Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

POWER BUSINESS LINE

April 1, 2005

In reply refer to: P-6

Dear Customers, Constituents, Tribes, and Other Stakeholders:

This letter accompanies the presentation materials for the Power Function Review Technical Workshop on April 6, 2005, which is the first workshop to deal with the important issues regarding the alternatives for handling risk mitigation in 2007 power rates.

Increased business climate volatility and six years of drought have significantly changed the landscape of risk and uncertainty facing BPA and its stakeholders. These present new challenges for BPA to keep its power rates as low as possible while meeting its obligations to the U.S. Treasury.

- Most significantly, PBL rate period starting cash reserves are projected to be much lower (approximately $180 million) than in the 2002 rate case.
- Market prices for secondary energy are much more volatile than the last time PBL set rates in 2002.
- Certain mitigation tools are no longer available, specifically the $325 million that was available in the Fish Cost Contingency Fund.
- We believe that BPA needs to return to its traditional Treasury Payment Probability (TPP) standard of 95% for a 2-year rate period (92.6% for a 3-year period). Current rates are meeting a lower 80% 3-year standard.
- We are planning to increase minimum liquidity reserves (formerly known as working capital) from $50 million to $100 million.
- Some new risks have appeared on the landscape that either did not exist in 2002 or were not modeled, namely uncertainty in IOU benefits, wind generation, and transmission expenses.

These changes create greater risk for BPA, reduce our ability to absorb those risks, and/or increase the costs of managing them. If rates are designed in their usual manner as a flat 3-year rate, these changes mean that power rates would need to recover a much larger "risk premium" than ever before in order to meet the TPP standard. This risk premium is referred to as Planned Net Revenues for Risk (PNRR). I believe that this traditional approach results in far too high a rate.

Therefore, at the workshop on April 6, we plan to begin a dialogue with customers and other stakeholders to search for alternative and less expensive ways to manage risk in the FY 2007-2009 power rates. BPA staff has identified several rate design alternatives that reduce PNRR and that have various impacts on rate levels, rate volatility, and cash reserves. We expect

and encourage many other ways of managing these risks to be advanced and discussed, and look forward to a robust regional discussion of this crucial issue.

Sincerely,

/s/ Paul E. Norman

Paul E. Norman
Senior Vice President

Bonneville Power Administration's

Power Function Review

Risk Mitigation

Technical Workshop

A discussion of various ways to deliver the benefits of Secondary Energy to customers while accounting for the associated risks.

April 6, 2005

BPA's Financial Disclosure Information

All FY '05-'09 information was provided in April 2005 and cannot be found in BPA-approved Agency Financial Information but is provided for discussion or exploratory purposes only as projections of program activity levels, etc.

Agenda

Section 1: Objectives and Process

Section 2: The Relationship Between Benefits and Risk

Section 3: Tools for Mitigating Risk

Section 4: Ideas for Mitigating Risk

Section 5: Next Steps

Section 1-
Objectives of this Workshop

Our primary objective of this workshop, as well as follow-on risk workshops, is to solicit input from customers and other stakeholders on alternatives for addressing the relationship between revenues and the associated risks in the FY 2007- 2009 power rates prior to BPA developing the initial proposal.

For today, we plan to:

- Describe the process we are using to promote regional discussion;
- Describe the benefits and the associated risks that need to be mitigated;
- Describe the drivers of risk and who can bear the risk;
- Share what we have learned so far in exploring risk mitigation tools; and
- Begin a discussion to get your input and ideas on ways to manage risk.
- Then present ideas for the policy level presentation to managers on April 18th.

Results from this workshop, as well as follow-on risk workshops, will be used in the development of the FY 2007 initial proposal. Decisions on managing risk in the next rate period will be made in the rate case, not in the PFR process.

The numbers in this presentation are approximate and will be revised for the initial proposal.

Section 1-
What Participants Can Expect from this Process

- BPA is using a systematic approach to identifying, evaluating and mitigating risks.
- This is the second in a series of workshops on this topic prior to BPA developing the FY 2007 Power Rate Case Initial Proposal. The first workshop was last year on June 10, 2004. The materials for that workshop can be found at: http: //www.bpa.gov/power/psp/rates/meetings/040610pws/
- BPA staff is conducting workshops to solicit input between now and early June. After that time, BPA staff will take that input into consideration and develop the initial proposal.
- There will be additional rate case workshops on other topics that affect risks, such as the forecast of secondary revenues and specifics of how risks are modeled; we do not intend to focus on these topics today.
- BPA expects to have a final risk mitigation workshop just prior to releasing the initial proposal to preview what rate case parties can expect to see in the initial proposal.

BPA staff will be guided in the development of the initial proposal by BPA's Strategic Direction.

- The Strategic Direction paper states:

  "BPA will continue to apply the financial standard it adopted in 1992. That means it will plan to achieve and maintain a Treasury payment probability (TPP) target that is the equivalent of a 95 percent probability of making its annual Treasury payment for a 2-year period and 88 percent for a 5-year period, for future rate periods. Maintaining a high TPP has enabled BPA to make its payments to Treasury on time and in full for the last 20 consecutive years. This also helps retain our high credit quality and access to cost-effective capital, which in turn lowers costs for ratepayers in the long term."

- The FY 2007 rate case is to design and determine rates for current subscription contracts and decisions made in the short term Regional Dialogue policy regarding products and loads in the FY 2007-2009 period.

Section 1-
Policy Level Questions

BPA staff have begun to consider the following questions (among others) and would like your thoughts. These questions are restated in the package along with relevant information. We'll return to these at the end of the discussion.

- How important are initial rate levels compared to effective rate levels? (There is a trade-off between the amount of PNRR or starting reserves relative to variable rate-design alternatives.)
- How important is it to minimize rate volatility?
  - Magnitude of rate level changes…
  - Frequency of rate level changes…
- How important is rate simplicity vs. complexity?
- Do customer preferences change depending on…
  - The overall rate level?
  - Magnitude of risk?
- Should BPA consider a reserve level target in a variable rate design?
- Additional questions that arise during this discussion.

Section 2-
Major Drivers of Risk

The table below describes what risks are included in the current risk analysis and what has yet to be included. These risks will be updated for the initial proposal.

Modeled in Current Analysis	Supply Variability	1. Hydro supply variability (both annual volume and seasonal shape of run-off); Hydro variability translates into power variability: (for example) – Standard deviation of power output of hydro system is more than 16,000,000 megawatt-hours. – This is more than twice the average annual output of a nuclear plant like Columbia Generating Station. – This means that each year, there is about a 1-in-6 chance the Federal system will have at least two more nuclear power plants worth of power than average, but also – A 1-in-6 chance of being at least two nuclear power plants worth below average in power production. 2. ENW Outages 3. Wind Project Output
	Market Price Variability	1. Price levels and variability have increased since May 2000 Rate Case. – Natural gas typically drives the west coast market price for electricity, and the price of gas - a deregulated commodity - is highly volatile.
	IOU Benefit Risk	1. BPA will know with certainty the IOU benefits for the first year of the rate period, but not the two succeeding years. There is a risk that rates will not be set at a level that will recover the benefit costs in FY 2008 and FY 2009. A $10 change in market prices can move the IOU benefit from the floor to the cap based on current estimates. According to current forecasts, IOU benefits tend to be higher in the first year and trend lower in year 2 and 3 of the rate period.
Not Modeled	Other Risks	1. Risks associated with unexpected expenses. These have not yet been estimated or modeled in NORM (Non-Operating Risk Model). 2. Hydro uncertainty related to the BiOp. – There are several ways this litigation risk can be handled. Various operational scenarios can be modeled and the risk can be included with all other risks to be mitigated; there could be a specific rate adjustment tied to the litigation outcome; the costs could be included in the next rate case, as there is no rate lock in most contracts.

Section 2-
Why PNRR? – The Relationship Between Secondary Energy Revenue Credits, TPP, and Reserves

FY07-09 PF Rate Overview

$$\frac{\text{Costs} - \textbf{Credits} + \text{Risk}}{\text{Loads} * 8.76} = \text{Rate}$$

From PFR Management Discussion Workshop

Average Market	$ 36/MWh	$ 44/MWh
Average Sec. Revenue	$ 502 MM	$ 606 MM
5 Percent Level	$ 130 MM	$ 150 MM
Hydro Revenue Credit at Risk (Average – 5%)	**$ 372 MM**	**$ 456 MM**

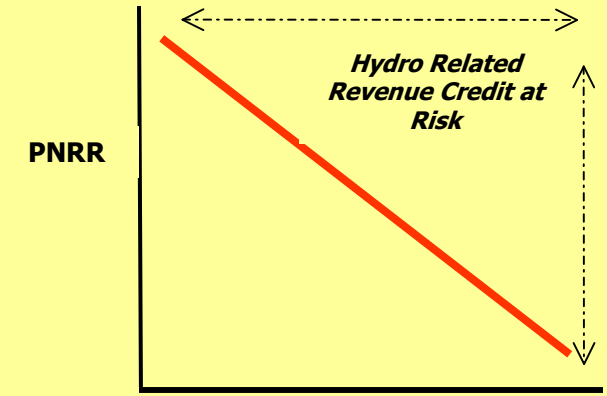
- *The above discussion assumes that cash reserves were not available.*
- *For this simplified example, the additional revenue needed to increase TPP from 50% to 95% can be directly offset by cash reserves …*

The hydro-sensitive credits used in the formula above includes net revenue from the sale of secondary energy and 4(h)(10)(C) credits. Values used for net secondary sales and 4(h)(10)(C) credits are average values calculated using a set of historical stream flows (50 water years, 1929-78). Since we use average values **there is about a 50% chance that revenues will cover costs.**

The additional revenue needed to increase the probability of revenues covering costs (i.e., TPP) from 50% to 95% is the difference between the 5th percentile and the average value of the credits if reserves are not available to cover the shortfall. This is a reasonable assumption as PBL's forecasted starting reserves are approximately $180M and with minimum liquidity reserves of $100M.

The table in the upper right provides samples of average and 5th percentile values of net secondary sales plus 4(h)(10)(C) credits for two price levels and the amount of secondary revenue at risk.

The table to the right shows the relationship between PNRR and cash reserves. PNRR tends to increase as cash reserves go down when no other risk mitigation tool is used to reduce the cost of risk.



PNRR increases as cash reserves decrease.

Result: When cash reserves are depleted there is a fundamental conflict between using an average value to calculate a "Costs Before Risk" and requiring a 95% TPP with risk. The resolution of the conflict shows up as PNRR.

Section 2- Introduction to Findings: "Cost of Risk"

The cost figures are consistent with the base case presented in the PFR overview package (which did not include risk).

- The cost of risk is a PNRR-based number assuming a three-year flat, fixed rate with no additional risk mitigation tools. The range represents PBL's current risk profile based on a distribution of ending reserves, with no effort to reduce the number at this point.
- These estimates will change before the initial proposal is developed.

The level of PNRR is extremely high compared to what has been included in past rates cases.

Our goal is to engage customers and stakeholders in exploring ways to reduce PNRR while still covering PBL risk.

	Cost of Risk	$430-$530 M/yr
Key Inputs	Range of the E.V. Net Secondary Revenues	$400-$600 M/yr
	Range Around IOU Residential Exchange Benefits	$100-$300 M/yr
	Starting Rate Period E.V. Power Reserves	~$180 M

PNRR Drivers:

- Low Starting Reserves
- Reduced Credits
- The Traditional 92.6% TPP Standard
- Reliance on Volatile Secondary Revenues in Base Rates
- Increase in Power Liquidity Reserves ($50M to $100M)

Section 2-
Why Is PNRR So High?

A number of things have changed between the last rate period and today. PNRR is higher today because PBL's ability to absorb risk is lower, and some risks are greater today then what they have been in the past.

Variability in Ending FY 2006 Reserves

- Power rates are calculated with one year of uncertainty remaining before the rate period begins. Additional dollars are added to risk to deal with the variability in starting FY 2007 reserves.

Low Starting Rate Period Reserves

- Starting rate period Power reserves are currently expected to be approximately $180M. Starting reserves are only $80M above the minimum liquidity reserves (working capital) PBL is assuming for the next rate period. Low cash reserves cause PNRR to be higher to offset the large number of "games" that fall below the $100M minimum liquidity reserve level in FY 2007. PNRR is added until at least 92.6% of all treasury payments are made in full for each year of the rate period.

Secondary Revenue Volatility

- The region is experiencing increased volatility in secondary revenues. This increased volatility increases risk and translates into higher levels of PNRR.

Treasury Payment Probability (TPP)

- BPA plans to return to its traditional Treasury Payment Probability (TPP) standard of 95% for a 2-year rate period (92.6% for a 3-year period). Our current rates are meeting a lower 80% 3-year standard.
- The TPP target of the rate period is controlled by the lowest year in the rate period. Due to low reserves, FY 2007 TPP is driving the need for more reserves and higher TPP in FY 2008 and FY 2009.

Power Liquidity Reserves (Working Capital)

- Liquidity reserves have been increased from $50M to $100M to deal with cash flow needs.

Fewer Credits for Risk Mitigation

- $325M in Fish Cost Contingency Fund (FCCF) credits, used to mitigate dry years, was exhausted in FY 2003. These credits are not available in the next rate period.

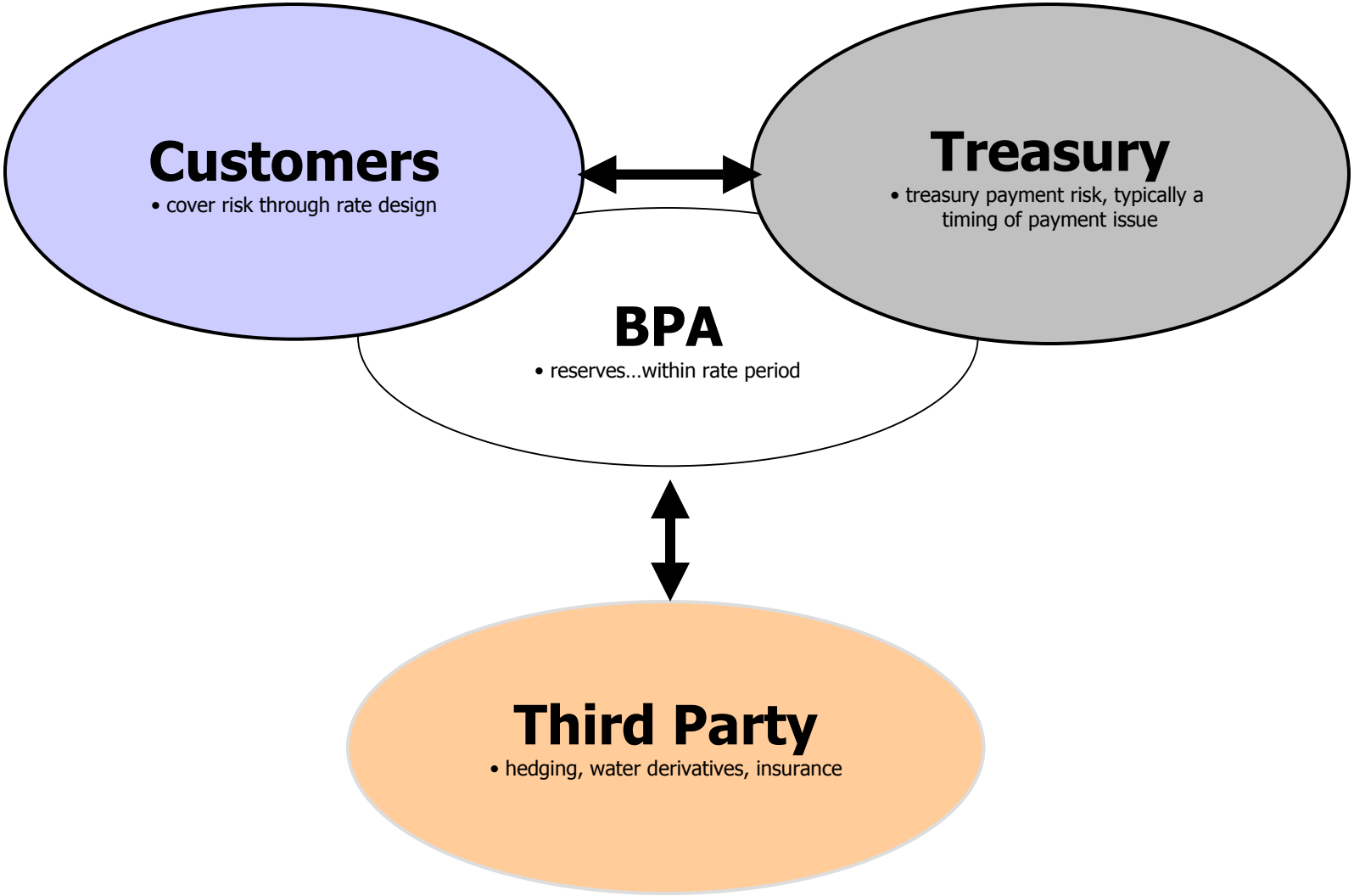
New Risks

- **IOU benefit** risk in FY 2008 and FY 2009. A $10 change in market prices can raise or lower the benefit paid to IOUs to the cap or floor. There is a risk that rates will not be set high enough to recover the cost of potentially higher IOU benefits in the last two years of the rate period.
- **Wind and Transmission** risk is now modeled to account for the variability in wind revenue and transmission expenses. In the past wind was not modeled and transmission was a fixed amount that did not vary with different water conditions even though the expense was variable.

Flat PNRR

- For the purpose of this initial analysis, the risk calculation assumes a fixed, flat amount of PNRR for all three years of the rate period to cover the cost of risk. All things being equal, a fixed, flat rate design requires more cash than other alternative rate designs.

Section 3-
Who Historically Has Covered BPA's Risk



Section 3-
Comparison of Past and Future Risk Mitigation

Tools	1997-2001	2002-2006	2007-2009
Rate Period	• 5-years	• 5-years	• 3-years
PBL Forecasted Starting Reserves	• $314M	• $840M (May 2000 Final Proposal) • $500M (Supplemental)	• E.V. ~$180M [3/]
PNRR	• $13M	• $98M	• $430-530M
Depreciation vs. Amortization [1/]	• +$80M	• -$3M	• -$45M
Power Liquidity Reserves	• $50M	• $50M	• $100M
FCCF Credits [2/]	• $325M	• $325M (Fund exhausted in 2003)	• Unavailable
Rate Adjustments	• N/A	• CRACs: – LB CRAC ('02-'06) (Supplemental) – FB CRAC ('03-'06) (Modified in Supplemental and SN CRAC Rate Case) – SN CRAC ('04-'06) (Supplemental and SN CRAC Rate Case)	• ?

1/ Depreciation was greater than amortization on average in the past rate cases resulting in additional cash available to mitigate risk. In 2007-2009, amortization is forecasted to be higher than depreciation. Therefore, the additional cash is not available for mitigating risk. Because amortization is higher, rates for 2007-2009 must recover this amount through the calculation of minimum required net revenue calculation (see PFR Debt Management Package). When comparing the past two rate periods to the upcoming rate period the minimum required net revenue produces an increase in the revenue requirement and therefore less cash available to mitigate risk.

2/ FCCF fund was exhausted in 2003 and these credits are no longer available.

3/ See page 17 for an explanation of the FY 2007 forecasted PBL starting reserves.

Section 3- Examples of Risk Mitigation Strategies from Prior Rate Cases

1985 Final Rate Proposal: ROD – Rate Period FY 1986 and 1987.

- 1939 water was used to determine the size of the secondary revenue credit. This is a conservative approach; 1939 water was approximately 81 MAF. This resulted in a higher rate with actual secondary net revenues, if they occurred, being available to mitigate risk.

1987 Final ROD: Rate Period FY 1988 and 1989.

- Non-firm and surplus firm revenues were estimated using 1939 water.
- Base rates were increased.
- The rate design included a bi-directional CRAC which would rebate as well as collect money.

1989 Final ROD: FY 1990 – FY 1991.

- The 1989 proposal was an extension of the rates from the '87 ROD, but with a modified CRAC. The CRAC was changed to look at actual NET revenues rather than the difference between actual revenues and forecast revenues; and it was unidirectional, containing only the possibility of a rate increase, not a potential rate decrease.

1991 Final ROD: FY 1992 – FY 1993.

- BPA's initial proposal recommended a rate increase designed to attain $120 million per year in planned net revenues. Settlement negotiations reduced that target to $80 million per year.

1993 Final ROD: FY 1994 – FY 1995.

- First rate case implementing the 10-year Financial Plan, which established the agency TPP target.
- The final proposal refers to PNRR as a risk mitigation measure.
- The final proposal included an Interim Rate Adjustment (IRA) of up to 10%.

1995 Initial Proposal: FY 1996.

- BPA proposed a one year 4% surcharge which was expected to provide $162M to mitigate risk in FY 1996. The resulting TPP for the one year was 88%.

Section 3-
Understanding Different Ways Risk Could Be Mitigated

Today, variability of secondary revenues and variability of IOU benefits play a larger role in risk than what has been experienced historically. Unfortunately, this cannot be ignored, but it can be managed. A number of risk mitigation tools and rate design options are available to manage risk.

- Though BPA's available risk mitigation alternatives are somewhat limited, there are a number of tools available to manage risk. These include:
  - Critical Water (Change critical water and/or water year assumptions)
  - Cash Reserves
  - Cost of Risk (PNRR-type number)
  - Surcharge Rate Adjustment Mechanisms (CRACs)
  - Rebate Mechanisms (After-the-Fact, Actuals)
  - Hedging Price in Forward Markets
  - Weather Derivatives (Water Insurance, Swaps)
  - Treasury
- Different tools have different impacts on risk. Some tools are more effective than others. Some tools have an associated expense that may reduce risk but increase costs.

Section 3- What We've Learned: Utility Survey

Many utilities have "fuel-adjustment clauses." A team within BPA interviewed chief risk officers, vice presidents and senior staff at other hydro-based utilities to see how they managed hydro and market risks.

Results-

- A variable rate, fuel adjustment mechanism is common practice among hydro-based utilities to mitigate risks associated with hydro and price volatility.
- Most hydro-based utilities surveyed generally have (or are just now implementing) some type of bi-directional cost over-run (or under-run) rate adjustment mechanisms.
  - Rate adjustment is "automatic" meaning that a new rate setting hearing is not required
  - Rate adjustment mechanisms are generally based on a predetermined formula and are therefore transparent
  - Most regulated utilities have a deferral account:
    - Deferral account balances bear interest at a pre-approved rate
    - At the end of a predetermined period or when the account reaches a predetermined balance, rates are adjusted (up or down) to bring the account balance down to zero over a period of up to 3 years
- All surveyed utilities use probabilistic analysis to establish water flows and commodity prices for pending rate case hearings.
- Another tool used by utilities is commodity hedging. Commodity hedging is used to reduce exposure to electric and gas price – and therefore to trading floor revenue – volatility.

Section 3- What We've Learned: Cost Recovery Adjustment Clauses (CRACs)

BPA has successfully made every treasury payment for the past four years even though the region has experienced multiple dry years and high price volatility.

Results-

- Rate levels and rate volatility have been difficult and cumbersome in this rate period, but have produced increased transparency concerning the agency's costs and revenues.
- The agency has maintained a high credit rating throughout a period of high market volatility, low water years and financial challenges.
- Formula-based adjustments have provided for a standardized way to adjust rates for specified purposes and/or conditions.
- Regular adjustments, including the ability to forecast TPP on a regular basis, have provided customers with additional opportunities to comment on Power rates.
- Customers have expressed concern about the volatility associated with automatic adjustments.
- At specific times each year, staff resources tend to be consumed by rates work taking away resources from other critical work.

Section 4-
Ideas for Mitigating Risk

BPA staff have been evaluating different mechanisms for mitigating risk. The ideas presented on the following pages focus on five potential alternatives that illustrate the impact of different rate design alternatives. There are other alternatives that may be worth exploring, as well as many other variations of the types shown here.

Understanding the Analysis-

- The starting point for this analysis is a PNRR-only solution using a flat, fixed rate. Staff solved for PNRR by adding dollars to PNRR until the 3-year TPP standard of 92.6% was met. Because FY 2007 reserves are so low, the first year TPP is just slightly better than the 3-year TPP target.
- The supporting numbers start with the August 18th forecast of FY 2006 ending PBL reserves of $130M. Adjustments to the reserve balance have been made for debt optimization and FY 2004 actuals. The updated ending FY 2006 reserves (FY 2007 starting reserves) is $180M. This number will be updated with FY 2005 actuals, FB/SN CRAC adjustments and an updated secondary revenue forecast for FY 2006.
- Staff has imitated the initial proposal scenario by ignoring any variability in FY 2005 revenues but allowing FY 2006 variability to continue.
- Some tools have the effect of increasing initial rates but over the 3-year rate period actually have a lower effective rate.
- Generally speaking, a lower rate has more volatility. A higher rate is more stable.
- The focus to date has been on secondary revenue risk, but other risks will need to be addressed in the initial proposal. See "Other Risks— Not Modeled" on page 6 of this packet.

Section 4- Evaluating Different Risk Mitigation Alternatives

Staff and parties need to consider the following issues in evaluating different mechanisms for mitigating risk. There may be others that arise during discussions.

Type of Risk- What are the primary drivers of PBL risk?

Tools Available for Managing Risks

- PBL starting and ending rate period reserves
- Fixed vs. variable mechanisms

Timing, Frequency and Complexity

- What triggers the variable rate and how often will it adjust?
- Initial vs. effective rates (i.e. the rate after any adjustment)
- Ease of accounting and billing

Distribution of Risk Across Stakeholders

- Rate level and the impact on rate payers
- Impact on Treasury (TPP)
- Impact on credit rating

Sensitivities

- Dry vs. wet years
- High market prices vs. low market prices
- Secondary revenue forecasts
- Ability to adjust to accommodate uncontrollable costs or future changes in obligations such as the Bi-Op

Data Sources

- Internal, financial information vs. 3rd party data

Other Parameters

- Impact on and/of current contracts
- Impact on and/of current settlements
- Northwest Power Act

Section 4- Understanding the Impact of Different Rate Mechanisms on Risk

Column C has been revised to correct an error in the PNRR estimate

E.V. PBL Starting Reserves: ~$180M		*PNRR Only*	*Approx. Changes in PNRR and Other Mechanisms*			
	Rate Characteristic	**Fixed, Flat (A)**	**Fixed, Shaped (B)**	**0% Secondary Revenue Rebate (C)**	**Rate Adjustment Mechanism (D)**	**Complex Mechanism (E)**
1	Cost of Risk PNRR	$430 to $530M	-$170M	-$345M	-$430M	-$417M
2	2007 Posted Rate (Intial Rate)	No Change	+$3 MWh	+$1.4 MWh	-$2.1 MWh	-$3.4MWh
3	Average Posted Rate	No Change	-$2.7 MWh	$-4.9 MWh	-$4.7 MWh	-$6.1 MWh
4	Average "Effective Rate" 1/ 2/ 3/	-$1 MWh /4	-$2.7 MWh	$-4.9 MWh	-$4.7 MWh	-$6.1 MWh
5	Secondary Revenue Credit	100% Credit to Rates	100% Credit to Rates	Actuals	100% Credit to Rates	50% Credit to Rates/ 100% of actuals above the 50% credited to rates is rebated after the reserve threshold is met

1/ The mechanisms above are approximate figures and will change with the assumptions used in determining expected value starting rate period reserves, E.V. annual secondary revenues, IOU residential exchange broker prices for FY 2008 and FY 2009, and other risk factors.

2/ The effective rate is an average of three years. Annual rates may be higher or lower depending on annual rebates and surcharges. Current analysis generally shows rates higher in FY 2007, then lower rates in FY 2008 and FY 2009. A lower expected value rate tends to have greater potential volatility in annual rate levels.

3/ A Dividend Distribution Clause (DDC) similar to the DDC developed for the current rate period has been incorporated into all these options, it reduces the effective rate. This effect is limited to mechanisms where forecasted reserves increase over $1.2B in any year of the rate period.

4/ Column A, Effective Rate is compared to Option A, Avg. Posted Rate (line 2). Effective rate of other options compared to Option A, Effective Rate (line 4).

Terms:

Cost of Risk	The amount of dollars needed to meet a 92.6% 3 year TPP (95% 2-year equivalent)
Intial Rate Impact	The change in rate levels compared to the PNRR only example
Effective Rate Impact	The change in the e.v. forecasted ending rates compared to the PNRR only example
Rate Variability	How often rates change
Seconary Revenue Credit	The amount credited to rates

Section 4-
Option A: Fixed, Flat Rates

E.V. PBL Starting Reserves: ~$180M

	Rate Characteristic	***PNRR Only*** **Fixed, Flat (A)**
1	Cost of Risk PNRR	$430 to $530M
2	2007 Posted Rate (Initial Rat	No Change
3	Average Posted Rate	No Change
4	Average "Effective Rate"	-$1 MWh
5	Secondary Revenue Credit	100% Credit to Rates

Discussion Topics:
Is this an option worth considering? What are the obstacles?
How important are stable rates compared to variable rates?
What is the rate level threshold for considering variable rates to keep the cost of risk lower?

Description: Fixed, Flat Rates

A fixed amount of dollars is embedded in the revenue requirement to cover risk. The amount recovered through risk is set to achieve a minimum 3-year PBL TPP of 92.6%. Rates are credited with 100% of the expected value secondary revenue credit. This method of managing risk has been traditionally called planned net revenues for risk (PNRR). A Dividend Distribution Clause (DDC) similar to the DDC developed for the current rate period has been incorporated into the analysis to limit ending PBL reserves and producing a lower effective rate.

Pros

- Results in rate certainty and stability for the length of the rate period
- Familiar and understood by customers and stakeholders
- Easier to design and results in less ongoing analysis compared to mechanisms that must be re-calculated on a periodic basis
- On an E.V. basis, PBL enters the FY 2010 - 2011 rate period with reserves sufficient to meet future risks as they are understood today

Cons

- Produces a higher rate than alternative risk mechanisms to meet PBL risks
- Any fixed rate design will, on average, be higher than a variable rate design
- Requires a large amount of PNRR, therefore on an E.V. basis, this design produces a level of reserves considered by many (including BPA) to be too high

Conclusions

- This approach results in a stable rate that builds up reserves over time.
- A flat PNRR approach may collect more in cash reserves than is necessary to manage PBL risk. A dividend distribution clause or other rebate mechanism may need to be developed at the time of the initial proposal.
- Other rate design/risk mitigation tools are available to minimize the level of PNRR.
- Other rate design/risk mitigation tools will likely lower rates but increase volatility.

Section 4-
Option B: Shaped, Fixed Rates

Discussion Topics:

Is this an option worth considering? What are the obstacles?

Are customers willing to consider a shaped rate where year one rates are higher, but rates in the second and third year are lower?

Is this preferred to a fixed, flat rate for all three years?

E.V. PBL Starting Reserves: ~$180M		***PNRR Only***	***Approx. Changes in PNRR and Other Mechanisms***
	Rate Characteristic	**Fixed, Flat (A)**	**Fixed, Shaped (B)**
1	Cost of Risk PNRR	$430 to $530M	-$170M
2	2007 Posted Rate (Initial Rat	No Change	+$3 MWh
3	Average Posted Rate	No Change	-$2.7 MWh
4	Average "Effective Rate"	-$1 MWh	-$2.7 MWh
5	Secondary Revenue Credit	100% Credit to Rates	100% Credit to Rates

Description: Shaped Fixed Rates

A fixed rate is set for each year with the minimum level of PNRR needed to meet the 92.6% TPP standard. PNRR is higher in year one and lower in the second and third years of the rate period. Rates are credited with 100% of the expected value secondary revenue credit.

Pros

- The effective 3-year average rate is lower than the fixed, flat PNRR rate
- Results in rate certainty and stability for the length of the rate period
- Easier to design and results in less ongoing analysis compared to mechanisms that must be re-calculated on a periodic basis
- On an E.V. basis, PBL enters the next rate period with reserves sufficient to meet future risks as they are understood today

Cons

- Produces a higher rate in the first year which is the opposite of the typical customer preference to put off higher rates as long as possible
- Any fixed rate design will, on average, will have a higher effective rate than a variable rate design

Conclusion

- This approach effectively deals with the first year problem (low reserves) and then backs down the level of PNRR necessary for the remaining two years of the rate period.
- Reserves increase over the rate period but are lower than the flat, fixed PNRR alternative.
- The effective rate using this approach is lower than the flat, fixed PNRR approach.

Updated with corrected page 19

Section 4-
Option C: Secondary Revenue Rebate

Discussion Topics:

Is this an option worth considering? What are the obstacles?

If customers were to receive a secondary revenue credit, what would be the preferred method?

	E.V. PBL Starting Reserves: ~$180M	***PNRR Only***	***Approx. Changes in PNRR and Other Mechanisms***
	Rate Characteristic	**Fixed, Flat (A)**	**0% Secondary Revenue Rebate (C)**
1	Cost of Risk PNRR	$430 to $530M	-$345M
2	2007 Posted Rate (Initial Rat	No Change	+$1.4 MWh
3	Average Posted Rate	No Change	-$4.9 MWh
4	Average "Effective Rate"	-$1 MWh	-$4.9 MWh
5	Secondary Revenue Credit	100% Credit to Rates	Actuals

Description: Variable Rates Using Actual Secondary Revenues

Initial rates are based on crediting customers with a portion (0% to 100%) of expected secondary revenues. Secondary revenues would be rebated after the fact on a predetermined schedule. If actual secondary revenues fall below the portion credited to rates, a surcharge would recover the difference. The above number assumes a no secondary revenue credited to rates.

Pros

- Rebating secondary revenues after-the-fact achieves the goal of reducing PNRR
- This approach is one of the lowest combinations of effective rates, PNRR, and ending reserves
- Very tightly tied to net revenue outcomes, no basis risk

Cons

- Variable rates are more complicated than fixed rates
- There is a potential to increase rate volatility even more than in the current rate period
- If reserves are not high enough, PNRR or other risk mechanism will be needed to get through the first year of the rate period
- This approach creates complexities for customers when setting their rates for the next year
- May be difficult to set the method for accounting for the secondary revenue credit

Conclusions

- The initial rate tends to be higher because secondary revenue credits are not included in the base rates.
- The credits are applied after-the-fact, reducing the need to build up reserves to manage revenue risk.
- The amount credited to rates matters. The percentage of secondary revenues credited to rates changes the outcome of PNRR, reserves and rate volatility.
- Staff and parties need to discuss rate variability associated with having higher rates during the year and then receiving (potentially) large amounts of money at the end of the year.
- Staff and parties need to discuss how the actual secondary revenue credit would be calculated.

Section 4-
Option D: Rate Adjustment Mechanism

Discussion Topics:

Is this an option worth considering? What are the obstacles?

What is the threshold rate level for considering variable rates to keep the cost of risk mitigation lower?

How important is it to control rate volatility? If it can't be controlled, is there a better way then how it is handled in the current rate period?

E.V. PBL Starting Reserves: ~$180M		*PNRR Only*	*Approx. Changes in PNRR and Other Mechanisms*
	Rate Characteristic	**Fixed, Flat (A)**	**Rate Adjustment Mechanism (D)**
1	Cost of Risk PNRR	$430 to $530M	-$430M
2	2007 Posted Rate (Initial Rat	No Change	-$2.1 MWh
3	Average Posted Rate	No Change	-$4.7 MWh
4	Average "Effective Rate"	-$1 MWh	-$4.7 MWh
5	Secondary Revenue Credit	100% Credit to Rates	100% Credit to Rates

Description: Variable Rates Using Rate Adjustment Mechanisms

Implement a formula-based surcharge on initial rates. Rates are credited with 100% of the expected value secondary revenue credit. Rates are adjusted on a periodic basis similar to the way the CRACs are implemented in the current rate period.

Possible Risk-Specific Adjustment Mechanisms:

1. Financial Adjustment based on reserves, accumulated net revenues or net revenues
2. IOU Benefit Adjustment (deals with year 2 and 3 IOU Benefits)
3. Expense Adjustment (limited to uncontrollable expenses- legal, Bi-Op, etc…)
4. Credit Adjustment (Triggers only after a counter party default is known)

Pros

- Rates can be adjusted based on actual results, not just a forecast
- Increases in rates are directly tied to PBL's actual financial condition
- Good water/price years can reduce the need for adjustments in future years
- Results produce lower E.V. rates and lower reserves compared to a flat, fixed rate

Cons

- Risk specific surcharge mechanisms don't trigger unless we actually experience the specific risk which may not provide as much protection as PNRR
- Unpredictable rate volatility
- Complex mechanisms that tend to require more staff and customer resources to implement and track
- Possible rate volatility would be a constant concern for the region taking resources away from other issues

Conclusions

- Cost adjustment mechanisms are an extremely effective tool for mitigating risk but produce greater rate volatility as a result.
- The surcharge would likely have to trigger in the first year of the rate period to meet the necessary TPP.
- Staff and parties should discuss alternatives to the current CRACs. For example, should a surcharge mechanism trigger on reserve levels rather than ANR?

Section 4-
Option E: Complex Mechanism

Discussion Topics:

Is this an option worth considering? What are the obstacles?

If customers were to receive a secondary revenue credit, what would be the preferred method? What is the threshold rate level for considering variable rates to keep the cost of risk mitigation lower?

How important is it to control rate volatility? If it can't be controlled, is there a better way then how it is handled in the current rate period?

	E.V. PBL Starting Reserves: ~$180M	***PNRR Only***	***Approx. Changes in PNRR and Other Mechanisms***
	Rate Characteristic	**Fixed, Flat (A)**	**Complex Mechanism (E)**
1	Cost of Risk PNRR	$430 to $530M	-$417M
2	2007 Posted Rate (Initial Rat	No Change	-$3.4MWh
3	Average Posted Rate	No Change	-$6.1 MWh
4	Average "Effective Rate"	-$1 MWh	-$6.1 MWh
5	Secondary Revenue Credit	100% Credit to Rates	50% Credit to Rates/ 50% rebate after reserves threshold met

Description: Combined Risk Mechanism

A variable rate using the difference between the forecast of ending reserves and a defined lower reserves threshold as the basis for an upward rate adjustment. A rebate of secondary revenues when a defined upper reserves threshold is exceeded. A secondary revenue credit of 50% of the forecasted expected value is applied to initial rates. The remainder of the secondary revenues will be retained by BPA until reserves reach the defined upper threshold.

In addition, prior to the start of each fiscal year, if reserves are forecast to start the year below the defined lower reserves threshold, an upward rate adjustment is implemented to capture 50% of the difference between the defined lower reserve threshold and the forecast of ending reserves.

Pros

- Produces a low level of PNRR compared to a flat, fixed rate
- Provides a risk mechanism that can adjust with PBL financial conditions
- Requires lower reserves to maintain the TPP standard
- Provides a mechanism, if reserves minimums are met and if good water/price years are experienced, to give back the benefit to customers

Cons

- There is the complexity of a variable rate that includes both an upward and a downward adjustment
- Unpredictable rate volatility
- Complex mechanisms that tend to require more staff and customer resources to implement and track (compared to a fixed rate design)
- Generally collects first, and rebates later meaning BPA is holding onto the excess revenues for a period
- Possible complexity in interaction between this rate mechanism, IOU benefits, and the Slice rate

Conclusion

- Preliminary work indicates this type of rate design would not produce the lowest nor the highest initial rate but on average can be expected to have an effective rate that is lower than the initial rate (i.e., a rebate is likely).
- The combination of a reduced secondary revenue credit, reserves adjustment and reserves "dead band" offer greater "shock absorption" for rate volatility than other variable rate options.
- Reserves increase over the rate period but are lower than the flat, fixed PNRR alternative.
- Issues to decide in the rate case would include percent of secondary revenues to include in initial rates and lower and upper reserve thresholds.

Section 5-
Review of Policy Level Questions

Feedback on these issues will assist in further development of options for mitigating risk in the next rate period.

- How important are initial rate levels compared to effective rate levels? (There is a trade-off between the amount of PNRR or starting reserves relative to variable rate-type mitigation.)
- How important is it to minimize rate volatility?
  - Magnitude of rate level changes…
  - Frequency of rate level changes…
- How important is rate simplicity vs. complexity?
- Do customer preferences change depending on…
  - The overall rate level?
  - Magnitude of risk?
- Should BPA consider a reserve level target in a variable rate design?
- Additional questions that arise during this discussion.

Section 5-
Next Steps

- Suggestions for the April 18th Managers Workshop presentation
- Releasing Rates/Risk Models
- Tentative Schedule and topics for the next (rate case) workshop(s) for risk–
  - April 20th: Release models and discuss results
  - May 4th: Review results and discuss alternatives
  - May 19th: Review results and discuss alternatives
  - Others as needed but no later than June 1st

Appendix

Glossary of Terms

Critical Water: A sequence of stream flows under which the regional hydro system could produce an amount of power equal to that which could have been produced during the historical critical period, given today's generating facilities and constraints.

Effective Rate: The rate paid after all adjustments (positive and negative) are made to the initial rates. This number is usually described as an expected value.

Expected Value (E.V.): The expected value of the distribution of the three-years averaged.

Initial Rate: The base rate calculated at the beginning of the rate period. This rate is published in the Wholesale Power Rate Schedule. The posted rate may be adjusted depending on risk mitigation tools and the final rate design defined in the General Rate Schedule Provisions.

Net Secondary Revenues: Trading floor committed and balancing sales less any purchases.

PBL Ending Reserves: The forecast of cash PBL expects to have at the end of the rate period.

PBL Starting Reserves: The forecast of cash reserves PBL expects to have at the beginning of the rate period.

Planned Net Revenues for Risk (PNRR): A traditional risk mitigation tool used by BPA to cover risk over the past decade. PNRR is the additional amount of dollars included in the revenue requirement so that the calculated treasury payment probability (TPP) target is met.

Rate Volatility: The amount of potential change for a given period.

Risk: The chance of something happening that will have an impact upon objectives, measured in terms of consequences and likelihood.

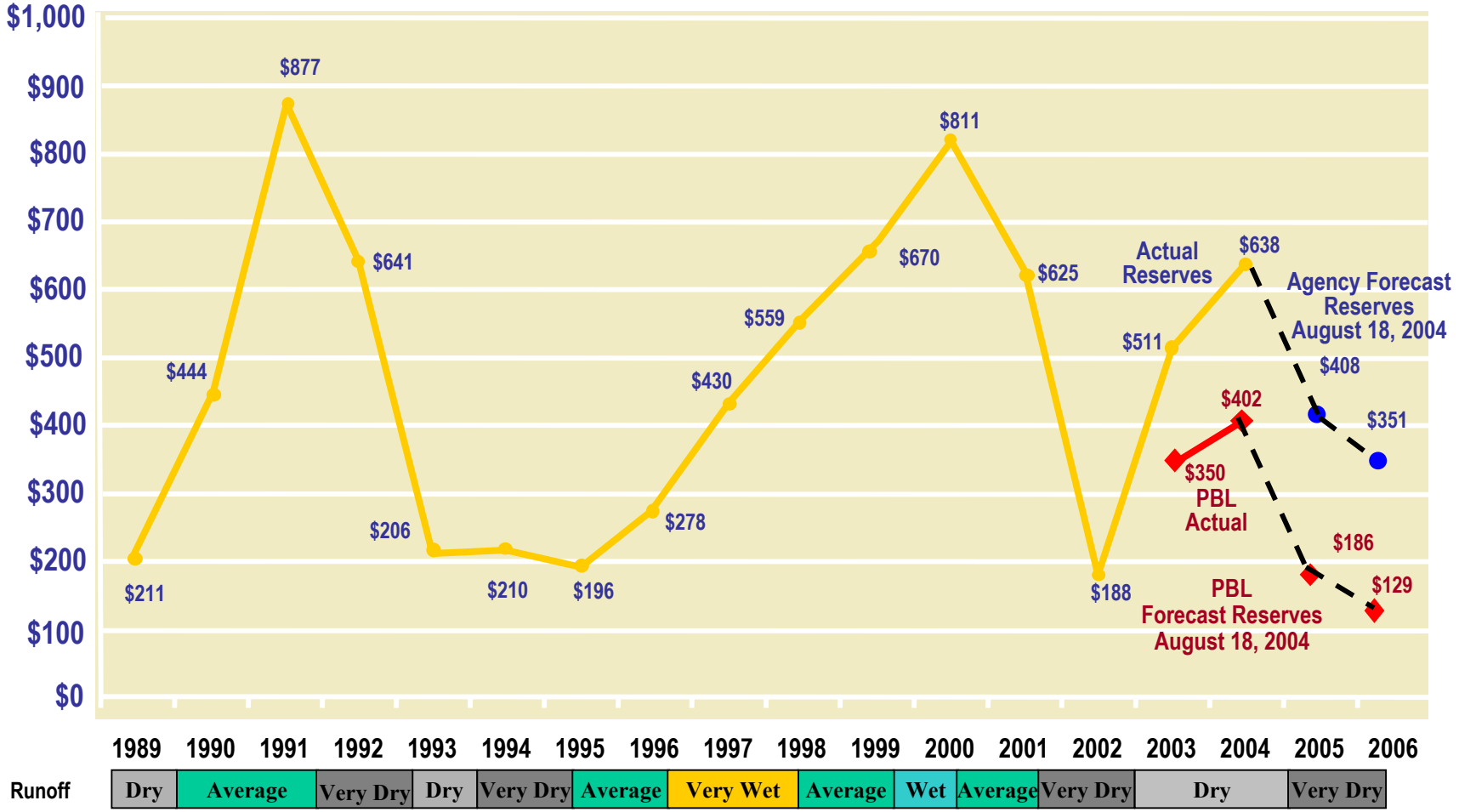
Risk Mitigation: Application of financial analysis and diverse financial instruments to control and reduce selected types of risk.

Treasury Payment Probability (TPP): The probability that each treasury payment will be made on time and in full for each year of the rate period.

Historical and Forecasted Year-End Agency Financial Reserves

New page added after Technical Workshop

Actual and Forecast EOY Reserves



The 1989-2003 information is consistent with audited actuals and contains BPA-approved agency financial information. The 2004 information was made publicly available by BPA on Oct. 28, 2004, and contains Agency-approved Financial Information. The 2005 and 2006 information was made publicly available by BPA on August 18, 2004 and is consistent with the Administrator's expectation with respect to the SNCRAC level for FY 2005, although it is hypothetical in nature and supplied for discussion or exploratory purposes only. Any further communication of this information must contain these qualification statements.

TPP Graph

(For illustration purposes only– from June 10, 2004 workshop)