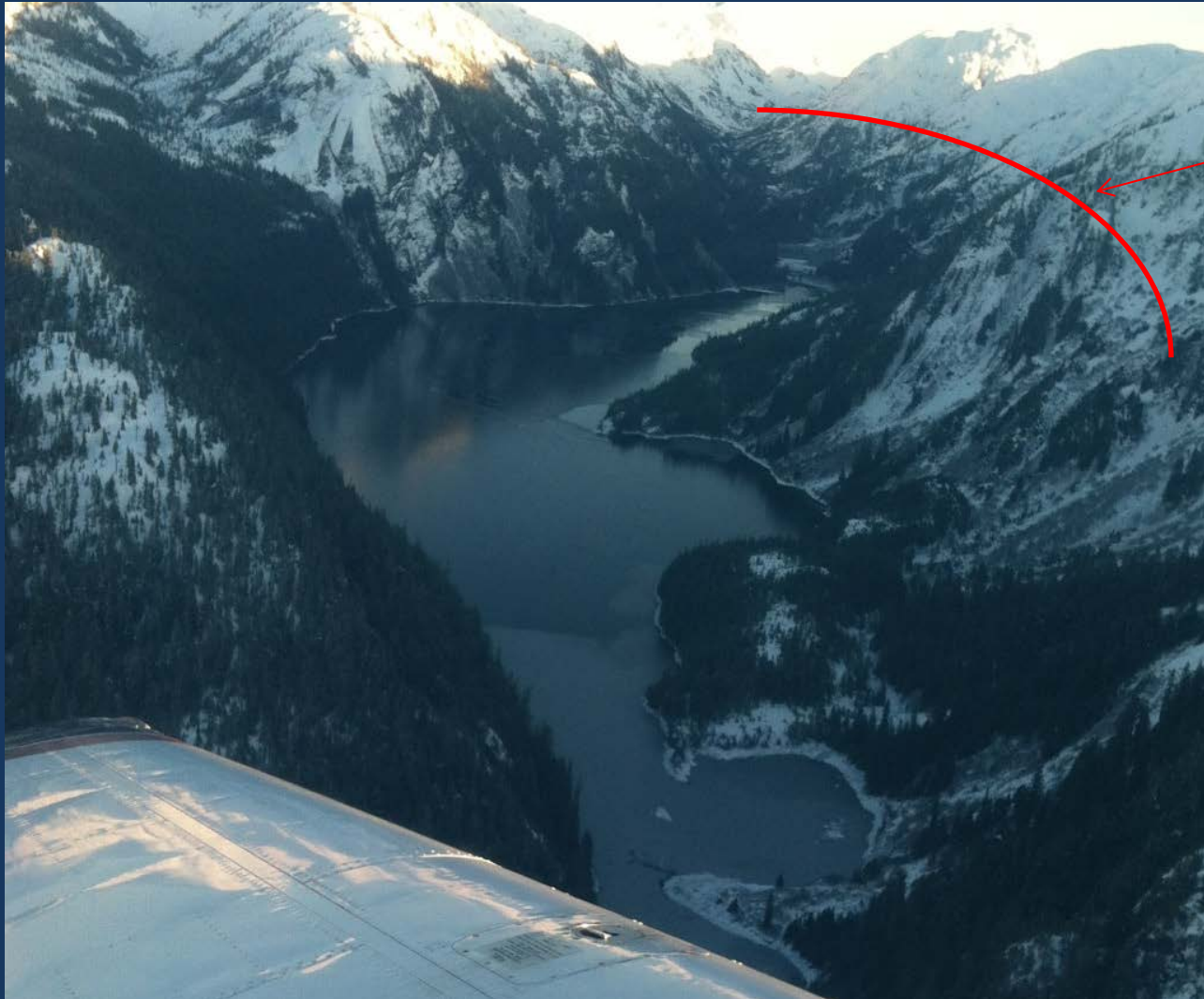


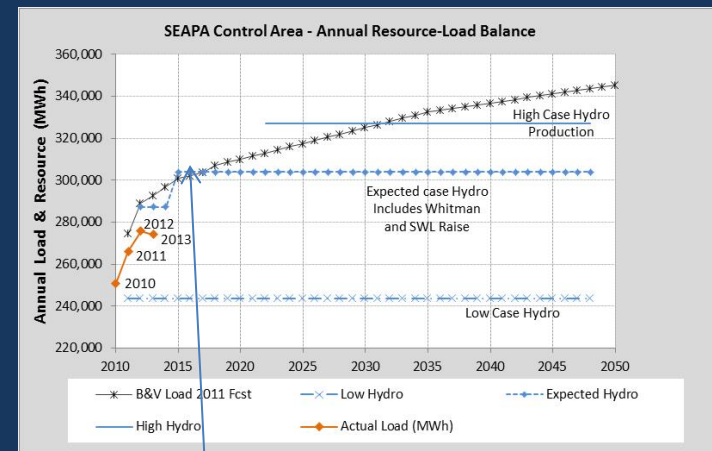
# Special Projects Report March 2015



Late March  
Snow Line  
approximately  
elevation  
3000 ft !



# Resource Planning-



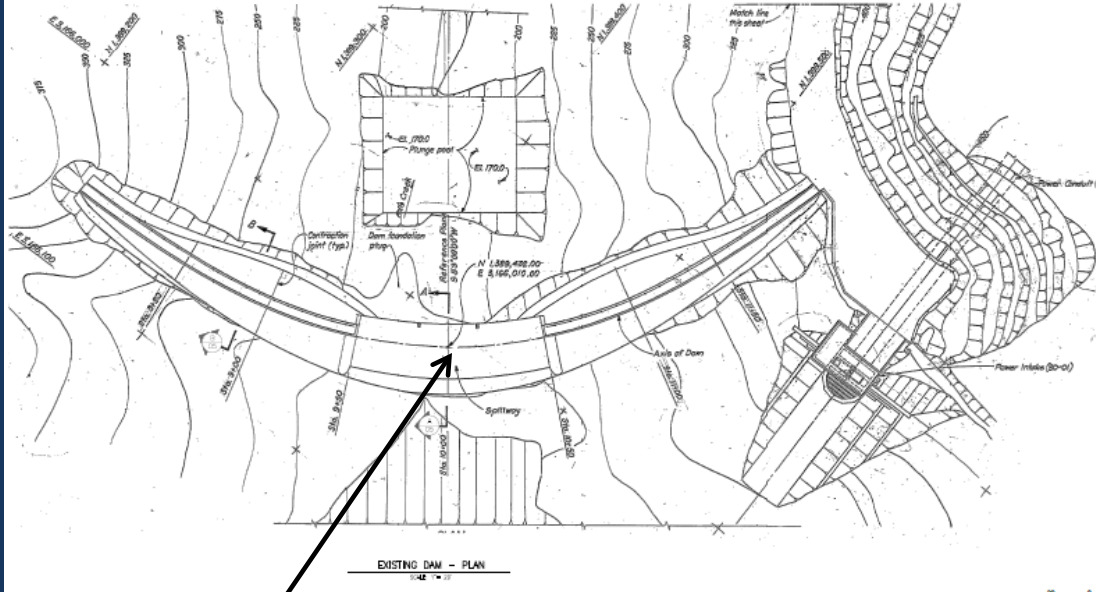
Short Term- Efficiency of Operation  
& Load Forecast-know where you are going

A- Small Improvements to the system- CW changes at Tye (control portion left) and Swan Lake (FY16), Tye weir (stops a leak), control changes at Tye

B-Swan Lake Raise- in a nut shell this project helps us get the most out of our existing resources on a system basis ( a 100% renewable hydro system) at the lowest cost by increasing storage

C- Load Forecasting- our single most important metric!

# Swan Lake Reservoir Expansion



**Put a spillway plug here, get a 25% increase in active storage!**



# Swan Lake Reservoir Expansion



## SEAPA asks for refinancing support from member utilities

By MARY KOPPES  
Pilot writer

Southeast Alaska Power Agency (SEAPA) CEO Trey Acteson spoke before the Petersburg Borough Assembly last week and the Wrangell Assembly this week to update the communities on the progress of the Swan Lake expansion project and apprise them of their role in upcoming refinancing efforts.

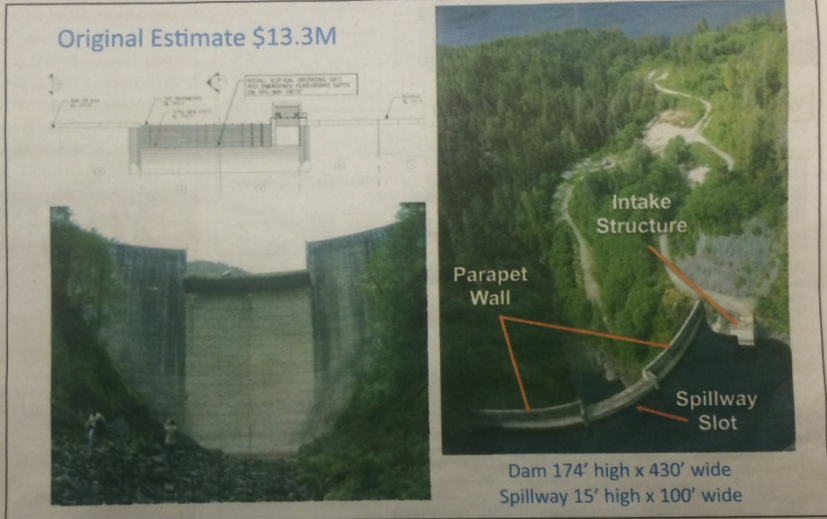
The current dam at Swan Lake is 174 feet tall and 430 feet wide with a spillway slot that is 15 feet high and 100 feet wide.

"Essentially the project is to fill that spillway slot, be able to raise the reservoir 15 feet," Acteson said. "It gives us an extra 25 percent active storage in that reservoir so pretty good bang for the buck with small modifications."

Acteson said the expansion project would provide more energy to the agency that supplies power to Petersburg, Wrangell and Ketchikan, and also to capture spillage.

"We spilled for several months this year," he said. "And once that spill goes over the dam, that's energy lost forever."

Capturing that spill through the expansion would save up to 12,000 megawatt hours a year, the equivalent of 800,000 gallons of diesel. That would spell sav-



Submitted illustration

SEAPA hopes to expand the Swan Lake dam by filling in the spillway slot, thereby raising the reservoir 15 feet and potentially saving 12,000 megawatt hours of otherwise lost power production.

nancing \$4.77 million of existing 2009 electric revenue bonds, SEAPA is looking to sell \$7 million in bonds to help fund the Swan Lake project.

like the power sales agreement and bylines will remain unchanged.

Petersburg Borough Assembly members John Havrilek, Bob Lynn and Cindi Lagoudakis

or risk Petersburg would face in signing off on the changes and about SEAPA's total debt capacity.

Paisner said that member utilities are not obligated to pay for

they pay just for the power purchased from the provider. SEAPA's total outstanding debt is \$13.4 million.

If all goes according to plan, construction on the Swan Lake

# Swan Lake Raise Project Management

Wild Horse Dam in Nevada  
USBR-constructed in 1969



To increase storage  
(double) – the new  
double curvature  
structure replaced the  
1937 dam

# Swan Lake Raise Project Management

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BOC #3-Concept cleared March 12<sup>th</sup>, Parallel path Engineering now acceptable

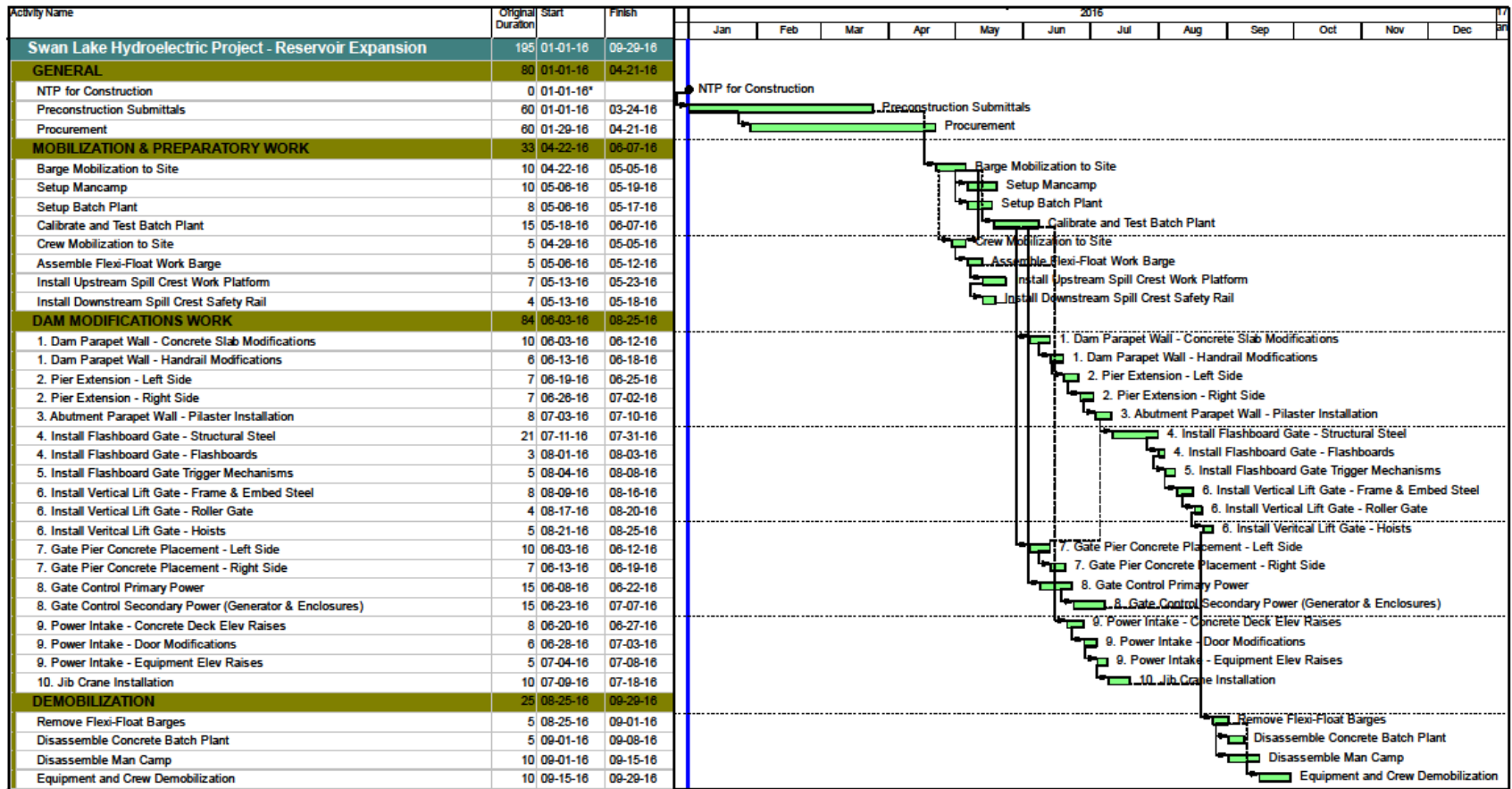
Close out Jacobs Assoc. contract & Issue RFP for Engineering Services (30% design to 100% Design) for non-flashboard components (which are also the long lead time items). Continue with modeling

Project Cost- \$10M down from \$13M

Working on Logging estimate & cruises & Logging plan

License Amendment won't be in March- FERC Legal now involved

# Swan Lake Raise- Schedule



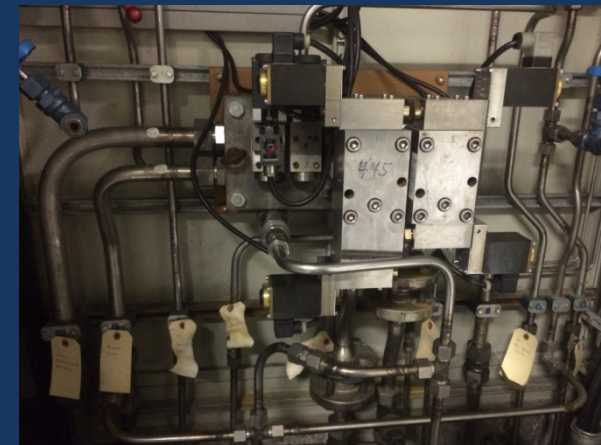
■ (New Bar)  
■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
● Milestone

SEAPA  
 Swan Lake Hydroelectric Project Reservoir Expansion  
 02-27-15



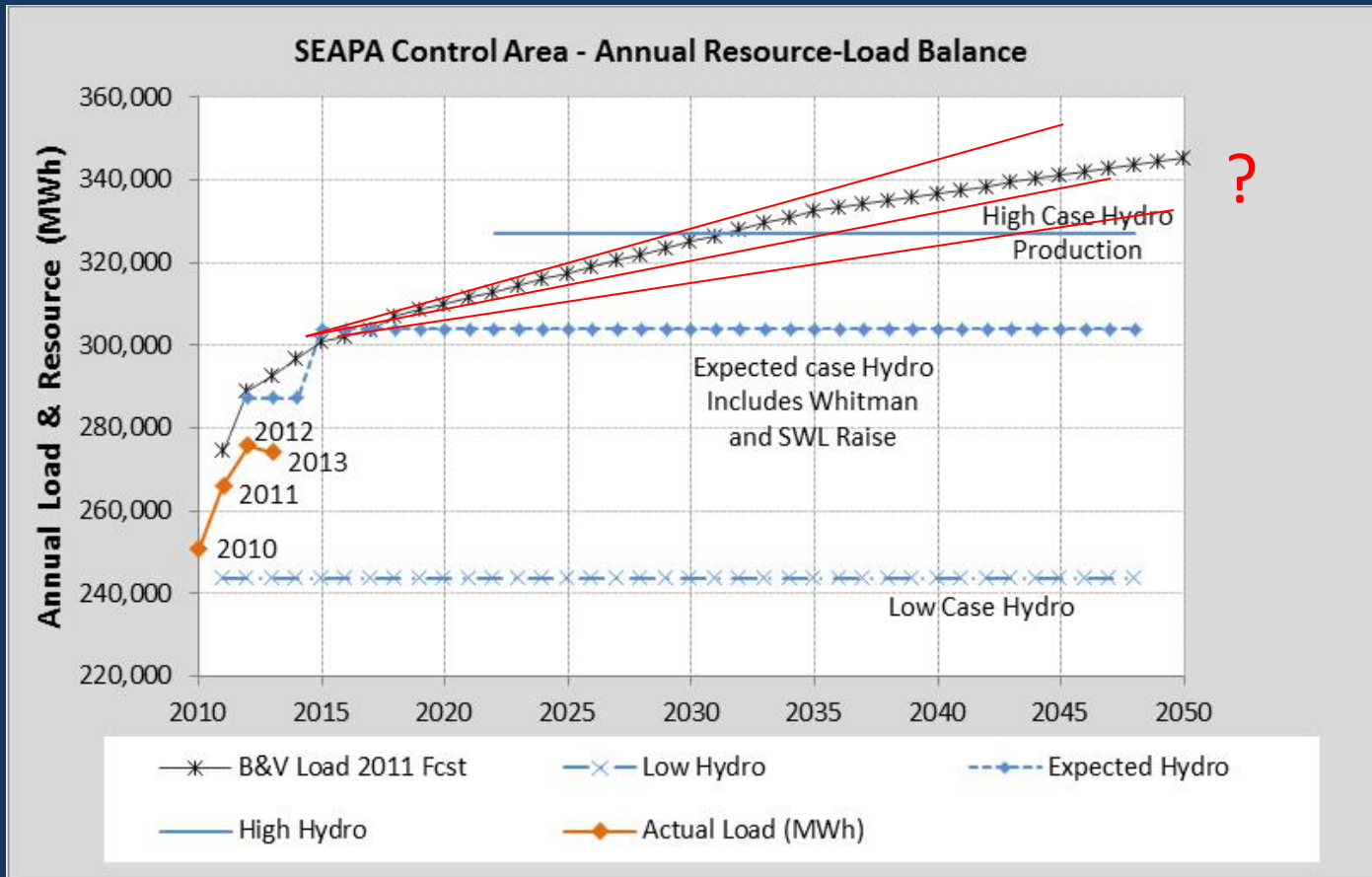
# Tye TSV Controls Review-HDR

HDR submitted their draft report last week, a review conference call is scheduled for this Friday-





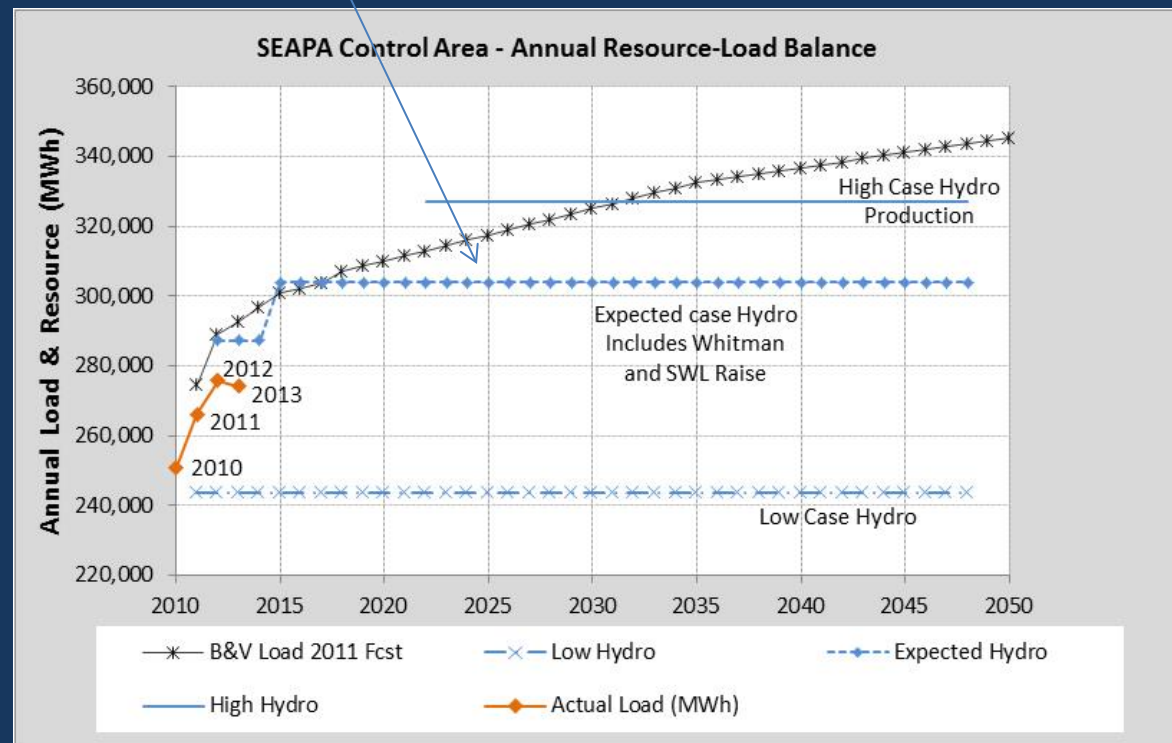
# Load Forecast



D.Hittle and SEAPA have agreed to scope and schedule under the previously approved contract amount of \$89,408. Work to start in late April on both a long term, shown above, and a short term (next week)

# Resource Planning-

Mid term Renewable - in conjunction with future Relicensing Effort- wind tidal or geothermal, but only if it makes sense...



# Bell Island Geothermal

SEAPA Board took extra steps to expedite the process at our previous Board Meetings, we were authorized to issue a Contract in a competitive process not to exceed \$70,000 (+/-)

SEAPA staff issued an RFP for geochemical analysis in Mid February, 8 strong proposals were received, we selected the Boutet Company of Anchorage which had the strongest geochemical analysis component and the best field plan, price was mid-range (\$48,000)

Field Work is scheduled to start April 14

Draft Report is due May 15th



# Bell Island Geothermal

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Stage 1 Investigation- the on-going geochemical Work (\$70k was estimated, it will hit \$60k +/- with travel expenses, extra water samples, and lab expediting fees

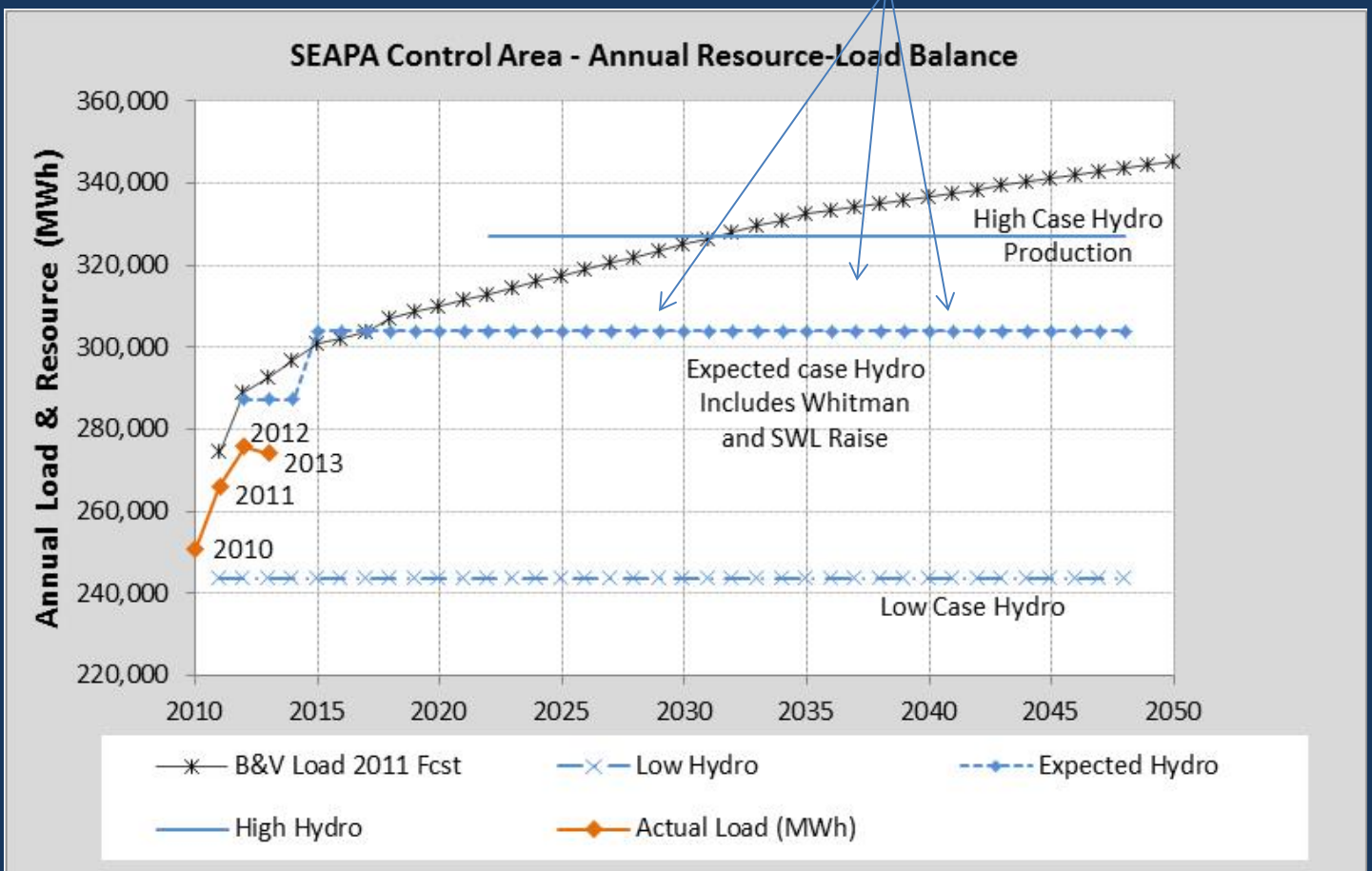
Stage 2- Investigation- If Stage one temperatures and geologic model support additional surface investigation, we would expect an effort between (\$250k and \$600k) depending on scope (how much surface to investigate)

Stage 3- Investigation- If stage 2 supports continued investigation then drilling exploratory wells would be in order.

As part of this stage 1 work, costs, scope, schedule and budget will be developed for Stage 2 & Stage 3 Investigations

# Resource Planning-

Long Term Renewable -in conjunction with future Relicensing Effort..... Hydro Site Evaluation Project

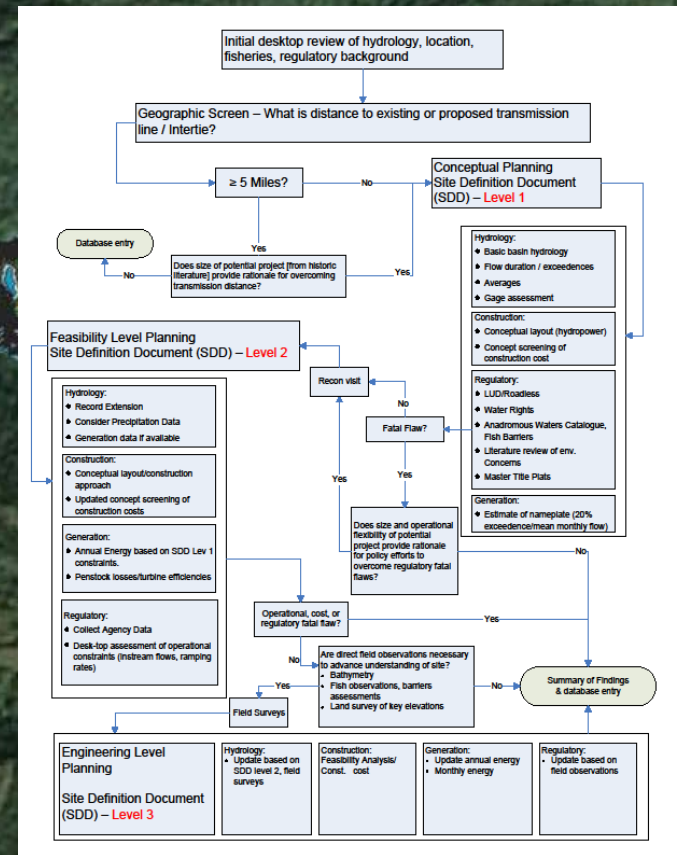


# Hydro Site Analysis- Long Term

Despite the rhetoric of the SEIRP, which is to bring all sites up to a standard level of comparable information, we are not doing that. Some sites get to level 1, and we document why, some sites get to level 2, and we document that, and some sites get to level 3, next year we will increase the list and carry some sites to level 3-4



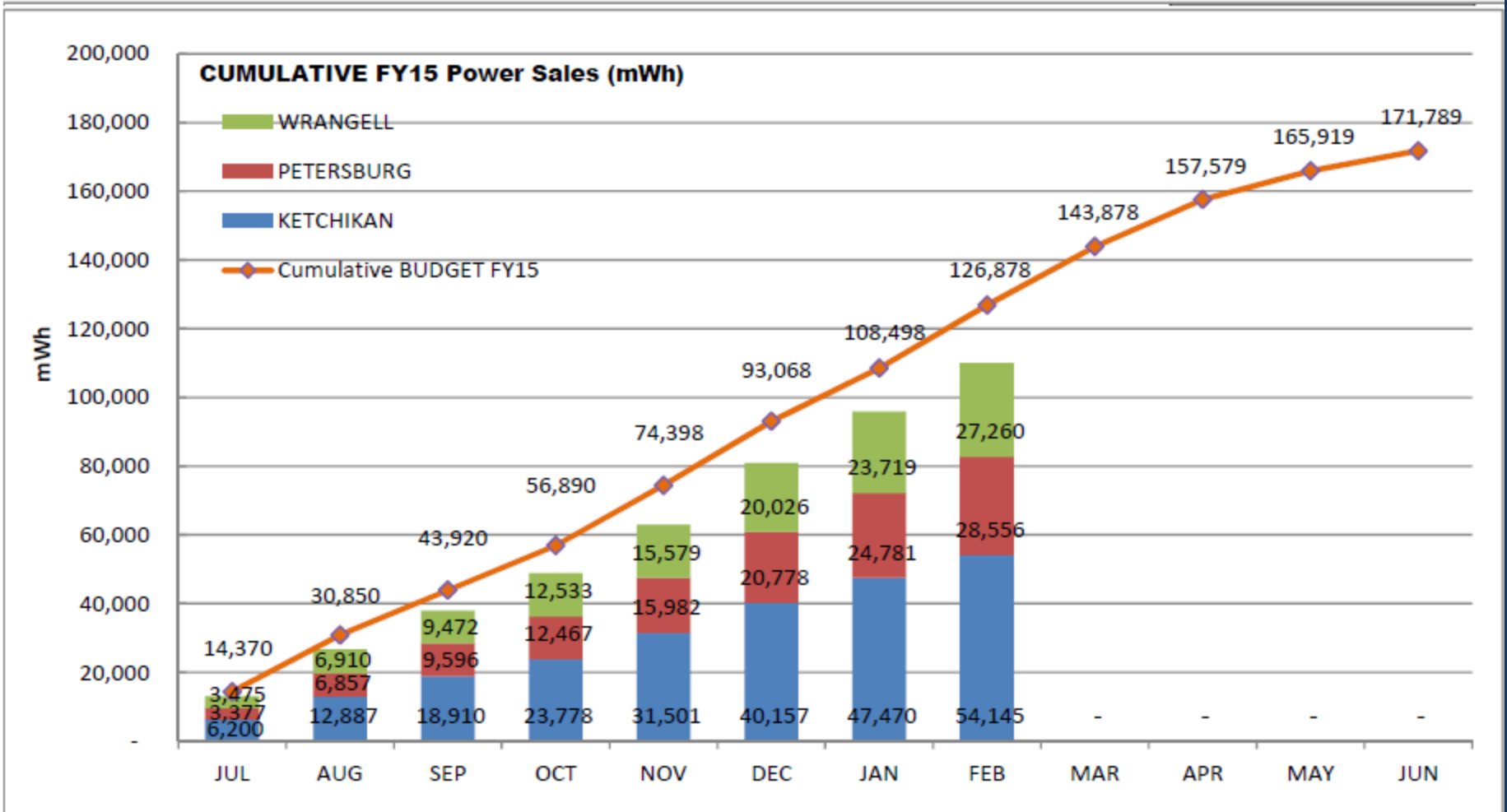
This next couple of months we are working on filling in missing data gaps, and conducting an internal independent review of the database. After the review, and any necessary process changes, we'll continue with our field work and new site investigation.



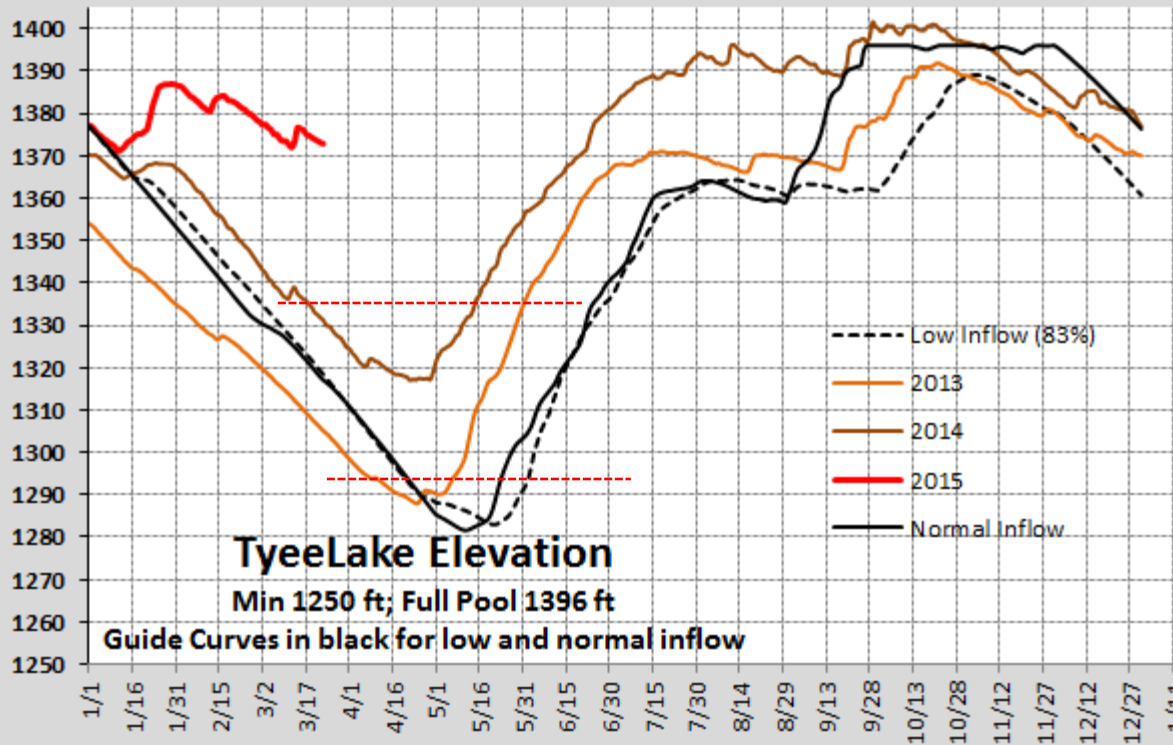
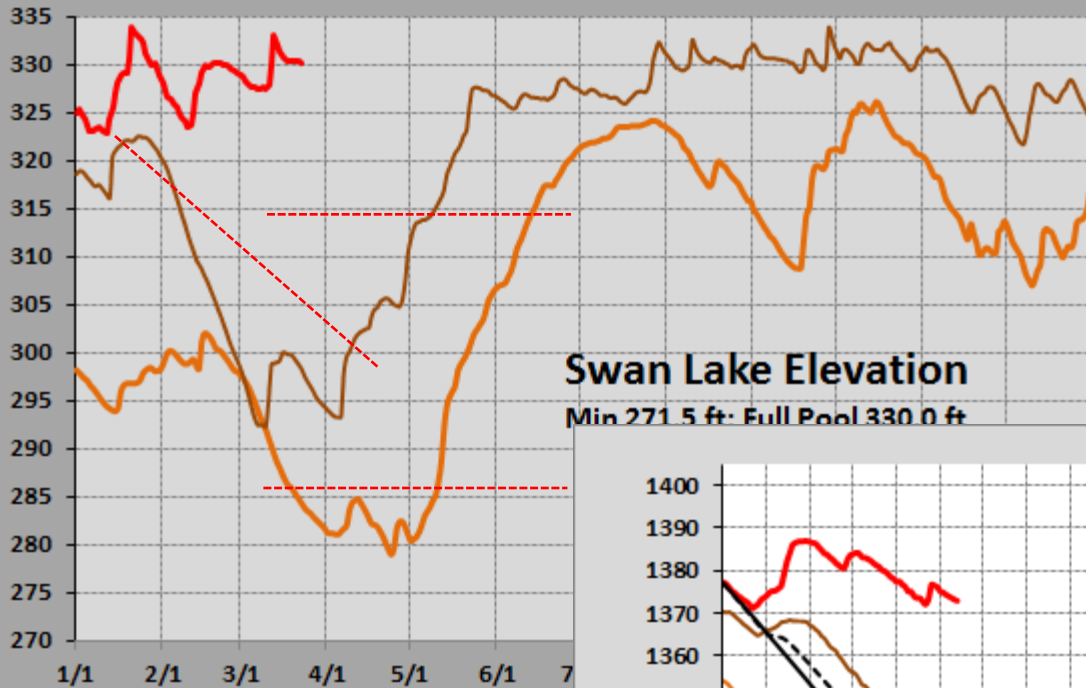


# Water Management and the Ops Plan

FEB 2015	FY15 kWh Hydropower Sales	Current Month		Year-To-Date	
		Actual	Budget	Actual	Budget
		Ketchikan Power Purchases	6,675,000	10,250,000	54,145,000
Petersburg Power Purchases	3,774,960	4,430,000	28,556,200	31,240,000	
Wrangell Power Purchases	3,540,350	3,700,000	27,259,770	26,118,000	
<b>Total Power Purchases</b>	<b>13,990,310</b>	<b>18,380,000</b>	<b>109,960,970</b>	<b>126,878,000</b>	

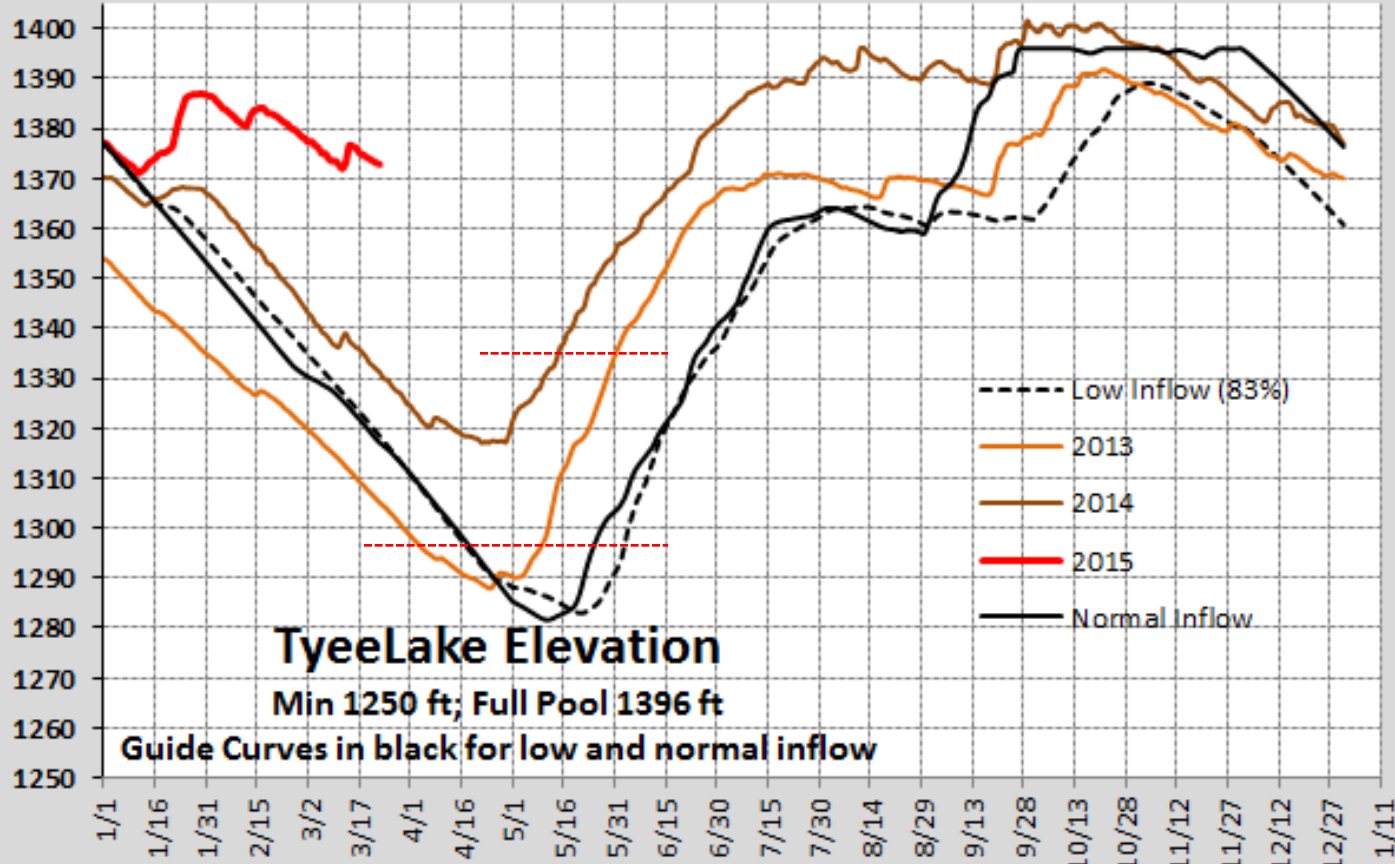


# Resource Planning-Back to Short Term- Water management and the Ops Plan



2015 Operations Plan Reservoir Levels			
	Draft	-	+
	Elevation	Elevation	Elevation
	Target (msl)	ft	ft
SWL	300	15	15
TYL	1315	20	20

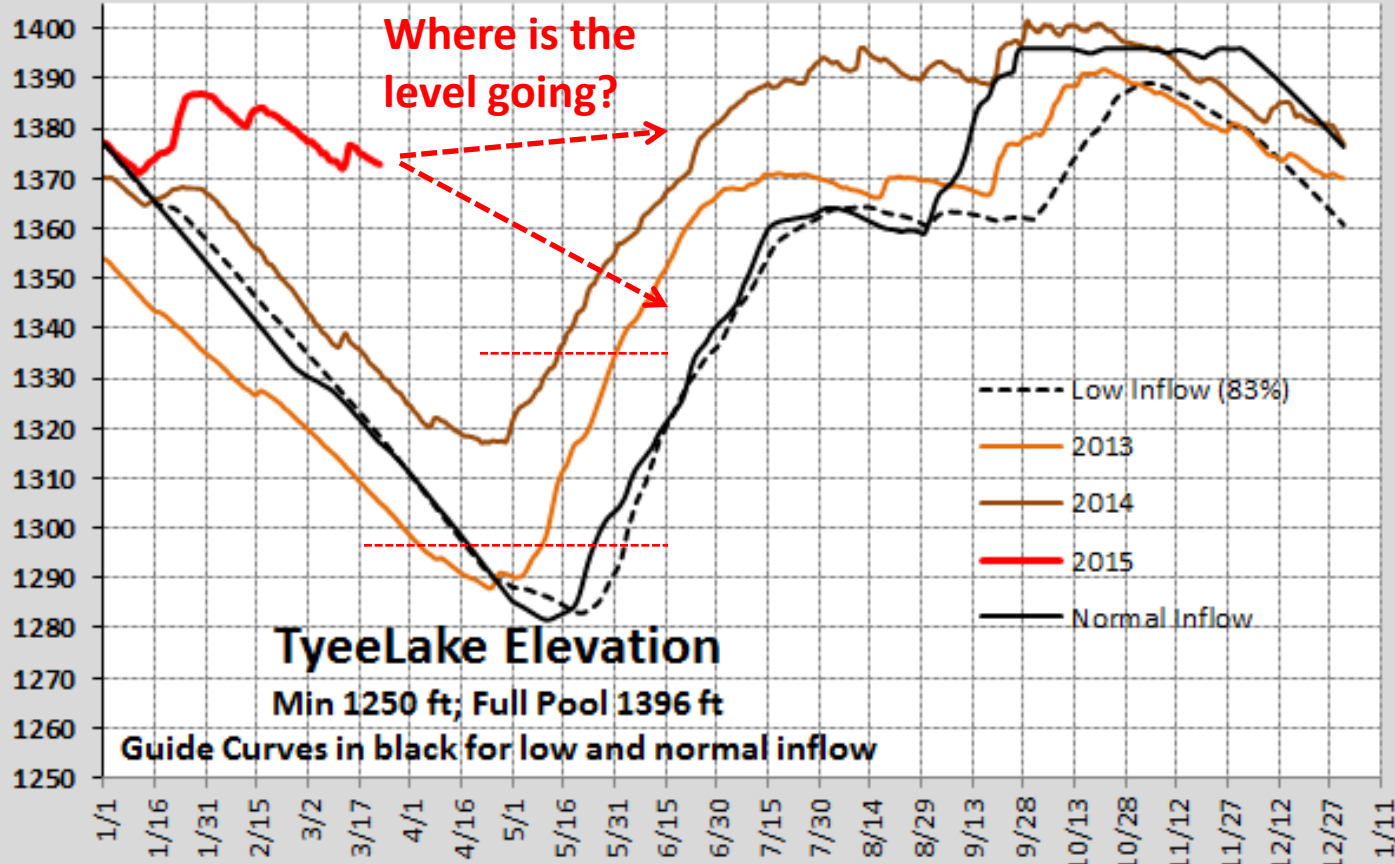
# Resource Planning-Back to Short Term- Water management and the Ops Plan



	End of Season Tyee S2		End of Season Tyee S3		Basin Observations
	Depth	inch H2O	Depth	inch H2O	
2012	233	120	196	93.9	deep snow over all drainage
2013	166.67	62.4	189	73.6	snow over entire drainage
2014	151.5	53.2	57.8	57.8	snow over upper half of drainage



# Resource Planning-Back to Short Term- Water management and the Ops Plan

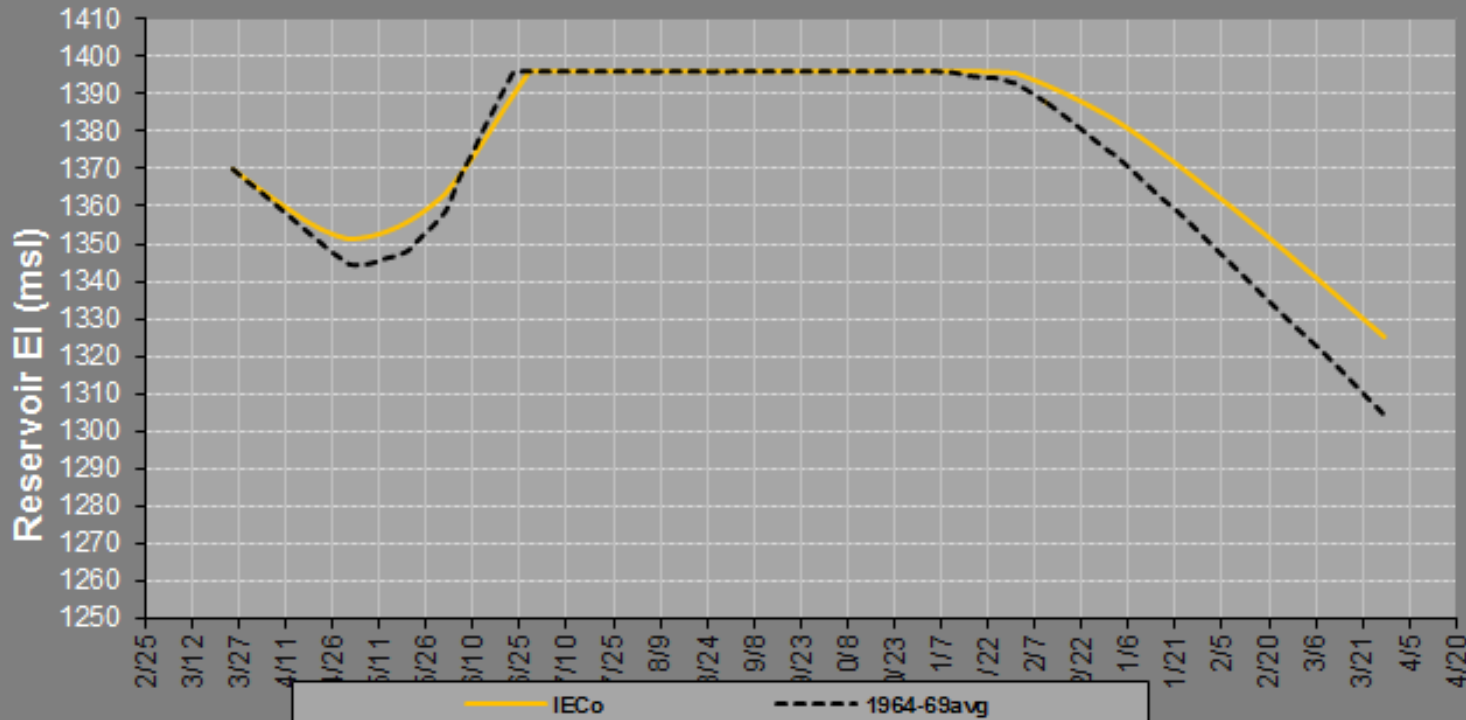


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# Water management and the Ops Plan

## Historic Average Inflow

**Tye Lake Reservoir Operations**

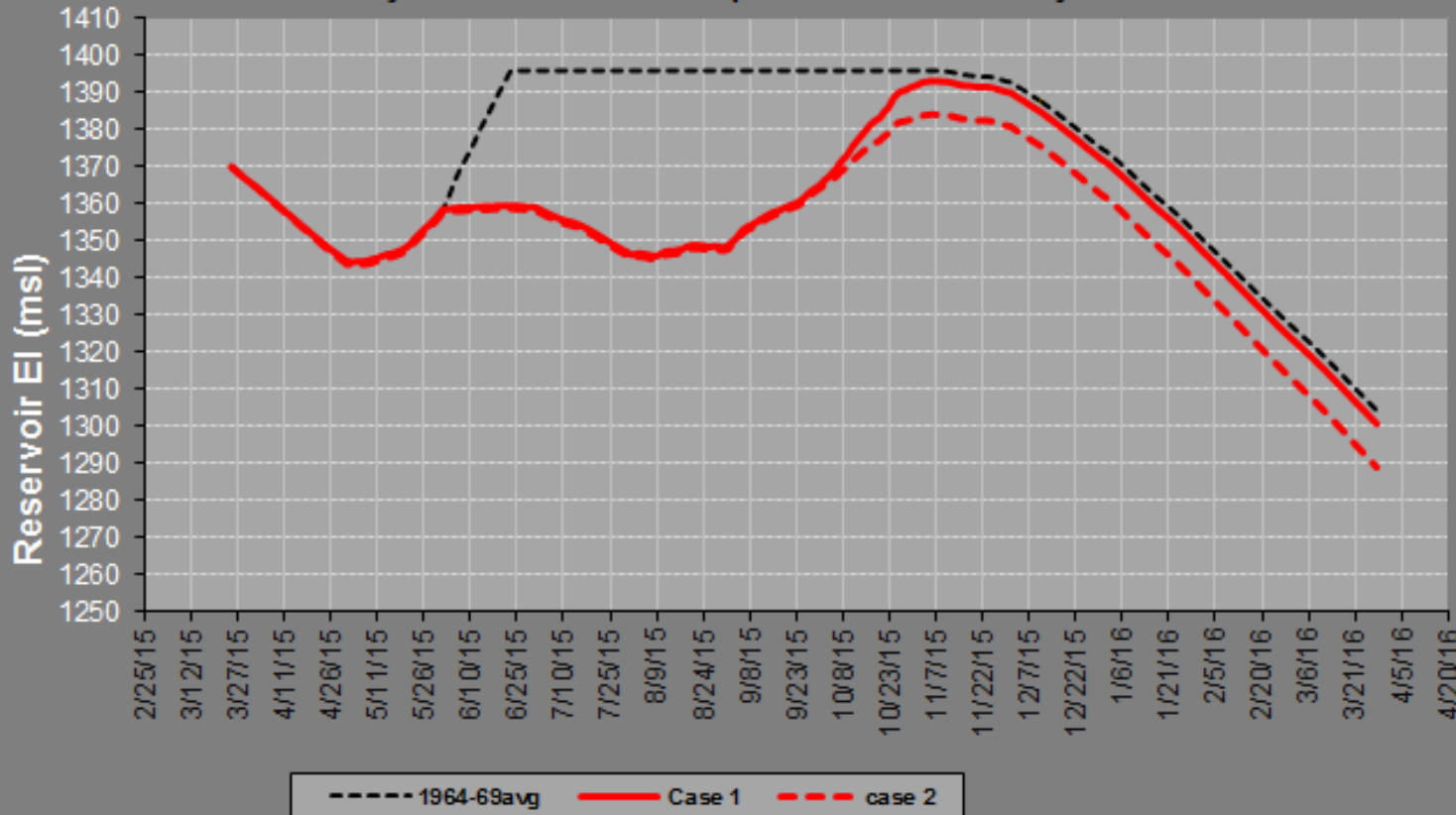


Tye Portion of Load Forecast

Tye Lake		
Date	Power	Energy
1-Jan	17.50	13,020
1-Feb	17.00	11,424
1-Mar	16.50	12,276
1-Apr	16.25	11,700
1-May	12.00	8,928
1-Jun	7.50	5,400
1-Jul	14.00	10,416
1-Aug	15.50	11,532
1-Sep	9.00	6,480
1-Oct	9.50	7,068
1-Nov	11.00	7,920
1-Dec	16.00	11,904

# Resource Planning-Back to Short Term- Water management and the Ops Plan

**Tye Lake Reservoir Operations-Case Study**



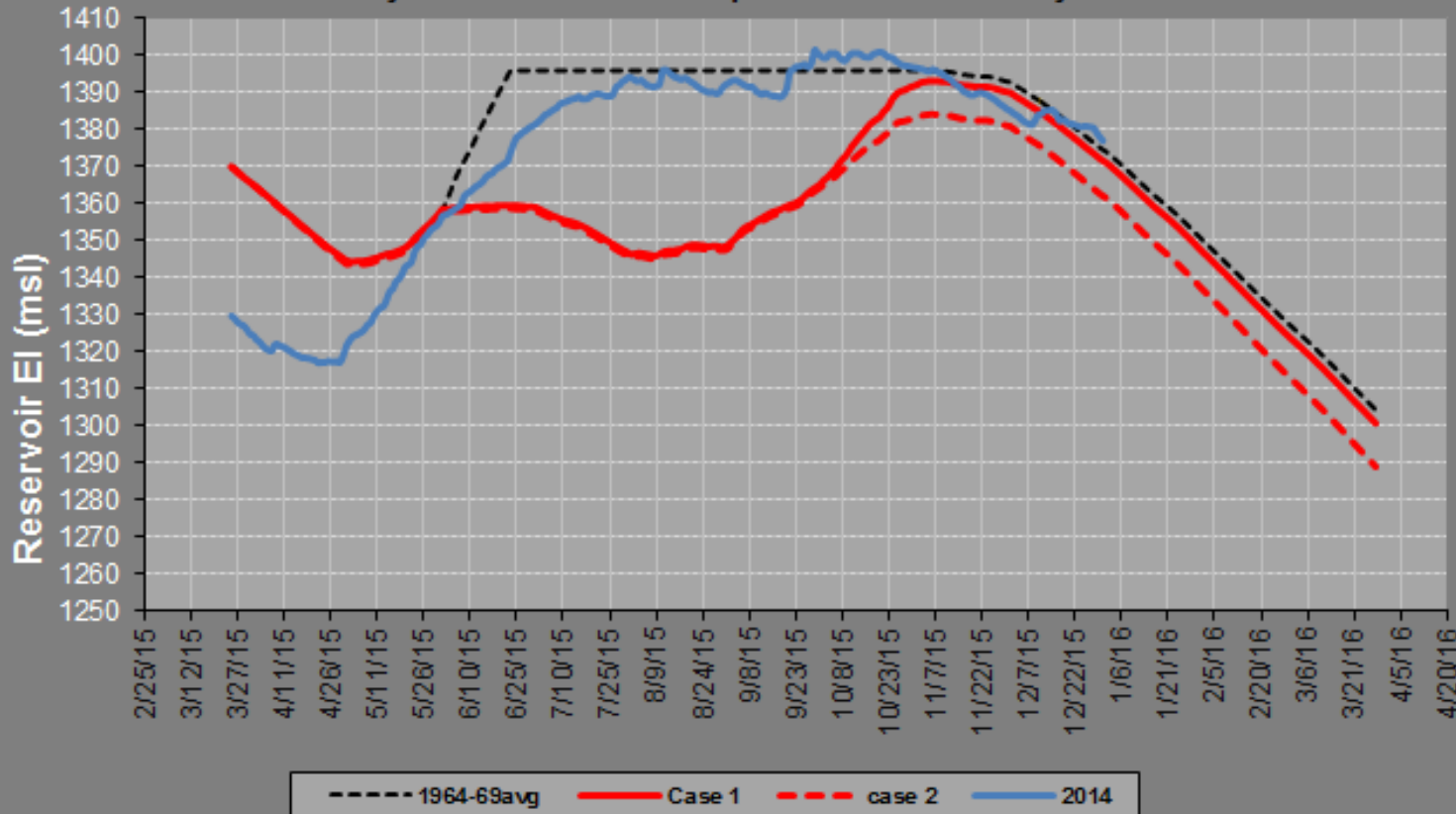
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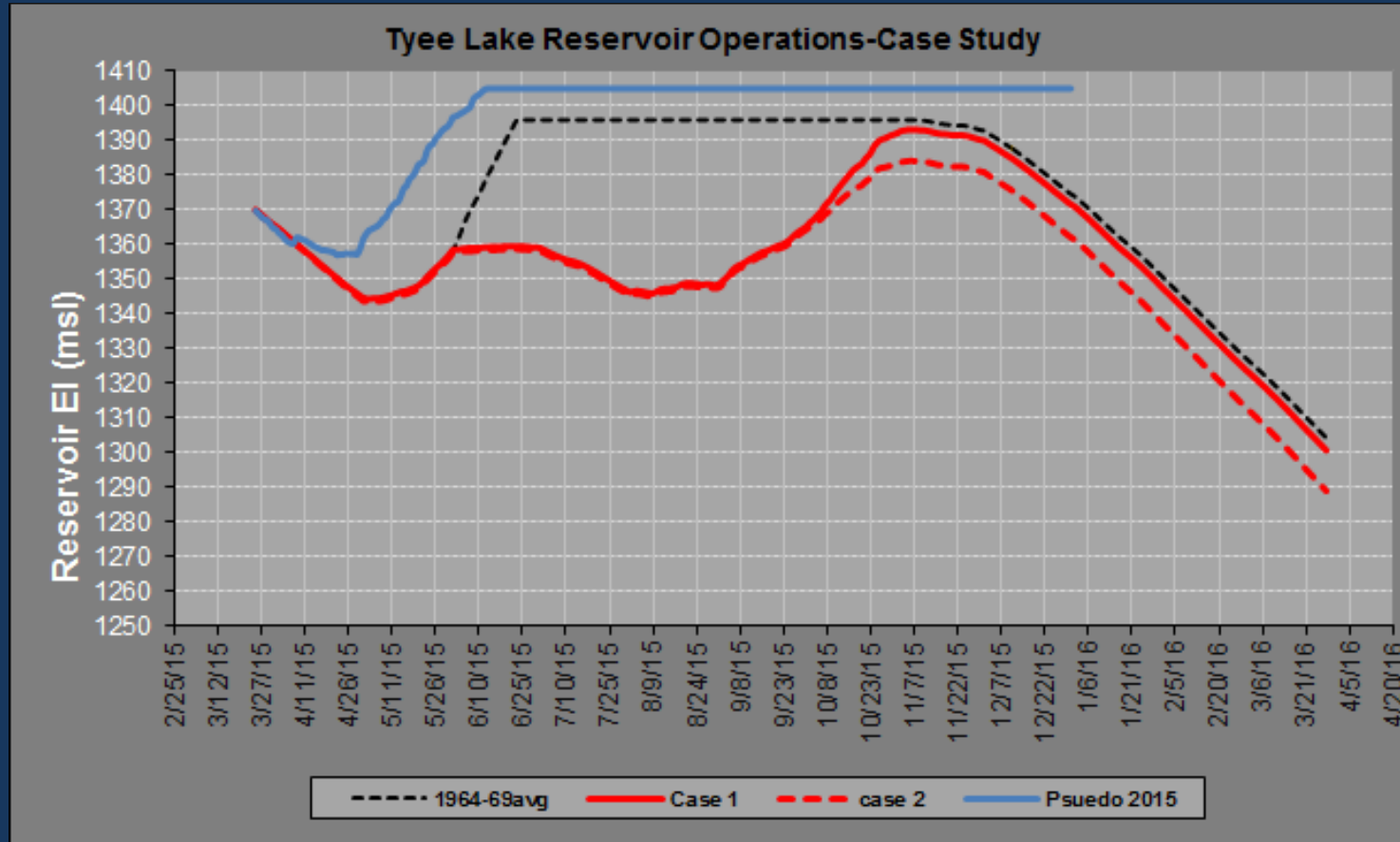
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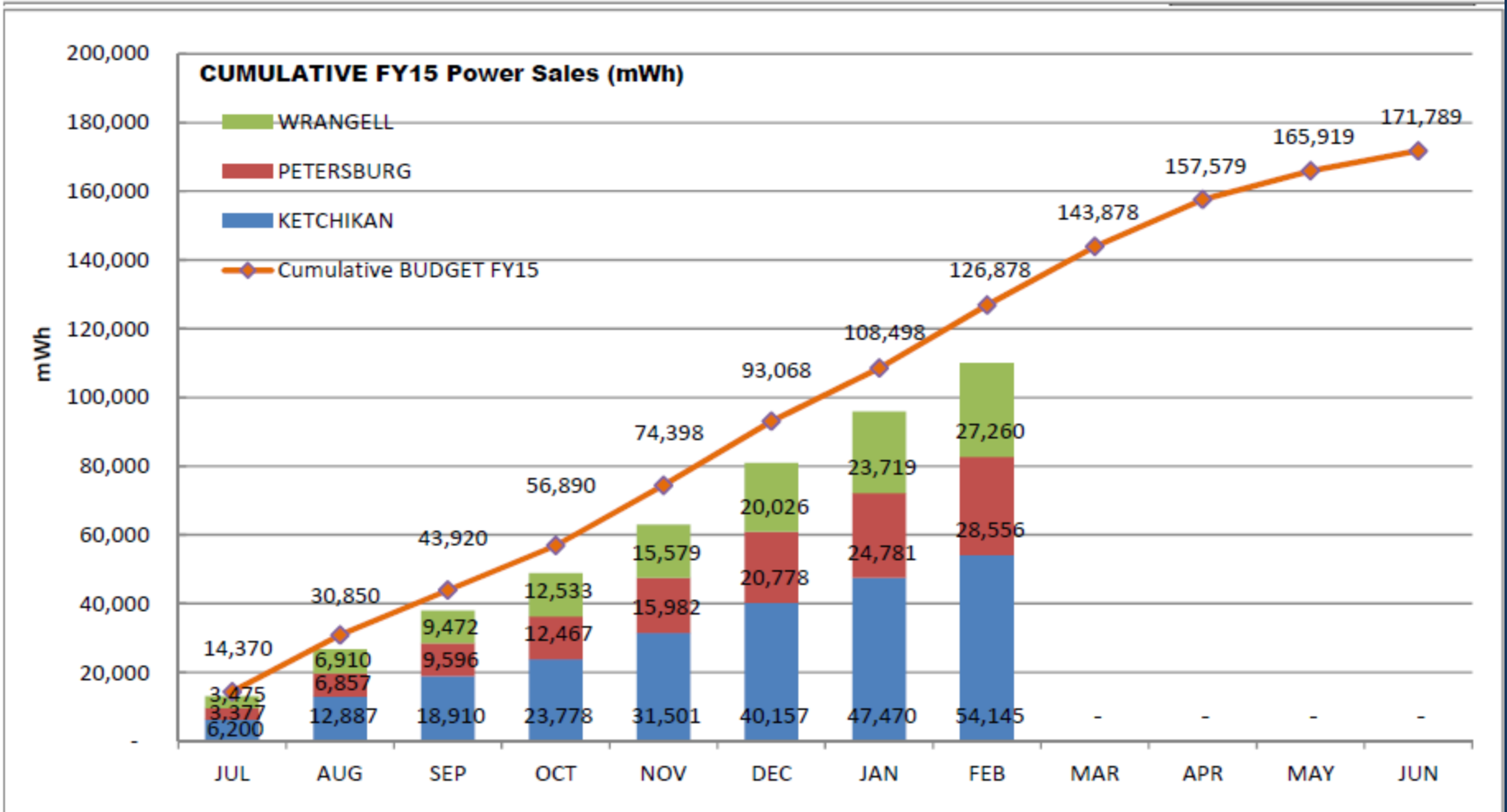
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**SEAPA**



Southeast Alaska Power Agency

Questions?

