Honolulu Board of Water Supply
Stakeholder Advisory Group

Meeting 25 Tuesday, March 13, 2018 4:00 – 6:30 pm
Neal S. Blaisdell Center, Hawaii Suites
777 Ward Ave., Honolulu, HI 96814

Meeting Notes

PURPOSE AND ORGANIZATION OF MEETING NOTES

The purpose of these notes is to provide an overview of the Board of Water Supply (BWS) Stakeholder Advisory Group meeting. They are not intended as a transcript or as minutes. Major points of the presentations are summarized herein, primarily for context. Copies of presentation materials were provided to all participants and are available on the BWS website. Participants made many comments and asked many questions during the meeting. These are paraphrased to be more concise.

ATTENDEES

There were 13 stakeholders and 3 members of the public present, in addition to BWS and CDM Smith staff. The stakeholders represent diverse interests and communities island- wide.

The following Stakeholders Advisory Group members attended:

Matt Bailey	Aqua-Aston Hospitality
Bill Clark	Resident of Council District 6
Mark Fox	The Nature Conservancy of Hawaii
Will Kane	Mililani Town Association
Bob Leinau	Resident of Council District 2
Gladys Marrone	BIA of Hawaii
Helen Nakano	Resident of Council District 5
Robbie Nicholas	Resident of Council District 3
John Reppun	KEY Project
Cynthia Rezentes	Resident of Council District 1
Cruz J. Vina Jr.	Resident of Council District 8
Guy Yamamoto	YHB Hawaii
Suzanne Young	Honolulu Board of Realtors

MEETING AGENDA

- Welcome
- Public Comment on Agenda Items
- BWS Update
- Accept Notes from Meeting 23 and 24
- Iterative Results of the Water Rates Modeling for FY2018- FY 2023
- Potential Changes to the Water System Facilities Charge
- Summary and Next Steps

WELCOME

Dave Ebersold, meeting facilitator and Vice President of CDM Smith, welcomed the group and outlined the meeting objectives. He let the stakeholders know that they might be able to make a recommendation on the proposed rates for consideration by the BWS Board. And then, we're going to show you the proposed changes to the draft water system facilities charge for stakeholder input.

PUBLIC COMMENT ON AGENDA ITEMS

None.

ACCEPT MEETING NOTES

The Stakeholder Advisory Group accepted the notes from meetings 23 and 24, held on January 10, 2018 and February 21, 2018, respectively.

Q. Do the meeting notes mention that there were a lot of slides that weren't in the handout, and aren't in the notes either?

A. Yes, they do.

Dave mentioned another handout called the Water Master Plan Quarterly Update. The BWS has been sending out a quarterly update to all of its employees and retirees with information that should look very familiar to stakeholders. This is one of the ways of communicating with BWS's staff about what's going on in the development of the financial plan, the rates process, and also your input along the way.

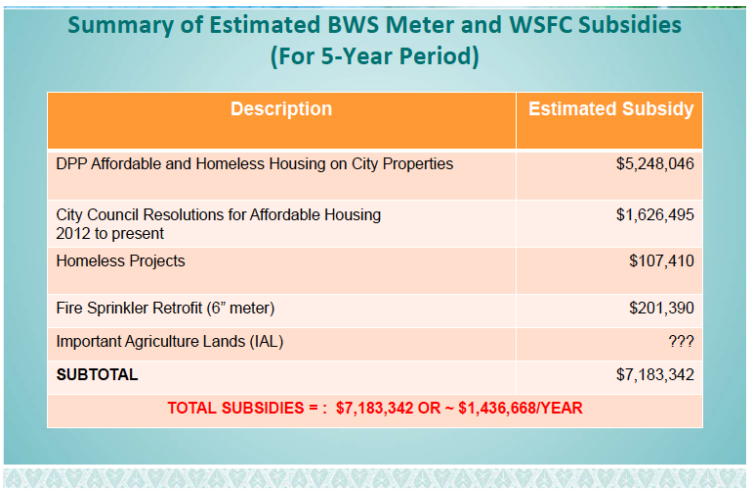
BWS UPDATES

Ernest Lau, BWS Manager and Chief Engineer told stakeholders about a meeting on the Red Hill fuel tanks on Wednesday, March 14 from 6:00 pm-8:30 pm at Moanalua Middle School. The Navy,EPA and Department of Health will give updates about the underground fuel storage tanks. Ernest told the group a tank relocation study was released that day (March 13th), and includes 12 alternative locations for the facility. Ernest told the group where to find available public information about Red Hill online at: epa.gov/red-hill.

Ernest then updated the group on the proposed subsidies and the estimated dollar amounts over the next five years. (See below) He said the Mayor also just requested BWS to waive the WSFC for Important Agricultural Lands (IAL) . Given the recency of the request, the BWS does not know what it would cost yet.

Ernest reminded the group that farmers can apply for a discounted water rate and that the BWS Board has provided guidance to keep the amount of the subsidy at 60%. BWS will invite agricultural customers and representatives to a separate meeting to talk about the changes to the WSFC very soon.

Ernest said that BWS is also reaching out to Developers in a separate meeting on Monday. He said BWS is seeking their input on the WSFC, and on possible waivers of impact fees (the WSFC) for affordable housing. The affordable units could be either rental or for sale. The purpose of the waiver is to encourage more development of affordable housing for our community.



Summary of Estimated BWS Meter and WSFC Subsidies (For 5-Year Period)

Description	Estimated Subsidy
DPP Affordable and Homeless Housing on City Properties	$5,248,046
City Council Resolutions for Affordable Housing 2012 to present	$1,626,495
Homeless Projects	$107,410
Fire Sprinkler Retrofit (6" meter)	$201,390
Important Agriculture Lands (IAL)	???
SUBTOTAL	$7,183,342
TOTAL SUBSIDIES = : $7,183,342 OR ~ $1,436,668/YEAR	

QUESTIONS, COMMENTS AND ANSWERS:

Q. Regarding the fees for affordable housing and homeless properties – are those for the cost of the meters and the service lines?

A. It's really just the WSFC for capacity that the project is going to need from our system. We understand that this will be for about 900 units a year. The Mayor requested that charges be waived for about 700 units. Ellen Kitamura worked with the Department of Planning and Permitting (DPP) to refine the numbers. It looks like about 900 units of affordable housing will be developed each year.

Q. Are there any taxes or things the city or county puts on the BWS that you could reciprocate with?

A. That is an interesting idea. BWS pays an administrative fee to the city government operations for Human Resources services. Ernest said BWS pays about $3 million a year into the city general fund for those HR services.

Ernest invited Barry Usagawa, BWS Water Resources Program Administrator, to update the Stakeholder Advisory Group on advanced conservation measures.

Barry explained that advanced conservation measures had been developed in response to the stakeholders' input on the Water Master Plan. These measures are a way to reduce customers' per capita demand for existing use and future growth. Honeywell is the company helping the BWS with a rebate program of various water conservation incentives/measures.

In April, the BWS and Honeywell will begin a soft start for two rebate programs for residential users:

- One is a rebate for a water-conserving clothes washing machine.
- The other rebate is for 55 gallon rain barrels, available at Home Depot and the Lowes.

Proposed Water Conservation Incentive Measures

Measure	Proposed Measure Approach	Proposed Start Date	Target Audience
Clothes Washer Rebate	Providing a rebate on the purchase of a water efficient clothes washer to residential account holders	Q2 2018	Residential
Residential Rain Barrel Rebate	Providing a rebate on the purchase of a rain barrel to residential account holders	Q2 2018	Residential
Weather Based Irrigation Controller Rebate	Providing rebates for WBICs to residential account holders	Q3 2018	Residential
Food Service Incentives	Incentivizing pre-rinse spray nozzles and faucet aerators to commercial account holders	Q3 2018	Commercial
Commercial Rain Barrel Rebate	Providing a rebate on the purchase of a rain barrel to commercial account holders	Q4 2018	Commercial

BWS currently holds quarterly rain barrel workshops at the Halawa Xeriscape Garden that 25 people can participate in at a time. This incentive is to expand the rain barrel catchments program. The rain barrels retain some of storm water for reuse. The water can be used to irrigate plants.

Barry told stakeholders that BWS will offer incentives for weather-based irrigation controllers later this year. The automatic sprinkler controller system monitors rainfall and will turn on when the soil moisture sensor shows that the yard is dry. Another rebate will be a Food Service conservation incentive. BWS will provide and possibly also install "pre-rinse" spray nozzles and aerators at restaurants for free.

Lastly, BWS will provide a commercial rain barrel rebate at the end of the year, primarily for schools. These rain barrels can hold 350 gallons of water, which is much less costly for a school than purchasing pipeline and connections related to irrigation (for landscaping or even a small garden).

QUESTIONS, COMMENTS AND ANSWERS:

Q. Is a rain barrel going to come with spigots or do we need to buy those "in addition"?

A. Additional fittings will be needed and the costs are minimal.

Q. Will BWS expand the rain catchments incentives to offer them to commercial buildings and high rises or condominiums in the future? When the Stakeholder Advisory Group started a couple of years ago, we had talked about how to catch storm water from the gutters before the water is lost down the storm drains.

A. Sure, there could be broader applications. BWS is investing in the most doable options to start. This rebate package costs less than it would to drill a new well. One of the things we are looking at is what we could require of new development. When developers are building new condos, what kind of conservation measures can they do, such as rain catchment? Can they also recover condensate

from the air conditioning systems on days of high humidity? There are a lot of other things that we could do, but we are starting small, gaining the experience, working out the kinks, and then expanding as we go.

Comment: All over the country, rather than paving, commercial buildings are installing stones, grass, or other permeable paving. Rainwater can soak into the ground, but you can still park on it, and drive on it. A lot of parking lots are being installed using those types of pavers. That's just an idea for future reference.

A. That's a possibility that is more for storm water capture. Cities that have low-impact development (LID) guidelines require perforated pavements such as that, and/or rain gardens, with berms that can slow down runoff so it has a chance to percolate. The might also have retention bases that can percolate and recharge the ground water.

Some cities reimburse their customers a certain amount of money per square foot to change the grass in their yards with artificial turf or other water saving landscaping. Honeywell had pointed out the possibility of retrofitting some of Oahu's low-income multiunit complexes with artificial turf. Hawaii Energy already has a program that goes into these complexes and changes out light fixtures to LEDs. If they're already going to work at that location, they could also change out showerheads to low-flow fixtures. There are a lot of synergies between energy and water. We can reduce costs for our ratepayers and still provide different types of conservation measures.

Comment: I think it would be great to look at a program where water catchments divert non-potable water to flush toilets. That's could to be a huge savings of water over time.

A. Yes, it's possible. The house would have to have dual plumbing. There's a law that says: all government agencies have to dual plumb, and use domestic water only for domestic purposes by 2040. Our new facilities will fold in that new requirement. Using water catchments for toilet flushing in existing ones is harder to implement, but it's possible.

Barry told the group that he and Mike Fuke were interviewed for the Hawaii Matters radio show. They talked about water main breaks and conservation.

He also called attention to a handout related to the draft Primary Urban Center Watershed Management Plan. BWS is holding a second set of community meetings on water demand and supply.

ITERATIVE RESULTS OF THE RATES MODELING

Brian Thomas reviewed the revenue adjustment needed over the next five years. There would be no increase in revenues needed in fiscal year 2019. In the four years after that, the revenue adjustments would stay between 2% and 4%, totaling 12.5% for the period. He told the group that the BWS, with stakeholder input, is trying to accomplish several things with the increased rates:

- Implement the Water Master Plan
- Reduce main breaks

- Invest in our infrastructure for our future
- Provide an "Essential Needs" tier
- Encourage conservation
- Reduce subsidy to single-family residential
- Bring multi-unit down to cost of service
- Avoid rate shock
- All rates go up some

QUESTIONS, COMMENTS, AND ANSWERS

Comment: Regarding reducing water main breaks, unless the BWS pays attention to those areas that have repetitive breaks, you are going to get creamed. We have a stretch of line that is less than a mile long that was installed in 2008, and has already had 23 breaks on it. From what I understand, a project to deal with this stretch of pipeline is scheduled to go out to bid in the beginning of 2020. The people on that street are not going to be happy with the rate increase. BWS needs to take a look at those areas where we've had repetitive breaks and address those concerns very quickly before we go out and tell the impacted people that they're getting a rate increase. This is especially concerning when the project to fix it won't be put out for construction bid until potentially 2020, which is two years away. Which means, that particular stretch of line could possibly have another five breaks in the next two years, based on its past history for the last ten years.

A. Ernest responded to this comment. He confirmed that this is Kawili Street. He said we are near the end of a PVC pipe study. We found that about 300 miles of this type of pipe in around 10 locations on Oahu were starting to fail much sooner than expected – after about 10 or 12 years.

The pipelines in Kawili and McArthur streets are going to be replaced. When we have made repairs to the breaks mentioned, we put in ductile iron to replace it. He added that BWS will take a look at this situation and if we come up with a solution, which will be possibly doing some of the work in house with our crews, we'll give you an update on that. He said that other areas with similar problems include Lanikai and parts of Manoa.

Comment: I suggest that BWS should organize a community meeting for just the people on that street and tell them the situation about fixing their pipeline before you come out and tell them about raising water rates. That stretch of pipeline feeds water to Waianae Elementary School. Get ahead of the game.

A. Ernest said he appreciated this suggestion. He added that there is an aggressive program to repave our roads around the island and about 1000 miles have been paved so far. Repaving involves scraping off the top layer and then putting down a new layer of asphalt.

But they have to also compact it, and they use a vibratory roller. The action of that vibration is causing some of our service laterals to break. In one street in Kalama Valley, we've had about 19

service lateral leaks, after the road was repaved. This is a difficult situation. The repaving causes the laterals to break, and the repairs to the pipelines cut up the brand new paving.

Comment: It seems like a good opportunity to do some kind of public relations pitch to explain the problem. If people understand it, they are going to be more understanding.

Comment: I think that the guys with big water meters aren't going to have the meter-based customer charge phased in slowly. They are going to experience rate shock.

A. A customer with an 8-inch meter is going to have the monthly charge go from $9 up to a couple hundred dollars but the impact on that customer's total bill is still pretty small.

Proposed Single-Family Residential Water Rates

Brian showed and discussed a group of three slides with three different options for draft single-family residential rate and tiers.

Q. This is more detailed than you would show to the public, right?

A. Yes. The reason we are showing stakeholders this level of detail is to help you understand it, and to participate in the decision-making and advisement process. When the Board tells staff to take draft rates information to the public, instead of talking about multiple alternatives, we'll just be talking about one.

Brian showed stakeholders a table of draft cumulative 5-year rate increases for single-family residential customers. The cumulative increases displayed in the yellow columns on the right correlate to the proposed rates shown above. Dave added that proposed changes in rates are in dollars per thousand gallons. This table shows the impact (the cumulative increase) to people's bills – all-inclusive – of the proposed the change in the unit rate for water plus the proposed change in the monthly customer charge.

Comment: When you start getting charged more, one of the questions that comes to mind is: What can I do to use less water? It seems like a great time to be ready with some of the conservation measures. There are dual-flush toilets, low flow showerheads, and even no-flush urinals. If people want to reduce their bill, they can quit using so much water. The BWS could get tooled up with these suggestions for how to use less water. I think rolling out some information in that regard along with rolling out of higher rates.

Q. If the average home uses 9,000 gallons per month, and the average person uses 100 gallons a day, does that suggest the average family is 3 people?

A. Yes, the average home has 2-3 people in it.

Dave said input from the group at the last Stakeholder Advisory Group meeting was that this third scenario, and the highest column (see tables shown previously) seemed to be the best in terms of

meeting the objectives. But one of the struggles that happens is that the cumulative rate increase for customers using around 20,000 – 30,000 gallons per month would have a rate increase that is pretty high – more than 25% percent, which is twice the change of revenue requirement. That looks more like rate shock. We tried to address that problem by going into the essential needs alternative and raising the price in the tiers. But that didn't do enough to reduce the degree of the increase, and so we had to keep the top tier at 30,000 gallons per month and increase the rates even higher in that top tier. As a result, the percentage increase for the highest water users dropped back down to about 16%, really reducing that rate shock situation. There are probably some multi-generational homes among high water users, and we are conscious of that.

> **Comment:** If you have a rationale, an explanation of why the rates were arrived at through clean logic, you can sell it, that's all. I don't think the focus is really so much on the numbers as it having a clean logic.

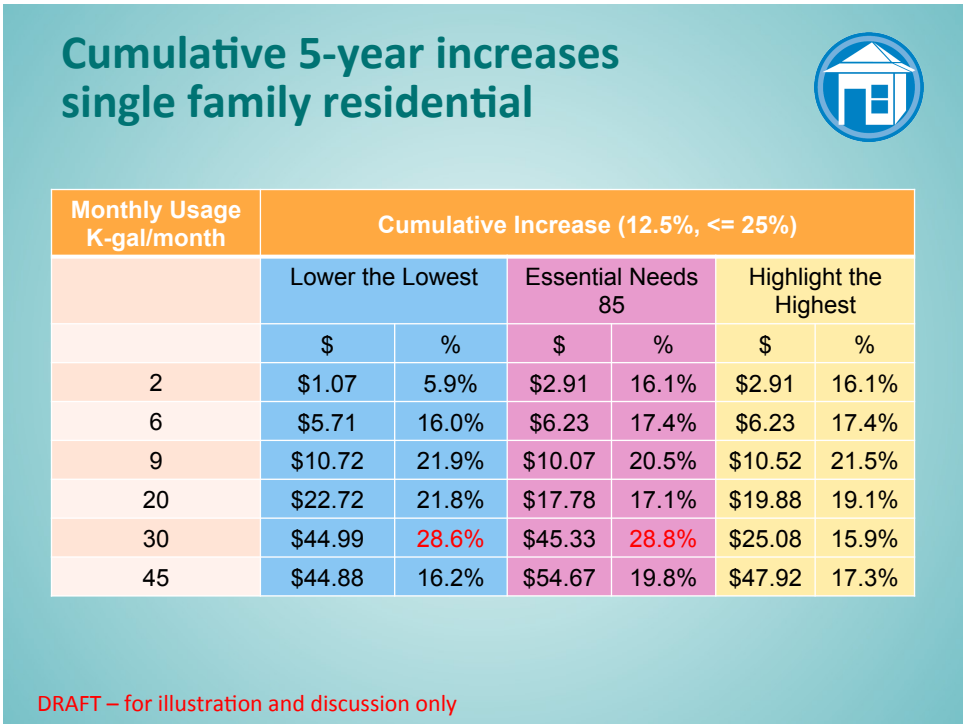
Dave asked the group had reached consensus that the proposed rates for single-family residential customers shown below could be recommended to the BWS Board to take out to the public? The Stakeholder Advisory Group agreed, as long as the backup is good.

Single family residential rates Highlight the Highest

	Existing		Proposed					
Tier	**Gallons/ month/du**	**Rate**	**Gallons/ month/du**	**FY2019**	**FY2020**	**FY2021**	**FY2022**	**FY2023**
EssN	--	--	0 to 2,000	No Change	$3.79	$3.91	$4.17	$4.46
1	0 to 13,000	$4.42	2,001 to 6,000	No Change	$4.46	$4.60	$4.90	$5.25
2	13,001 to 30,000	$5.33	6,001 to 30,000	No Change	$5.06	$5.20	$5.50	$5.85
3	More than 30,000	$7.94	More than 30,000	No Change	$8.46	$8.60	$8.90	$9.25

EssN – Essential needs
Charge in dollars per thousand gallons

DRAFT – for illustration and discussion only



Comment: The public is going to want to know: What is the total bill at the end? They will want to know how much their bill will be raised.

Dave said that this is an important suggestion. In addition to this suggestion, focus groups just gave valuable feedback on some of the messaging around these rate changes. There's a lot of effort going into taking the input the Stakeholder Advisory Group has been providing. We use the group's input in drafting the first cut of messaging. Focus groups are helping us fine-tune those messages.

Proposed Multiunit Residential Water Rates

Brian then presented information related to multiunit residential rates, shown below. Dave asked the group had reached consensus that the proposed rates for multiunit residential customers shown below could be recommended to the BWS Board to take out to the public? The Stakeholder Advisory Group agreed.

Multi-unit residential rates Highlight the Highest

	Existing		Proposed					
Tier	**Gallons/ month/du**	**Rate**	**Gallons/ month/du**	**FY2019**	**FY2020**	**FY2021**	**FY2022**	**FY2023**
EN	--	--	0 to 2,000	No Change	$3.70	$3.71	$3.72	$3.77
1	0 to 9,000	$4.42	2,001 to 4,000	No Change	$4.35	$4.36	$4.38	$4.39
2	9,001 to 22,000	$5.33	4,001 to 10,000	No Change	$4.95	$4.96	$4.98	$5.03
3	More than 22,000	$7.94	More than 10,000	No Change	$5.90	$5.91	$5.93	$5.98

EN – Essential needs

DRAFT – for illustration and discussion only

Cumulative increases on total bill multi-unit residential

Monthly usage/du/ month, meter size, DUs	**Cumulative Increase (12.5%, <= 25%)**					
	Lower the Lowest		Essential Needs 85		Highlight the Highest	
Multi-unit small	$	%	$	%	$	%
2 k-gal, 3/4“, 3 DU	-$2.45	-6.8%	-$1.07	-3.0%	-$1.07	-3.0%
5 k-gal, 3/4“, 3 DU	$0.82	1.1%	$0.37	0.5%	$0.82	1.1%
Multi-unit Low Rise						
7 k-gal, 3”, 272 DU	$145	1.8%	$28	0.3%	$136	1.7%
9 k-gal, 8”, 144 DU	$619	11.1%	$509	9.2%	$497	9.0%
14 k-gal, 8”, 277 DU	$2,212	11.9%	$1,775	9.6%	$1,415	7.6%
Multi-unit High Rise						
7 k-gal, 3”, 304 DU	$197	2.1%	$55	0.6%	$185	2.0%
7 k-gal, 8”, 304 DU	$420	4.6%	$278	3.0%	$408	4.4%

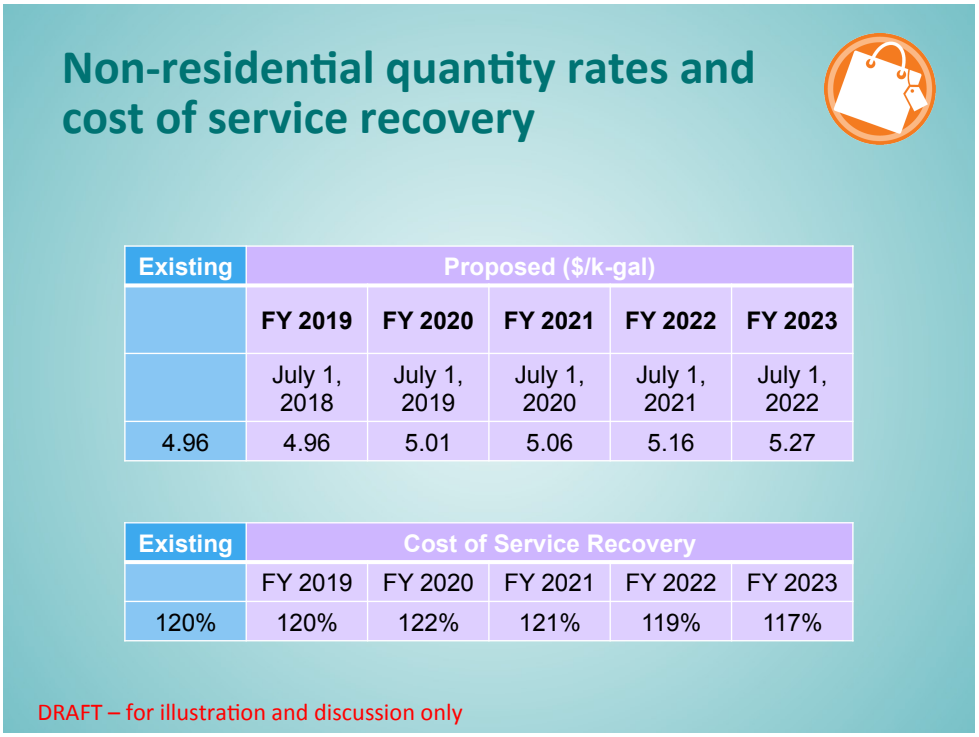
DRAFT – for illustration and discussion only

Q. Regarding the example of the 304-dwelling unit building with an 8-inch meter, how much of the $408 is because of the increase from meter-based monthly billing?

A. Around $250 (round number). We've balanced that with the changes in the unit prices to try and keep the overall total bill increase very consistent.

Proposed Non-Residential Water Rates

Brian then presented proposed rates for non-residential customers. He noted that the water use rates would remain relatively flat for these customers and that the bigger differences in their water bills would come from meter-based monthly customer charges. He also compared the 5-year cumulative percentage increase that different types of non-residential customers would have under the proposed rates. These cumulative percentages varied between 6.4% and 9.1%. Dave asked the group if it had reached consensus that the proposed rates for non-residential customers shown below could be recommended to the BWS Board to take out to the public? The Stakeholder Advisory Group agreed.



Q. If I've got a bigger meter than I need and I'm getting charged a lot of extra money, what does it cost to change down to a smaller meter? How painful is it to "right size" a meter?

Comment: A school or large shopping center could have that scenario of wanting the down size a meter.

A. Ernest said that the customer could actually just make the request. BWS would have to do a study to look at water usage and the flow rates to see if a smaller meter would accommodate the customer's use. And if we can, we can reduce their costs. Brian added that there could be a cost to changing out the meter. Ernest said that we are making the customer charge based on meter size, and that's a fixed charge each month. A smaller meter will have a smaller charge so that's a good point about right sizing.

Dave said that there are things to consider about different water usages through the same size meters. A church doesn't use a lot of water compared to the other 3-inch meter example, but its meter is probably sized for water use on Sunday morning when everybody's there.

Comment: I would image that for the peak demand, you need a large capacity, thus a larger meter.

Comment: Because some of those churches are co-located in schools, the meter size takes into account the school's water use also.

Barry added that some of the non-residential customers have fire sprinkler systems connected to meters, so they have a larger demand. We would have to look at each one on a case-by-case basis.

Proposed Agricultural Water Rates

Brian then presented proposed rates for agricultural customers. He noted that the rates for this group:

- Would have three tiers
- First two tiers are the same as single-family residential
- Cost of service is balanced in the third tier
- Keeps the 60 percent subsidy

Dave asked the group if it had reached consensus that the proposed rates for agricultural customers shown below could be recommended to the BWS Board to take out to the public? The Stakeholder Advisory Group agreed.

Agricultural rates Highlight the Highest

	Existing		Proposed					
Tier	**Gallons/ month/du**	**Rate**	**Gallons/ month/du**	**FY2019**	**FY2020**	**FY2021**	**FY2022**	**FY2023**
EssN	--	--	0 to 2,000	No Change	$3.79	$3.91	$4.17	$4.46
1	0 to 13,000	$4.42	2,001 to 6,000	No Change	$4.46	$4.60	$4.90	$5.25
2	More than 13,000	$1.89	More then 6,000	No Change	$1.95	$1.98	$2.05	$2.12

EssN – Essential needs
Charge in dollars per thousand gallons

DRAFT – for illustration and discussion only

Proposed Non-Potable and Recycled Water Rates

Dave then presented information about proposed non-potable and recycled water rates. He said we had a lot of discussion about these rates last month because, in the initial draft, we tried to get these rates to 80% of cost of service recovery. The impact of that, particularly on golf customers, was pretty dramatic – a doubling of their rates, in fact. Then we had a good conversation about the impact that could have on the industry as a whole. So the team went back and took another look at also keeping this customer classes' cumulative increase to no more than twice the change in revenue requirement.

Brian presented the results of the second look, shown below. Also shown below are the cost of service adjustments made since the previous meeting.

> **Q.** When you have contracts, what is the term, I understand they could all be different. But, what is the average term, or what would be the longest term outstanding in your contracts?
>
> **A.** Barry said that some of the older ones had a sunset date of about 20 years.

Dave asked the group if it had reached consensus that the proposed rates for non-potable and recycled water customers shown below could be recommended to the BWS Board to take out to the public? The Stakeholder Advisory Group agreed.

Non-potable and recycled rates

	Existing	Proposed ($/k-gal)				
		FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Non-Potable	2.47	2.47	2.53	2.62	2.75	2.90
R-1						
Golf	Varies by contract		0.57	0.59	0.62	0.65
Other			1.84	1.88	1.92	1.96
RO			5.76	5.88	6.12	6.36

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Cost of service recovery non-potable and recycled

	FY 2019*	FY 2020	FY 2021	FY 2022	FY 2023
Non-Potable	77%	77%	78%	79%	80%
R-1					
Golf	29%	31%	31%	32%	32%
Other	97%	97%	96%	95%	94%
R-1 Total	70%	71%	70%	70%	70%
RO	55%	62%	62%	62%	63%

* Same as existing

DRAFT – for illustration and discussion only

Comment: I think it follows the premise that we've been working on to gradually increase and minimize the sticker shock, so we are very appreciative of the reconsideration.

Q. Now that we've reached this point, will you be providing the Stakeholder Advisory Group backup and rationale for what we just approved? Our information packets thus far have not included the slides with detailed draft rates. But now that we have consensus going forward, some of us would like to have the information to say, "Here's the rationale, and here's why we are doing it this why we are doing this way". And, I can back it up with something to grab onto.

A. Yes, that's a really excellent point. Our first way of preparing the backup and rationale will be the Board packet for the March BWS Board meeting. We will equip you with information, so when the questions come, you have what you need to understand what is being proposed. That will probably be within this month. We will send everyone a PDF of the Board packet.

Q. Will that include all three versions of the draft proposed rates that we've been discussing or just the one version that we reached consensus on today?

Comment: Give all three versions to the Stakeholder Advisory Group.

Q. Is someone asking to include the three versions -- the ones that we just went through and now we are making recommendations on the Board -- as part of the additional packets we are going to share with the public?

A. Ernie asked the group for its kokua to actually try not to share the three different versions because when we go out to the public, we want to have a simple message. If not, it could be confusion out there with our customers.

Comment: I think whatever is coming out to us should only be what we moved forward with the recommendations.

DRAFT UPDATES TO THE WATER SYSTEM FACILITIES CHARGE

Brian introduced the subject of the BWS's Water System Facilities Charge (WSFC). He said that unlike everything else we've been talking about, it's not a monthly charge. It's a one-time charge that is charged to all new development. It is intended to recover the capital costs that are associated with the facilities that are needed to meet that demand.

The idea of this is that, as new growth comes in, we have a certain amount of capacity available within the system that was already built, so they can use that. And there's a certain amount in the system that we are going to have to build to meet future growth, and so there's a component associated with that. If the system were fully built out, BWS would have to build more storage, more sources of water, and more transmission mains to get the water to that development. So what we'd like to do is have that capital cost paid for by the people who are causing BWS to have to make those investments.

Brian said the BWS has this interconnected network of facilities and the backbone system is composed of the transmission, the treatment, the storage and the resource itself, and the capture of that resource.

The BWS WSFC was initially adopted in 1993. It hasn't changed since then but many other things have: water usage patterns, how people use water, how much water they use, when they use it. So, we need to reflect the changes in an updated WSFC.

Brian explained the process of how to determine the updated charge. It involves:

- Determine existing available capacity and its monetary value
- From WMP and 10-year CIP, identify planned additions and upgrades to meet growth, and their cost
- Estimate how much capacity each customer type needs (gallons per day per fixture unit)
- Do a bunch of math

Dave said that the amount of source that's available right now is 174,000,000 gallons per day. Of that, 29,000,000 gallons per day of capacity is currently available. And that has a value of $54 million, and that's the net depreciation value of the asset. The transmission system has about 189 million gallons per day of capacity. 23 million gallons of that is currently available with a value of about $100 million. 193 million gallons of daily storage are available of a value of about $27 million. New sources cost $4.60 per gallon per day of capacity. New transmission costs $5.75 per gallon per day of new transmission capacity. And, similarly daily storage costs a little over $3.00 per gallon per day.

QUESTIONS, COMMENTS, AND ANSWERS

Q. When you're estimating how much capacity each customer type needs, how do you come up with "per gallon per day"?

A. It's like "miles per hour". It's this amount of money per gallon around the unit time of day. It's an increment of time that's built into the metric, just like 50 miles per hour.

Comment: There are so many variables in construction. I don't know how you can standardized this.

A. We take all the projects that are in the capital improvement program. We identify and add up the costs of each of those individual projects that are related to growth (10-Year CIP). We add them all together, because we are looking at the system as a whole. It's based on those specific construction costs estimates for each individual project.

Q. I want to make sure I understand these questions. It's not charging $4.68 cents every day you deliver that gallon of water, resource develop, or transmit it or daily, correct? It's to build the capacity to transmit it.

A. Correct. It's a one-time charge to build the pipe big enough to be able to get that amount of water to you.

Dave then said he would introduce another thing called a "fixture unit". A fixture unit by definition is one cubic foot of water, which is 7.48 gallons, drained through a 1 and a quarter inch diameter pipe, over one minute. It's a very archaic term.

Q. Why does the drain rate have anything to do with this?

A. It's a very archaic term that the water industry applies to the potable water system to try and describe the amount of water the different fixtures in your home are capable of using.

The results of the process to update the WSFC are shown below. Dave said that for the non-residential customer, there's currently a divide in the WSFC at 50 fixture units. The BWS has what is called "small non-residential" and "large non-residential". When this was set in 1993, the small non-residential customers using less than 50 fixture units, were being charge $620 per fixture unit. The large non-residential customers pay $220 per fixture unit.

Dave said that when we updated these numbers and looked at water usage patterns across the non-residential customer segment, we didn't see those same big differences in usage patterns. That suggests that it might be more appropriate to get rid of the differentiation that exists currently in the non-residential WSFC.

Dave talked about the impacts of the WSFC. A single-family residential home with 20 fixture units at the minimum, currently paying $3,700 for a one-time charge for the capacity, would go to $4,600. A larger home with 30 fixture units would go up 24.8%.

Step 4 – Results of the math
Updated WSFC ($/FXTU)

	Single family	Multi-unit Low Rise	Multi-unit High Rise	Small Non-Res <= 50 FXTU	Large Non-Res > 50 FXTU
Existing					
Resource Development	$80.04	$117.14	$88.14	$257.74	$95.15
Transmission	$37.87	$55.46	$41.73	$130.65	$45.04
Daily Storage	$67.42	$98.67	$74.25	$232.46	$80.10
Total	$185.33	$271.27	$204.12	$620.85	$220.29
Updated					
Resource Development	**$65.65**	**$100.03**	**$76.15**	**$125.44**	**$113.45**
Transmission	**$106.60**	**$131.20**	**$99.87**	**$195.86**	**$177.13**
Daily Storage	**$59.00**	**$72.62**	**$55.28**	**$108.41**	**$98.05**
Total	**$231.25**	**$303.85**	**$231.30**	**$429.71**	**$388.63**

DRAFT – for illustration and discussion only

Step 4 – Results of the math
Updated WSFC ($/FXTU)

	Single family	Multi-unit Low Rise	Multi-unit High Rise	Non-Residential
Resource Development	$65.65	$100.03	$76.15	$114.00
Transmission	$106.60	$131.20	$99.87	$178.00
Daily Storage	$59.00	$72.62	$55.28	$98.53
Total	$231.25	$303.85	$231.30	$390.53

Minimum charge of 20 fixture units

DRAFT – for illustration and discussion only

Q. Why is the transmission going up so high? The others are staying, you know, they're not far but transmission is going up a lot.

A. There's a lot more capacity in transmission that needs to get built. The value of the existing transmission capacity is pretty high. And so, that's being reflected in those higher costs.

Q. When the existing charge is $185 per fixture unit and the new charge is going up to $230, and multiply that by 20 – that is going to be $3,600 dollars vs. $4600. For a one time charge?

Q. How do the monster homes fit in here?

A. They would be a single-family residence.

Dave continued: A new high rise multiunit residential with 1,000 fixture units would go up about $30,000 (about 13.3% increase). But for non-residential customers, there is a big difference in the proposed WSFC between large and small. If you're a non-residential customer coming onto the BWS system with a new development that has 50 fixture units or less, you're really happy because compared to today, you're going to pay 37% less for your WSFC. If you're in that high rise category, you might be pretty unhappy, because under these calculations, you'd be paying 77% more.

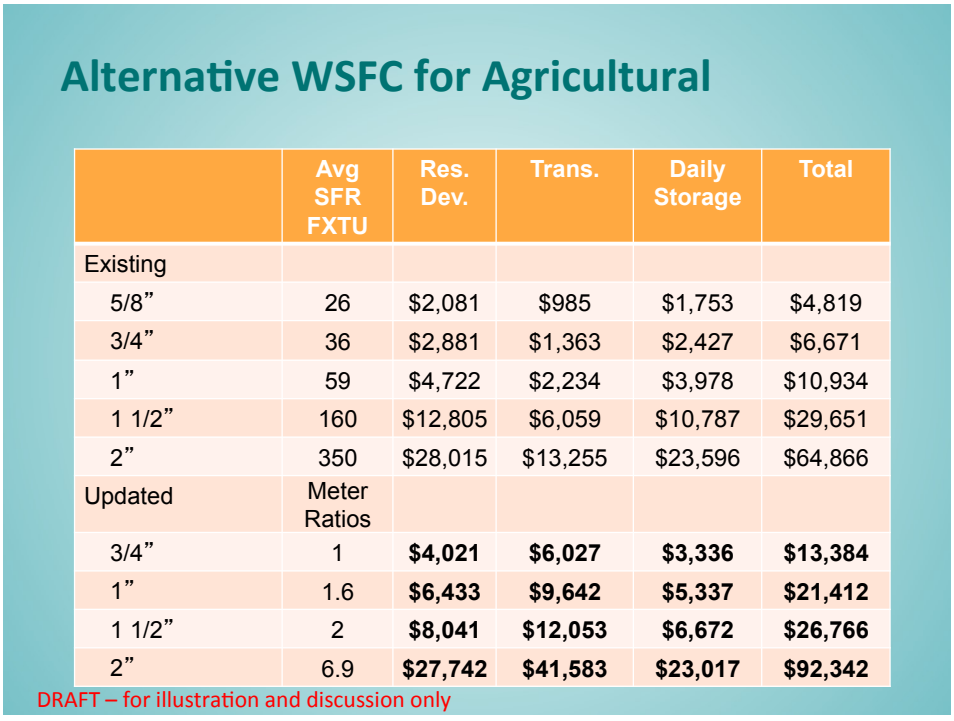
The hardest one is different: agriculture. Currently, like all these other categories, it's based on a fixture unit count, but it's based on a fixture unit count of the single-family home. So, back in 1993,

when they counted fixture units, a single-family home on a three quarter inch meter had an average of 36 fixture units. A single-family home using a two-inch meter had an average of 300 fixture units.

When we go back in and look at recent connections to BWS's system, and the amount of water, the amount of fixture units that they actually have, they don't have that number of fixture units anymore. A single-family home on a three quarter inch meter, as a said before, has about 20 fixture units. And those on the bigger meter sizes have about half as many fixture units as in 1993.

So, you have to ask the question: Does it make sense to charge the agricultural customer a water system facilities charge based on what a single-family home is using? And is that reflective of the usage agricultural customers have? The answer is no. It's not reflective of that usage. In one day, the average agricultural customer uses 6,000 gallons of water. That's more than half of BWS' single-family residential customers use in an entire month. Agricultural customers are running a lot more water through that meter.

Dave showed what the updated WSFC for agricultural customer would be:



	Avg SFR FXTU	Res. Dev.	Trans.	Daily Storage	Total
Existing					
5/8"	26	$2,081	$985	$1,753	$4,819
3/4"	36	$2,881	$1,363	$2,427	$6,671
1"	59	$4,722	$2,234	$3,978	$10,934
1 1/2"	160	$12,805	$6,059	$10,787	$29,651
2"	350	$28,015	$13,255	$23,596	$64,866
Updated	Meter Ratios				
3/4"	1	**$4,021**	**$6,027**	**$3,336**	**$13,384**
1"	1.6	**$6,433**	**$9,642**	**$5,337**	**$21,412**
1 1/2"	2	**$8,041**	**$12,053**	**$6,672**	**$26,766**
2"	6.9	**$27,742**	**$41,583**	**$23,017**	**$92,342**

Dave also showed similar connection charges of other islands':

	BWS	Maui	Kauai	Hawaii
3/4"	$13,384	$18,884	$21,170	NA
1"	$21,412	$33,356	$35,290	$13,750
1.5"	$26,766	$71,948	$70,580	$27,500
2"	$92,342	$125,012	$112,920	$44,000

Q. Why is Hawaii so much less?

A. We've asked the same question and we don't know.

Dave said we will come back to this discussion at the next Stakeholder Advisory Group meeting on April 11, 2018.

He then asked the group if there was any interest or ideas about the Stakeholder Advisory Group moving forward, after adoption of water rates.

Comment: I'd be interested in hearing back from this group after June. I sit on the National Environmental Justice Advisory Council for the EPA, and we have been working on a water infrastructure paper for over a year now. We should be at our next face-to-face meeting, which is scheduled for the first week of June, approve that paper, to go to the EPA administrator, at which point it becomes a public document. The paper addresses some of the issues that I've raised before, some of the Flint, Michigan incidents, what San Diego is doing with not having enough, how to figure out what best way to use their tertiary water. I would be interested in this group having that document once we pass it, and getting feedback to see whether or not any of it could potentially pertain here, but also, whether or not there might be some snippets could help other communities out. Because, the water infrastructure across the United States, at least from what I've experienced, through this group, we're in primal state compared to other communities. And, I think it would be interesting to see what some of their challenges are, and whether or not these are some of the things we need to keep in mind for future or not, or what we could provide for others to help them out.

Comment: I like co-mingling of academics with site visits. Your trip to Honouliuli was really educational. And if we could go to other places where we could offer something educational, that would be great.

The next Stakeholder Advisory Group meeting is Wednesday, April 11th at the Blaisdell Center.

Dave thanked everyone for coming and for their excellent feedback.