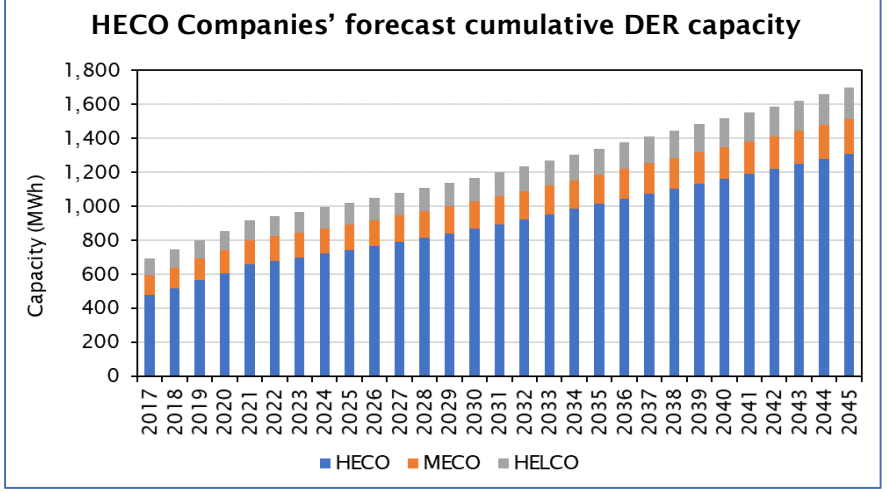
Largest concentration of US military bases and compounds in the country

100% clean energy goal



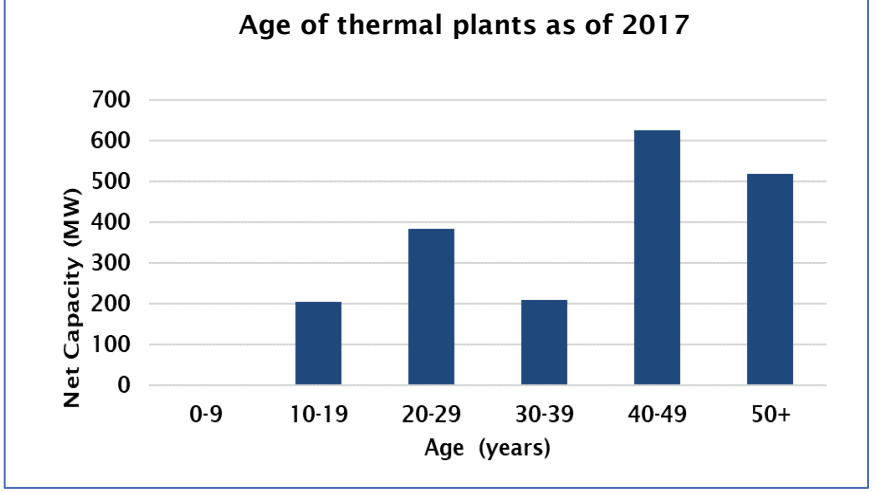
Source: HECO Companies, KIUC

Expected high penetration of DERs



Source: HECO Companies

Aging generation and transmission assets



Source: HECO Companies, Third-party database provider

Agenda

1	About the study
2	**Ownership models**
3	Regulatory models
4	Summary of preliminary findings
5	Discussions

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")	• Shareholders (publicly traded or privately held)	• Management is *appointed by the Board*, which has a fiduciary duty to its shareholders • Access to capital market to *finance large investments*
2) New parent	• Private or not-for-profit	• Could be *not-for-profit, a limited dividend, or a benefit corporation* • Management is appointed by the Board
3) Municipal utility ("muni")	• Owned by the city or the town	• Governed by *local elected or appointed officials* • Finance energy improvements with *government bonds* • Benefit from access to *tax exempt debt financing* and they may also be tax exempt
4) Cooperative ("co-op")	• Owned by the members-customers	• Management has oversight by its *Board* and in some cases, from *regulators* • have access to low cost debt and *special federal financing programs*
5) Hybrid (majority government-owned)	• Owned majority by the *government*	• Management is appointed by the *Board*
6) Integrated distribution energy resources ("IDER")	• *Utility* (wires assets)	• Coordinating flows across the grid can either be done by the utility or another entity
7) Single Buyer ("SB")	• Utility or independent, not-for-profit entity	• SB within the utility is still owned by the utility but have stricter *ring-fencing mechanisms from other businesses* • SB could also be outside the utility
8) Grid defection	• Diverse (generation) • Utility (wires)	• Utility would still provide services to customers connected to the grid but at a higher costs

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***
- Can attract a ***talented workforce***

Co-ops

- Concerns on the ***acquisition costs***
- Could be challenging to engage enough citizens to be ***active participants***

- ***Direct influence*** on the decision-making process
- Access to l***ow cost financing***
- Motivated to ***drive down rates***

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***

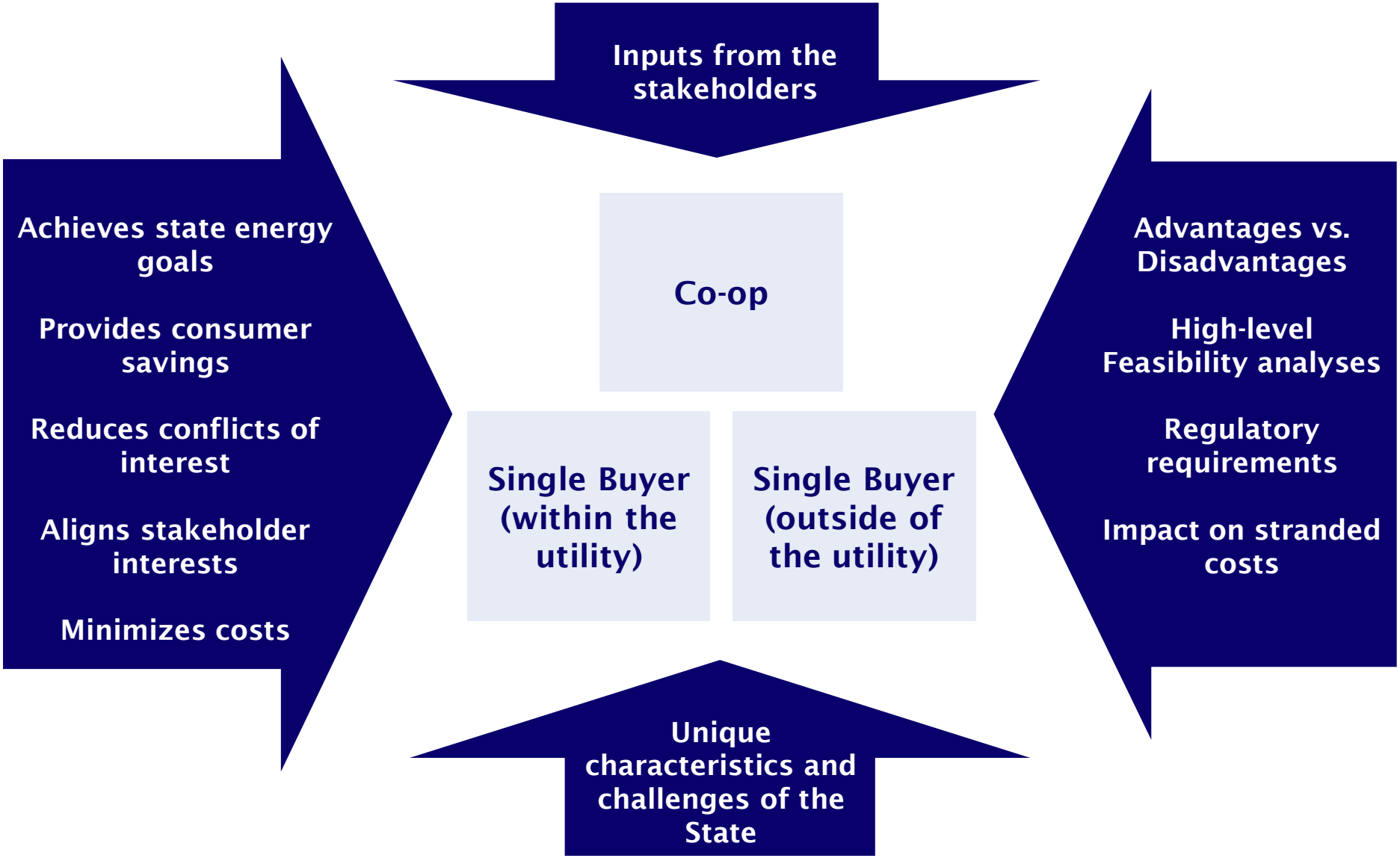
- More **responsive** to community interests

Wires (IDER and Single Buyer)

- ***Complexity and novelty*** 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 possesses greater certainty in implementation

Models	 Status quo	 Co-op	 Single Buyer (outside of the utility)	 Single Buyer (within the utility)
Costs	No costs	• Cost to acquire assets ($600-700 million) (MECO County-wide) • Transaction fees representing 1%-3% of acquisition cost	• Setup costs of at least $3 million (Year One costs) for MECO (county-wide), which may be a low estimate of the total establishment cost	
Timeline	No steps	• Approximately 24-36 months	• 48 months, with significant uncertainty due to the legislative and regulatory processes to establish the single buyer entity	
Legal changes	No legal changes	• No changes to regulation are necessary • The burden of proof rests on the co-op to demonstrate that it can meet the laws and regulations already in place	• Requires a PUC proceeding	• Requires legislative action to establish a new entity to undertake the planning and procurement responsibilities of the utility

Moving to Single Buyer models can lower rates by reducing the costs to procure generation from IPPs, but rates are expected to increase under a co-op model

Maui

Change of the Ownership Model	Model by island		Model by County	
	Impact on rates*	Average impact**	Impact on rates*	Average impact**
Move to a co-op model	↑	1.4%	↑	1.4%
Move to a Single Buyer within the utility model	↓	-1.3%	↓	-1.4%
Move to a Single Buyer outside the utility model	↓	-1.5%	↓	-2.4%

** Relative to the Status Quo*
*** From 2018 to 2045*

Agenda

1	About the study
2	Ownership models
3	**Regulatory models**
4	Summary of preliminary findings
5	Discussions

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

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

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

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	Has some PBR mechanisms *(see below)*	***Easier to implement*** given timeline set by the legislation	Going-in rates are set for the first year and increase in base rate will be based on ***inflation less productivity***	Provides ***flexibility*** to the utilities on how to achieve the target outcomes
Term	3 years			5 years
Rate-setting approach	Cost of service		Revenue cap using indexing formula	Revenue cap using building blocks approach
Performance incentives mechanisms ("PIM")	• Reliability • Cost savings in renewable generation procurement • Implement-ation of DR portfolio	• Outstanding performance would be rewarded while poor performance would be penalized • Expand current PIM list to include: availability, reliability, cost control, service quality, customer engagement, competitive procurement, RPS targets		Aligns with the target outcomes (e.g., enhance customer experience, improve utility performance, achieve public policies and goals, attain healthy financial performance)
Earning sharing	Customers share the excess earnings like the current mechanism		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

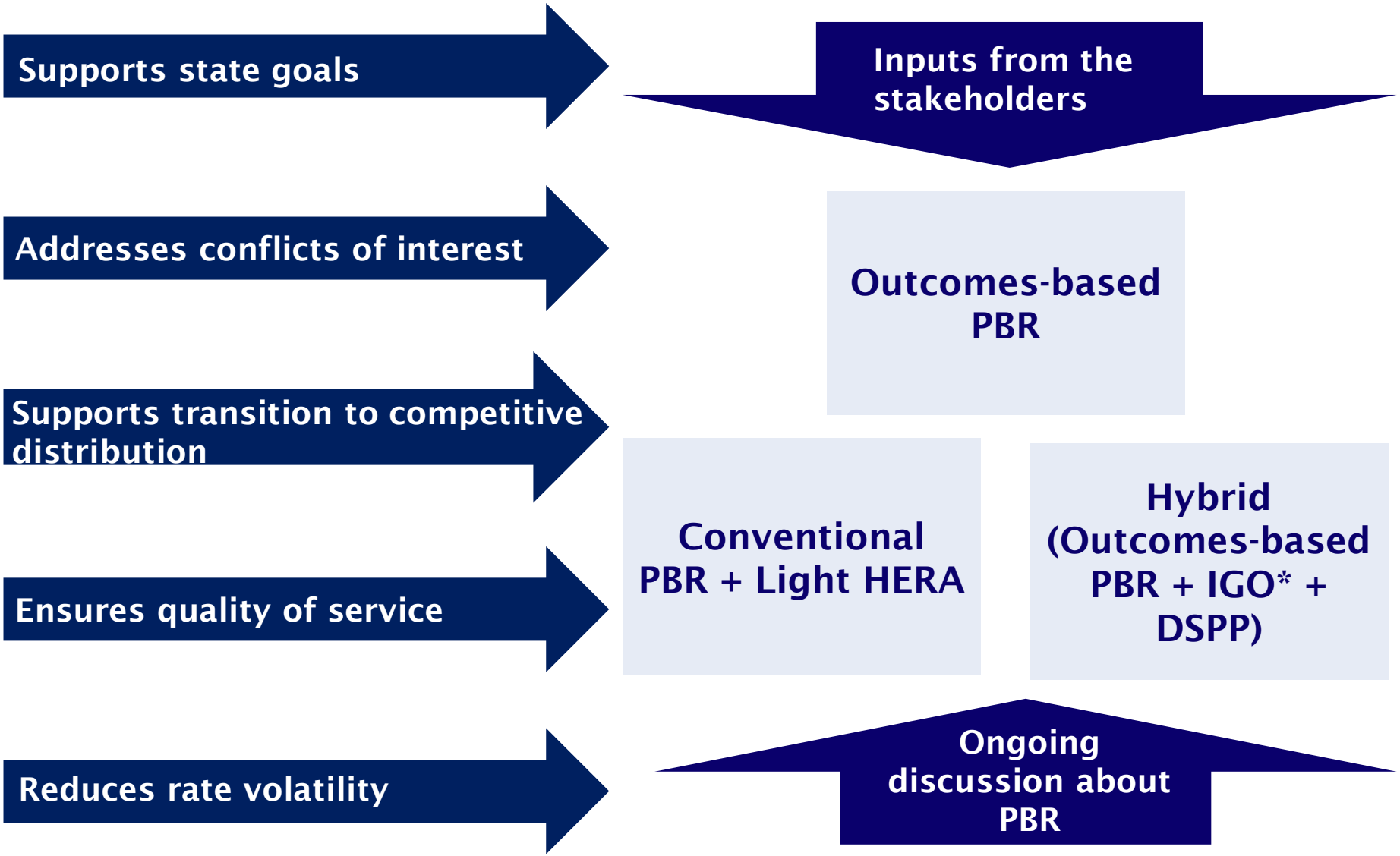
Model	Result to stranded costs on generation?	Result to stranded costs on T&D?	Comply with reliability, adequacy, quality of service?	Entail the creation of a new entity to do a function of the utility or PUC?	Require costs to move to new model?	Require legal or regulatory changes?
1) HERA	✗	✗	✓	✓	✓	✗
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
1 **Status quo**	**Reliable** electricity	does not encourage the utilities to invest sufficiently in improving **grid resiliency** not successful in lowering **electric rates** utility is not incentivized to take action or make investments in line with **community priorities** does not allow **sufficient access** to the grid for IPPs
2 **HERA**	might **increase grid access and increase deployment of renewables**	would be **redundant**, since the PUC already assumes much of the role might **increase costs**
3 **IGO**	would increase **competition**	would be **too costly to implement** the **market is too small in Hawaii** for an ISO to work
4 **DSPP**	would increase **competition** and deployment of **DERs**	would not work in Hawaii as the **cost would be too high**
5 **PBR**	would be able to **link utility revenues to its performance** Incentives could align utility investments with policy goals	would be **difficult to design and implement** PBR well It might be too **risky**

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



*IGO would only be created on Maui island if implemented separately for each island; on Lanai and Molokai, the Hybrid model would consist of Outcomes-based PBR and DSPP models.

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	• Higher PUC average annual expense during transition period; • Total transition cost $1M-$2M (MECO County-wide) • No long-term cost changes beyond transition	• **Conventional PBR:** Higher PUC average annual expense during transition period, $1M-$2M total, no long-term change (MECO County-wide) • **Light HERA**: $150k-$200k start up cost and ~20% of that in annual funding (MECO County-wide)	• **Outcomes-based PBR**: Higher PUC average annual expense during transition period, $1M-$2M total, **IGO**:$3M-$4M in startup and annual operation costs (MECO County-wide) • **DSPP**: ~$90M total implementation costs over 3-yr period (MECO County-wide)
Timeline	No steps	• ~21 months*	• ~21 months for Conventional PBR* • ~33 months for entire model	• **Outcomes-based PBR**: ~21 months* • **IGO**: 18-24 months (2023 target implementation) • **DSPP**: 3+ years (2028 target implementation)
Legal changes	No legal changes	• No legal changes needed because PBR falls under existing PUC legal authority	• No legal changes needed for Conventional PBR • No legal changes needed for Light HERA	• No legal changes needed for Outcomes-based PBR • Legislation likely required to authorize creation of IGO • Legislation recommended to authorize creation of DSPP

** Costs are Maui County-wide and allocated to each island based on current share of MECO's rate base*
***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

Maui

	Model by island		Model by County	
Change of the Regulatory Model	Impact on rates*	Average impact**	Impact on rates*	Average impact**
Implement an Outcomes-based PBR model		-2.7%		-2.2%
Implement a Conventional PBR + Light HERA model		-2.3%		-1.9%
Implement a Hybrid model		-2.5%		-2.2%

** Relative to the Status Quo*
*** From 2018 to 2045*

Agenda

1	About the study
2	Ownership models
3	Regulatory models
4	**Summary of preliminary findings**
5	Discussions

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

Status quo

SQ = 0

Outcomes-based PBR

Outcomes-based PBR = 21

Co-op

Co-op = 24 to 36

Conventional PBR + Light HERA

Conventional PBR = 21

Light HERA = 18 to 24

Single Buyer

Single Buyer = 24-48

Hybrid

Outcomes-based PBR = 21

IGO = 18 to 24

DSPP= 36+

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	• Burden of proof rests on the co-op to demonstrate that it can meet the laws and regulations already in place
	Single Buyer	Yes	• Legislative action is required to establish a new entity (for the "outside" SB model) to undertake planning and procurement responsibilities from the utility.
Regulatory Models	**Status Quo (COS with some PBR mechanisms)**	No	
	Outcomes-based PBR	No	• No legal changes needed because PBR falls under existing PUC authority
	Conventional PBR + Light HERA	No	• There is existing regulation already for both PBR and HERA
	Hybrid	Yes	• Legislation needs to be enacted that authorizes and clarifies the DSPP • PUC is not currently authorized to create an IGO, so legislation is needed for the PUC to create that entity

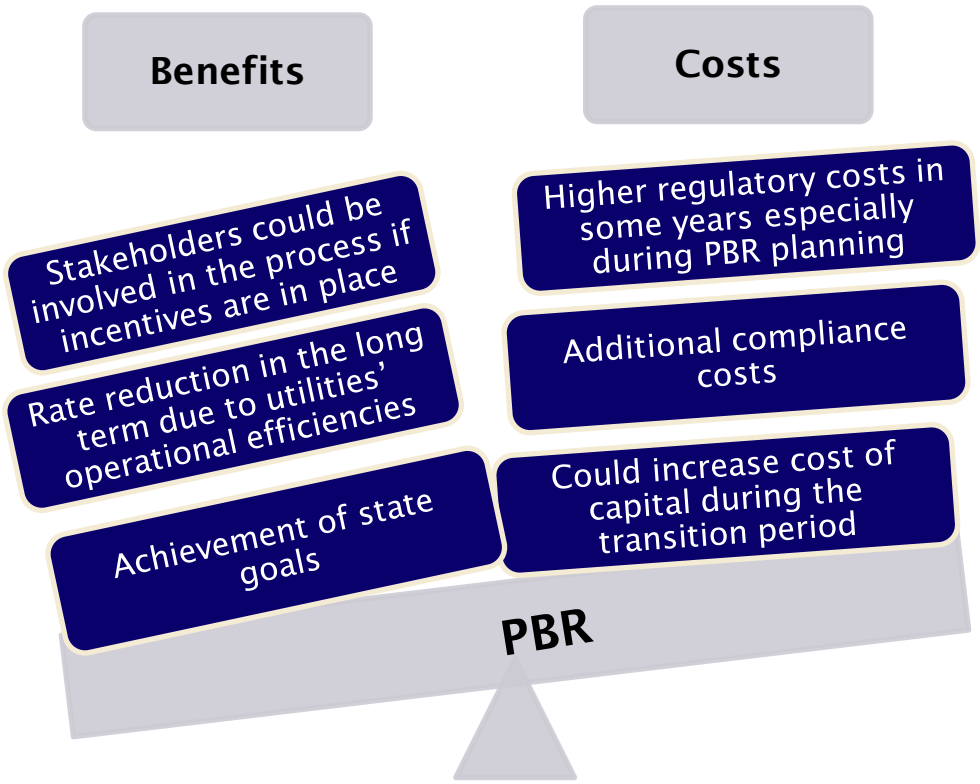
Change in regulatory models are expected to reduce rates more substantially through better incentives to improve efficiency

Maui

	Model by island		Model by County	
Change of the Ownership Model	**Impact on rates**	**Average impact**	**Impact on rates**	**Average impact**
Move to a co-op model	↑	1.4%	↑	1.4%
Move to a Single Buyer within the utility model	↓	-1.3%	↓	-1.4%
Move to a Single Buyer outside the utility model	↓	-1.5%	↓	-2.4%
Change of the Regulatory Model				
Implement an Outcomes-based PBR model	↓	-2.7%	↓	-2.2%
Implement a Conventional PBR + Light HERA model	↓	-2.3%	↓	-1.9%
Implement a Hybrid model	↓	-2.5%	↓	-2.2%

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 Maui island relative to the status quo
- 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
- 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
  - Finally, the presentation will be available at: https://energy.hawaii.gov/community-outreach
- **Questions? Concerns? Contact Us:**
  - Bridgett Neely, Bridgett@londoneconomics.com
  - Cherrylin Trinidad, cherrylin@londoneconomics.com
  - Gabriel Roumy, Gabriel@londoneconomics.com

Agenda

1	About the study
2	Ownership models
3	Regulatory models
4	Summary of preliminary findings
5	**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?