

December 4, 2003

BC Hydro Pension Review

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Executive Summary

- BC Hydro's current defined benefit (DB) pension plan:
 - highly valued by employees
 - above median in comparison to BC Hydro's competitors for labour
 - given that it is such an important component of the total rewards package, making any significant changes to the plan would pose labour relations and employee commitment challenges
 - however, if there are strong business reasons for a change, the challenges are not insurmountable
- The cost of the plan is unstable / unpredictable:
 - low/negative market returns on the pension assets (such as recent years) can result in an increase in pension cost
 - favourable returns (as experienced in the 1990's) can result in surplus which can be used to reduce both the company's and the employees' contributions
 - If BC Hydro can tolerate short-term volatility in pension cost, it may be possible to achieve a higher long term rate of return than would an individual employee in a defined contribution (DC) plan and, therefore, provide a given level of benefit for a lower long-term cost



Executive Summary

- How much cost volatility is acceptable / desirable?
 - historically, the volatility in BC Hydro's bottom line has been primarily influenced by external factors such as water levels; so much so that fluctuations in pension expense were not particularly significant
 - however, possible changes to the mechanism whereby the water levels influence financials might take that variable out of the equation, in which case the volatility in pension expense may be relatively more significant and there would be a desire to dampen the volatility
- How to manage cost and/or cost volatility?
 - the Pension Management Committee has recently undergone a review of the investment policy and is making changes to the asset mix of the fund based on BC Hydro's tolerance for cost fluctuations
 - it is possible to manage the cost and/or cost volatility through investment policy or through plan design (or both)
 - to reduce cost volatility, BC Hydro could introduce a defined contribution (DC) plan for new employees, introduce a hybrid plan with both DB and DC components, and/or push more of the cost-sharing risk to employees
 - to reduce the absolute level of the cost without changing the risk-sharing arrangement, BC Hydro could modify certain provisions of the existing plan
 - note that the plan design changes considered in this review would not, for the most part, impact the benefits earned to date. Since such a significant portion of the pension liabilities is for employees who have retired or terminated employment, any changes going forward will take many years before they significantly impact the cost and/or cost volatility.



Introduction

The following pages provide an introduction to the pension review, including:

- Objectives
- Context
- Introduction to key concepts:
 - Spectrum of pension plan designs
 - Risk sharing
 - Allocation of benefit dollars

Objectives

- The purpose of this Pension Review is to:
 - assess whether the current pension design is aligned to support LoB, SO and corporate business strategies
 - provide a foundation for informed discussion on:
 - the strengths and weaknesses of the current pension arrangement
 - options and priorities for change
 - provide a rationale for maintaining the status quo or a platform for further analysis with respect to particular plan change(s)
- Key drivers include:
 - optimizing BC Hydro’s attraction/retention capability through the most fiscally appropriate pension arrangement
 - enabling the evolution to mature LoB/SOs by facilitating the attraction/retention of the most appropriate workforce

Timeline: Late 2003 / Early 2004

Corporate initiatives

- Pension review, as part of the overall “total rewards” review
- Cost modelling for all compensation & benefits

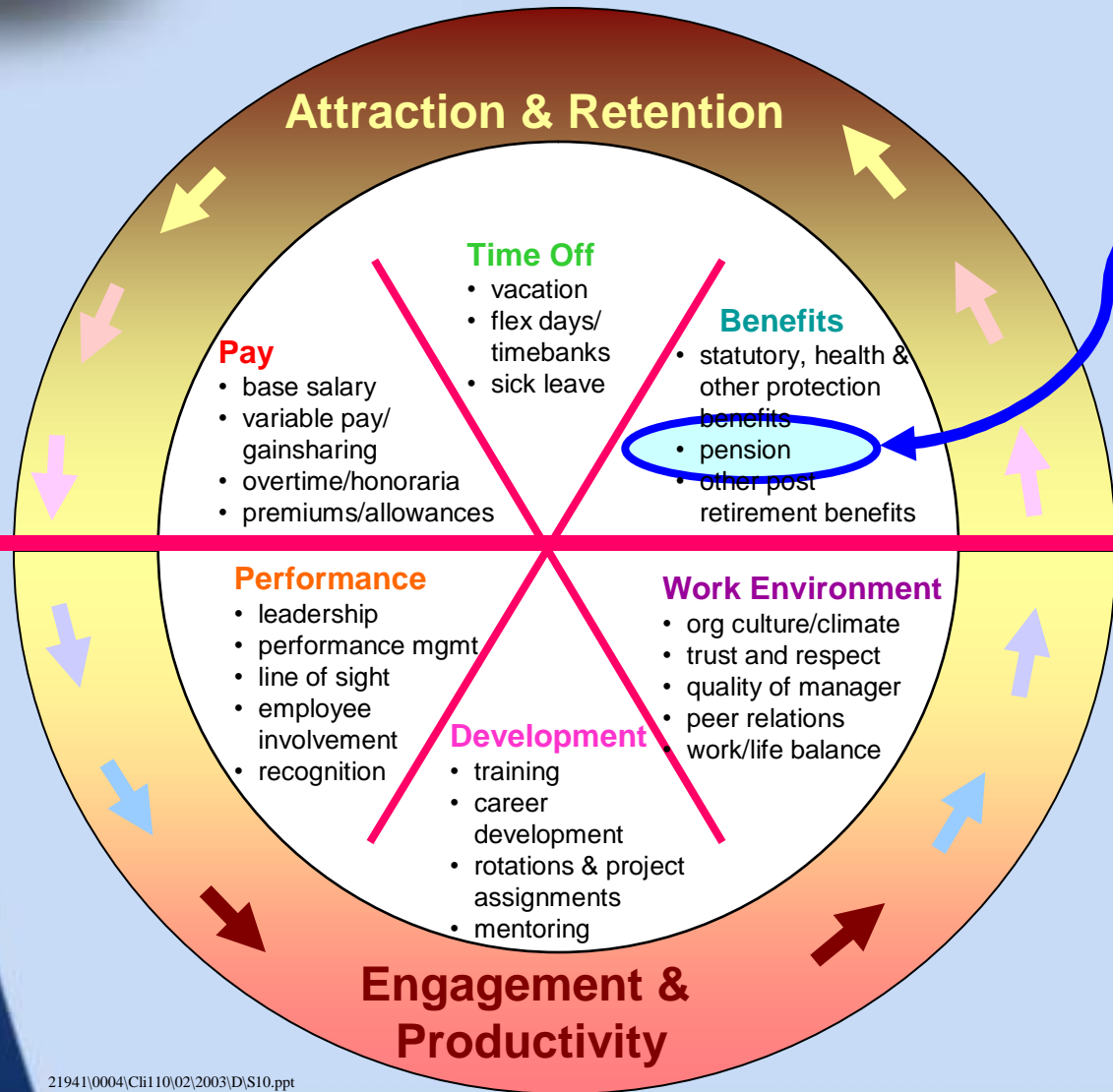
Chair’s Committee
HR Committee of Board
Pension Management Committee

LoB input

- Business drivers / strategy
- Desired future state for compensation & benefits

Redesign Decisions

Context: Pensions are part of the total rewards package



- This pension review is part of a larger initiative to review total rewards at BC Hydro
- Pensions should be viewed as part of the overall employment offering – both monetary and non-monetary

Spectrum of pension plan designs

- Pension plans can be categorized into 2 main types:

Defined Contribution (DC)

DC plans specify the level of contributions to be made to each employee's account, but do not promise any fixed benefit

Defined Benefit (DB)

DB plans promise a benefit at retirement based on a formula that is not related to the investment performance of the plan assets

BC
Hydro
Plan¹

- However, there is a spectrum of plan designs, some of which include components of both DC and DB plans.
- Different types of plans meet different objectives with respect to:
 - benefit security
 - cost volatility
 - flexibility
 - ability to attract / retain employees
 - employer cost stability
 - culture of organization

¹ Note that the BC Hydro Plan is not a pure DB Plan at the far right hand side of the spectrum because the indexing part of the benefit is not guaranteed.



Risk sharing arrangements

- Arguments for a DB plan:
 - Hypothesis: The employer is better able to absorb risk than an individual employee. DB plans allocate most of the risk of funding retirement benefits to the employer.
 - Investment theory indicates that higher long-term returns can be achieved when investment risk is taken, ie:
 - the “low-risk” portfolio of assets is one where the pay-outs most closely match the expected payments due from the plan with the lowest possible default risk
 - the low-risk portfolio for BC Hydro’s plan would contain a significant portion of real return bonds
 - deviating from the low-risk portfolio will result in wider fluctuations in asset values compared to liabilities
 - to the extent that such deviations are expected to cause positive value-added rather than negative, the long-term cost of the plan will be lower
 - By allocating the risk to the party that can tolerate more risk, better retirement benefits may be provided for a given long-term cost or, alternatively, a given level of benefit may be provided for a lower cost.
- The above arguments become weaker if:
 - the employer is more risk-averse, or
 - the risk-sharing arrangement is not symmetrical, ie: if the party that is taking the risk does not benefit (in a commensurate way) from the upside



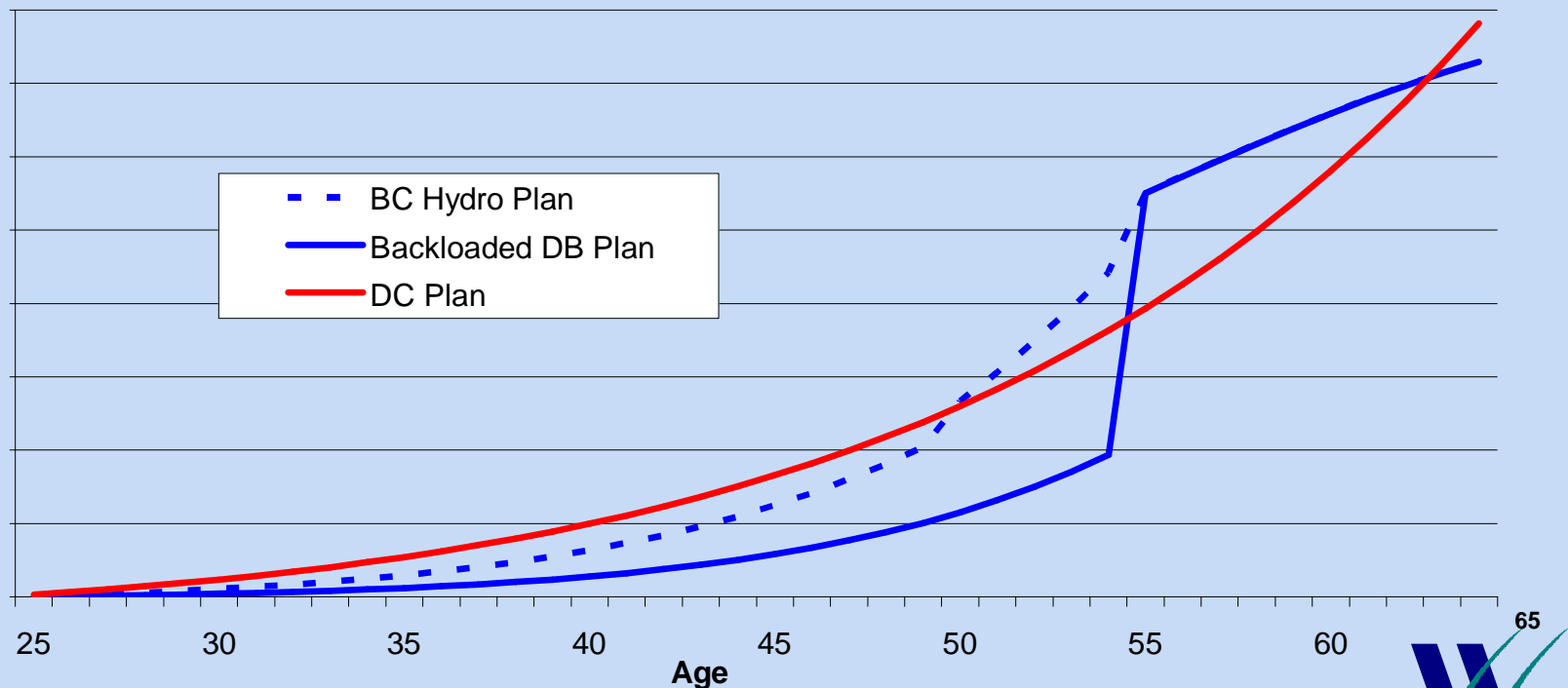
Allocation of benefit dollars

- Within a given cost, it is possible to design a pension plan to allocate the benefits in different proportions to:
 - retiring vs. terminating employees
 - normal vs. early retirements
 - old vs. young employees
 - long vs. short service employees
- DC plans can provide a contribution that is related to age and/or service¹, or a level contribution for all employees
- Many DB pension plans “backload” the benefit value, ie: allocating the benefits more heavily toward retirements and away from terminating employees by:
 - providing early retirement subsidies only to employees who retire from active employment, and/or
 - not indexing deferred pensions
- The graph on the following page illustrates that the BC Hydro DB plan is not as “backloaded” because it provides, to a terminating member:
 - subsidized early retirement pension, and
 - indexing of the deferred pension from date of termination to date of pension commencement

1. subject to superintendent approval

Allocation of benefit dollars (continued)

- The graph below illustrates the value of a typical “back-loaded” DB plan (blue line) vs. a DC plan (red line) for employees terminating or retiring at different ages
- In this hypothetical case, the DC plan provides better benefits for employees who terminate before age 55 and the DB plan for employees who retire at age 55 or later
- BC Hydro’s plan is not as “back-loaded” as some DB plans, as illustrated by the dotted line.



Analysis

- The following pages provide an analysis of BC Hydro's pension arrangements from six different points of view:
 - **Workforce view:** considering BC Hydro's current and expected future demographics
 - **Employer view:** based on interviews with BC Hydro VPs and other key individuals
 - **Employee view:** based on industry research but no specific BC Hydro surveys or focus groups
 - **Financial view:** considering BC Hydro's ability to take risk
 - **Competitive market view:** benchmarking against other utilities and other "competitors for labour"
 - **Environmental view:** labour relations, legal and governance considerations



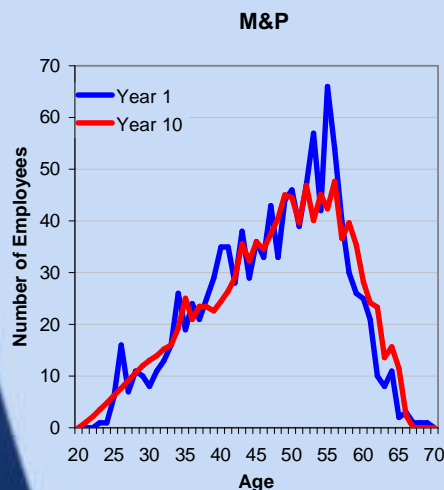


Workforce View

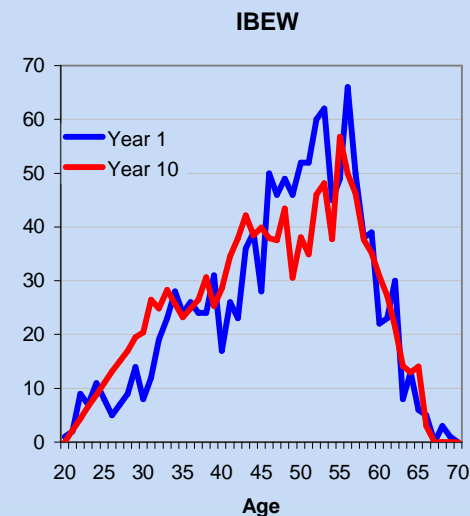
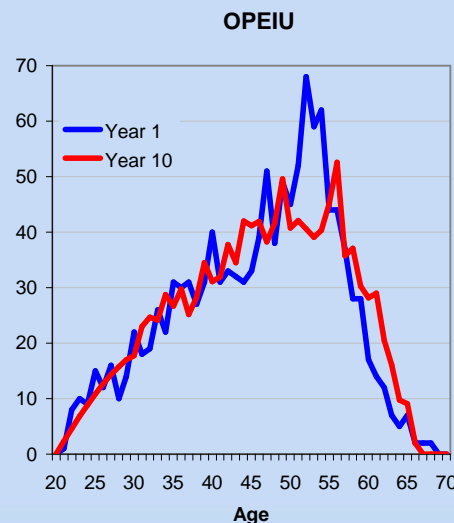
Based on data as of May, 2003, excluding Powerex:

- Average age of the workforce is 47; average service is 16 years
- Based on demographic modelling, average age is expected to remain fairly stable in the future
- Pre-retirement turnover has been very low: approximately 2% overall
- Employees have tended to delay their retirement beyond the age at which they qualify for an unreduced pension
- The graphs below show the age distribution of the current employees by affiliation, and the projected distribution in 10 years time

	M&P	OPEIU	IBEW	Total
Corporate	160	99		259
<i>average age</i>	46	46		46
<i>average service</i>	10	15		12
Distribution	219	416	78	713
<i>average age</i>	46	46	48	46
<i>average service</i>	14	19	20	18
Engineering	289	273	5	567
<i>average age</i>	47	45	53	46
<i>average service</i>	15	14	19	14
Field Services	147	257	814	1,218
<i>average age</i>	50	47	48	48
<i>average service</i>	20	18	18	18
Generation	214	178	296	688
<i>average age</i>	47	43	47	46
<i>average service</i>	15	11	14	14
Transmission	99	41	86	226
<i>average age</i>	51	44	45	47
<i>average service</i>	18	15	16	17
Total	1,128	1,264	1,279	3,671
<i>average age</i>	47	46	48	47
<i>average service</i>	15	16	17	16



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Employer View

- The following is a summary of comments and perceptions based on interviews with key individuals in July, 2003
- Interviews were conducted with:
 - Corporate:
 - Bob Elton
 - Brian Demerse
 - Ray Aldeguer
 - Tish Duong / Valerie Lambert
 - LoB VPs:
 - Dawn Farrell
 - Dennis Maniago
 - Glen Smyrl
 - Bev VanRuyven
 - Powerex:
 - Ken Peterson
- Summary of comments / perceptions:
 - Most believe that the Plan does fit with the business and HR strategies of the organization going forward
 - Employees may not fully understand the Plan, but perceive it to be valuable and secure. Need for more effective communication
 - The Plan has been a key contributor to low turnover. Those who felt the turnover is too low agree that this is a performance management issue
 - The Plan is important in attracting key strategic hires, particularly when cash compensation is lower than the private sector
 - Most felt that the Plan should not be different by LoB
 - Some believe that more flexibility and/or ability to phase into retirement would be desirable
 - Some believe that the cost of the current Plan could influence whether the Plan is a good fit going forward; others said it was a good fit regardless of costs¹

1. Note that, to date, the costs associated with investment losses and changes in interest rates with respect to the past service obligations have not been passed through to the LoBs.



Employee View

- Due to the desire to maintain confidentiality of this pension review, we have not specifically asked BC Hydro employees about their views on the pension plan as part of this project.
- The following is a summary *and some examples* of comments regarding the pension plan from the 2003 Employee Commitment Survey. (Note that this survey did not specifically ask about pensions.)
 - Some favorable comments about the pension plan:
 - “BC Hydro can go ahead and separate into as many LoB as 'Victoria' wants but don't touch the pension plan.”
 - Of course, employees ask for increases:
 - “Agree to better pensions, health and dental plans. Negotiate higher wage increases and benefits.”
 - “Increase my basic salary, therefore raised my pension income.”
 - “Establish an option for partial retirement for those who meet the 95+ formula.”
 - Concern/skepticism re. impact of organizational changes on pension plan:
 - “Ensure that people affected by the ongoing changes in the company are treated fairly and make sure our pensions are not adversely impacted.”
 - “It appears management under the direction of the government is trying to take BCH apart and give it to the private sector to the harm of its employees and the rate payers and steal our pension funds!”



Employee View (continued)

- Further examples of comments relating to the pension plan from the 2003 Employee Commitment Survey:
 - Indications that pension security is very important:
 - “Ensure my pension and everything I’ve come to assume will be there, when I retire.”*
 - “Implement some stability and sense of job and pension security.”*
 - Pension plan provides incentive to retire early:
 - “Provide incentive to continue working for BCH after qualifying for an unreduced pension. I will qualify for a pension in two years. I will likely retire from BCH and get another job, simply because I will lose too much by not collecting my pension.”*
 - Pension plan may be a key factor in retaining some employees. At least one employee feels that the organization shouldn’t rely so much on the pension plan as a means to retain employees:
 - “Have to stay to qualify for pension next couple years.”*
 - “There is not enough time for BC Hydro to increase my commitment. If I were not handcuffed because of the pension plan, I would have left 5 to 7 years ago. When I retire there are several companies in the US and abroad that need my skills. I will be working there.”*
 - “It appears staff retention is primarily driven by pension and salary. These aren’t great motivations for excellence.”*
- Note that the above summary reflects employee perceptions; not necessarily facts
- Many comments lead to the conclusion that more education with respect to the pension plan would be useful



Employee View (continued)

- The employee view analysis is, in part, based on our perceptions (from discussions with corporate HR and with LoB VPs), from general market research and from anecdotal experiences with other employers:

Our **perceptions** of the “Employee View” based on discussions with corporate HR and interviews for the “Employer View”

Generalizations from market research and anecdotal experiences of other employers

- In general, BC Hydro employees place great value on the security of the BC Hydro pension plan, both
 - the defined nature of the benefit (which is not impacted by investment returns) and
 - their confidence that the organization will deliver on its promise
- Employees expect to receive full indexing, even though it is not guaranteed
- Some perceive that this plan provides “golden handcuffs”, ie: after a certain point, they cannot afford to leave before retirement (*not necessarily true*)
- Some perceive that this plan has less portability than would a DC plan (*not necessarily true – discussed on page 31*)
- Older employees tend to value DB pension plans; younger employees tend to value DC plans or immediate cash compensation
- Although employers cite their pension plan as a key attraction/retention tool, there is very little empirical evidence
- Many employees do not have enough investment knowledge to make appropriate investment decisions
- Employees are often cynical of change



Employee View (continued)

- One published study¹ based on a survey of 517 employees of a large unionized public-utility in Ontario:
 - older employees and members with large benefit values tended to prefer inflation protection over early retirement
 - older members prefer more pension benefits over cash
 - higher education correlates strongly with a desire for indexing
 - occupation does not show much bias, except that skilled and semi-professional workers exhibit preferences for early retirement benefits
- Another published study² based on a survey of 1,000 working individuals in the United States to assess preferences for employee benefits:
 - only 6% of those surveyed have accepted, quit or changed jobs because of the pension benefits that were offered or not offered
 - 6.1% of workers without retirement benefits had sought new jobs vs. 3.2% of those with a pension plan
 - of those in a DB pension plan, 46% said they would pass up a new job offer in order to vest in their pension plan; more so at higher income levels (64% of those whose family income > \$75,000)
 - between the 1999 and 2001 studies, worker preferences moved toward DC from DB plans. This is most likely largely attributable to the bull market, which has since been reversed.

1 "Employee Preferences for Pension Plan Features", Journal of Labor Report Research 22 (2001) 795-808, Morley Gunderson and Andrew Luchak

2 "2001 EBRI/MGA Value of Benefits Survey", Rachel Christensen and Dallas Salsbury, EBRI



Financial View: Background

- BC Hydro's finances are affected by a number of factors, including:

- BCUC rulings
 - water inflows
 - gas prices
 - weather
 - pension costs
 - foreign exchange
 - interest rates
- currently about \$50 million/year

BC Hydro's annual net income has been in the range from \$350 to \$400 million

- The current environment

- the shareholder (ie: BC Government) seems to want more certainty around net income from BC Hydro
- now that California demands less power from BC, BC Hydro's revenues should be more predictable
- the Heritage Contract means that the commodity risk will flow through to the consumer, therefore creating less volatility in BC Hydro's earnings
- given that BC Hydro's other revenues and expenses are becoming more predictable, can the organization tolerate more volatility in pension plan expense? Or can BC Hydro tolerate less volatility because increases in pension expense will flow through to consumers?



Financial View (continued)

- The assessed “cost” of a pension plan can be measured on:

Cash Funding Basis:

- Registered pension plans are funded in accordance with pension legislation, which requires both:
 - going concern valuation (long term view)
 - solvency valuation (wind-up scenario)
- Tax rules dictate maximum funding
- Funding of supplemental benefits is not legislated

or

Accounting Basis:

- Pension expense must be reported based on Canadian Institute of Chartered Accountants (CICA) guidelines
 - Pension expense is not necessarily the same as funding outlay
 - different assumptions
 - different amortization of deficits/surplus, etc.
- The more visible driver for BC Hydro is the accounting expense for its pension plan



Financial View (continued)

- The Pension Management Committee (PMC) has determined that the organization can tolerate a fluctuation in pension expense of plus or minus \$25 million, which equates to a plus or minus 1% impact on rates
- Components of pension expense:
 - current service cost → passed through to LoBs
 - past service cost → not passed through to LoBs
 - largely influenced by inactive liability (ie: retired and terminated employees), which will not change if the plan is redesigned
 - expense can fluctuate significantly with asset returns and bond yields (lower bond yields drive lower discount rate used to value liability, resulting in a higher liability)
 - surplus can be used to fund the current service costs (ie: employer / employee contribution holidays)



Financial View (continued)

- **Variability** of costs can be managed through:

Investment Policy:

- Matching assets to liabilities reduces the fluctuation of pension expense
- Recent Asset Allocation Study made recommendations for the asset mix of the plan's assets on the basis that there is a 90% probability that the outcomes will be within BC Hydro's risk tolerance
- *Note that consideration should be given to implications of the 10% of outcomes that were not considered in the Asset Allocation Study*
 - How are other aspects of the business impacted by the economic conditions underlying the 10% "worst case scenarios"?

and /
or

Plan Design:

- A pure DC plan would provide stable pension costs
- Plan designs at various points along the DC / DB spectrum allocate the financial risk differently between the employer and employees

- The **absolute level** of the pension cost can be altered by changing the plan design
 - eg: reducing the benefit level will decrease the cost of future accruals under the plan
- However, pension legislation prohibits reduction of the benefits already accrued. Therefore, any such plan design change is likely to impact only the go-forward costs



Competitive Market View

- The following 14 organizations were selected as a representative sample of BC Hydro's competitors for labour:

- Alberta Energy
- ATCO / Canadian Utilities
- Enmax
- Hydro One
- Hydro-Quebec
- Manitoba Hydro
- Ontario Power
- PSERC
- SaskPower
- SNC-Lavalin
- Terasen Gas
- Terasen Pipelines
- TransAlta
- TransCanada Pipelines

Relative “Employer Funded” Value of the Pension

- More than half (8 / 14) of the comparison organizations provide a DB plan for new employees; the others (6 / 14) provide a DC plan for new employees
- The pension plans of the 14 comparison organizations, plus BC Hydro's pension plan, were valued based on BC Hydro's demographic data and the actuarial assumptions set out in the Appendix
- These companies have been ranked according to the “employer funded” value of the benefits (= *total normal cost of benefits minus the employee contributions*) → see next page
- BC Hydro's employer funded value is above median (6th out of 15) in the comparison group

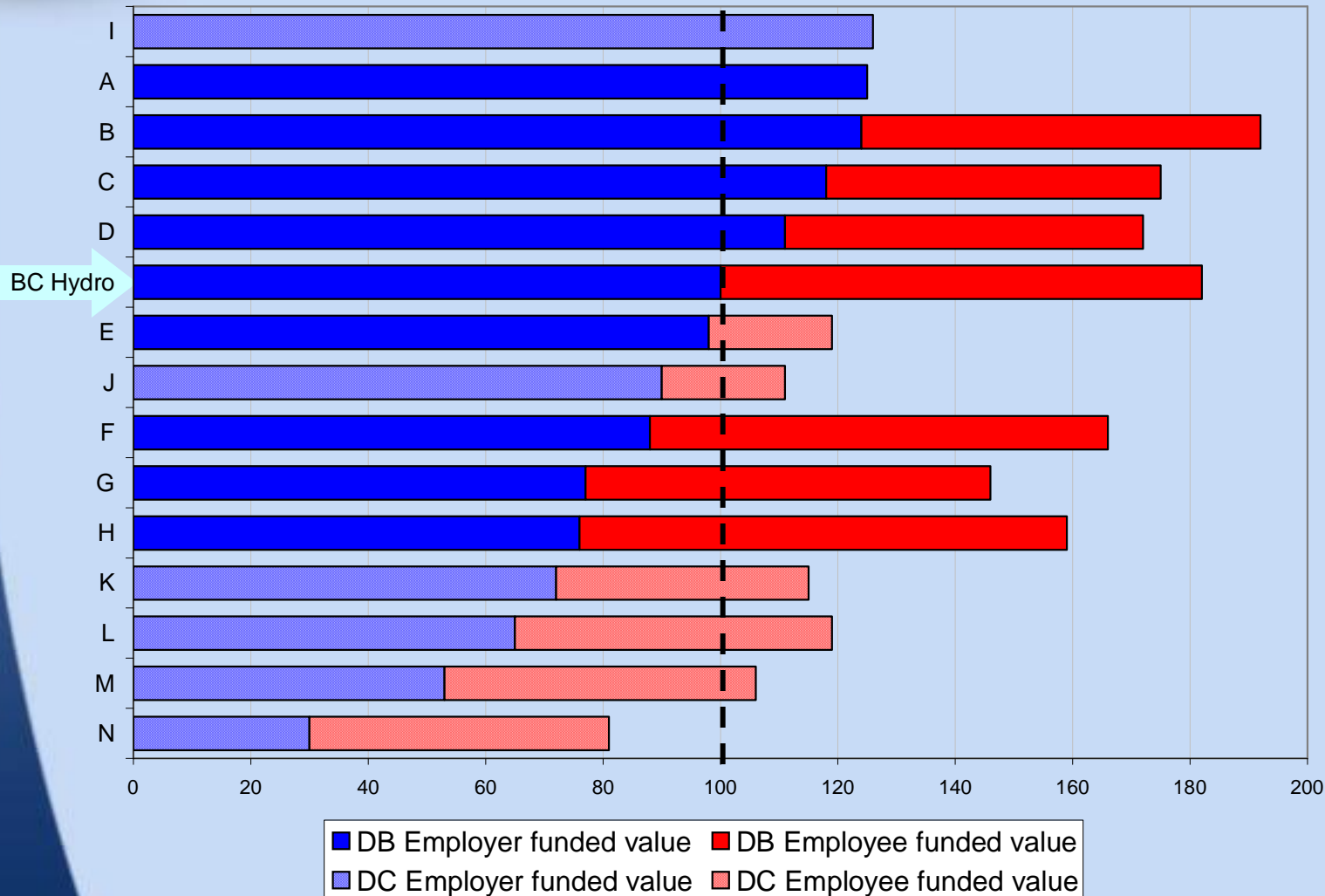
Attrition

- Information was collected with respect to pre-retirement attrition at some of the comparison organizations to test the hypothesis that a higher “employer funded” value of pension would lead to lower turnover
- No correlation between pension value and attrition was found



Competitive Market View (continued)

- BC Hydro employer-funded value = 100; others are ranked on a relative basis:



Note: DB plans labeled A through H in order of the "employer funded value".

DC plans ordered I through N in order of the "employer funded value".

All plans (DB & DC) are ranked from top to bottom in order of the "employer funded value". BC Hydro is 6th out of 15.

See Appendix for details on the various plan provisions.



Competitive Market View (continued)



- Two case-studies of interest from the comparison group:

Case study #1: TransCanada PipeLines

- Had a DB plan since 1958; introduced DC plan in 1997; converted everyone back to DB on January 1, 2003
- This decision to convert back to DB was made for 3 reasons:
 - ❶ secure adequate retirement income for long-term employees
 - ❷ retain essential skills and attract additional employees for the future
 - ❸ align with business direction and operational excellence strategy
- DC members were “made whole”, which cost the company (on an accounting basis) \$44 M
 - consideration was given to how the National Utilities Board and shareholders would view costs
- Employee feedback was generally positive
- Not yet approved by regulators



Competitive Market View (continued)



Case study #2: TransAlta

- Similar to BC Hydro, TransAlta provides a single pension plan for union and non-union employees that is not subject to collective bargaining. Also, similar to BC Hydro, TransAlta has a relatively long-service workforce
- Had a DB plan; introduced DC plan in 1997 in response to strong employee demand
- Now considering converting back to DB
- Despite extensive communication about the pension choice and about the investment options, TransAlta feels that employees do not understand and/or are apathetic about their pension
- Concerned about legal liability, although they have not yet received employee complaints; concerned about increased regulation/administration for DC plans
- If they change back to DB, TransAlta will likely allow employees to “buy-back” past service, but will likely not make the employees “whole” as TransCanada PipeLines did



Environmental View

- The pension benefits are not currently part of the collective bargaining process
- BC Hydro is the Administrator of the Plan. Some relevant background:
 - In the late 1990s, the provincial NDP government encouraged Crowns to work toward joint trusteeship with their pension plans
 - BC Hydro unions were initially interested in this concept, as they would like to negotiate pension benefits
 - Unions lost interest as capital markets (and the surplus in the plan) declined, making the potential cost sharing and fiduciary responsibility that would be involved in a jointly trustee plan less attractive
- Process for making changes
 1. amendments are approved by Pension Management Committee (PMC)
 2. unions informed of the change through the Pension Plan Consultative Committee (PPCC)
 3. amendments presented to Audit and Risk Management Committee (A&RMC) of the Board
 4. A&RMC presents amendments to the Board for approval
 5. Cabinet approval: Order in Council (OIC)
- Risks and/or possible complications associated with making a change
 - employee relations
 - unions have the right to make representations to BC Hydro prior to Hydro making a recommendation to the Lieutenant Governor in Council
 - press / politicians
 - government policy to pay at the 50th percentile



Environmental View (continued)



- Legal / regulatory constraints:
 - Income Tax Act
 - BC Pension Benefits Standards Act
 - pay equity
 - human rights
 - BC Utilities Commission (impact on costs)
- Any change to be made to the pension plan will involve many parties, and could be a significant investment in cost and time
- However, none of the legal, governance or employee relations obstacles are insurmountable
- Any change is more likely to achieve the desired outcome if well communicated
- Decisions with respect to changing the pension plan should be made considering the balance of:
 - benefits of the change vs.
 - obstacles to change



Overview of Current Plan

- BC Hydro's pension plan:
 - defined benefit formula based on earnings and service at retirement
 - employee contributions fixed; BC Hydro funds the balance
 - both employee and BC Hydro contributions may be reduced through use of surplus (see discussion below)
 - indexing benefits to CPI is not guaranteed, but is provided if there are sufficient funds in the Index Reserve Account (IRA). Indexing applies to both pensions in payment, and deferred pensions of terminated employees.
 - supplemental plan tops-up benefits in excess of the Income Tax Act maximum pension for registered pension plans
 - plan also provides benefits upon termination of employment before retirement, and upon pre- or post-retirement death



Overview of Current Plan (continued)

- Benefits are funded through two accounts:
 - the **Balance of Fund Account (BFA)** provides the promised non-indexed benefits:
 - employees contribute 5.21% of Plan Earnings¹ to the BFA
 - BC Hydro funds the balance of the cost of these benefits as determined by the Plan's actuary
 - BC Hydro's contributions (cumulatively, since 1990) may be more but not less than the employees' contributions
 - The **Index Reserve Account (IRA)** funds the indexing:
 - each January 1st, pensions in payment and deferred pensions are increased in line with CPI, provided that there are sufficient funds in the IRA (*full increases have been granted in each of the past 20 years except one*)
 - the IRA is funded by:
 1. employees and BC Hydro each contribute 1.1% of Plan Earnings¹
 2. excess rate of return over and above what was assumed by the Plan's actuary earned on assets supporting inactive liabilities is transferred from the BFA to the IRA (after allocating investment income to BFA & IRA)

¹ Plan Earnings means 70% of earnings up to the Year's Maximum Pensionable Earnings (YMPE) and 100% of earnings above the YMPE



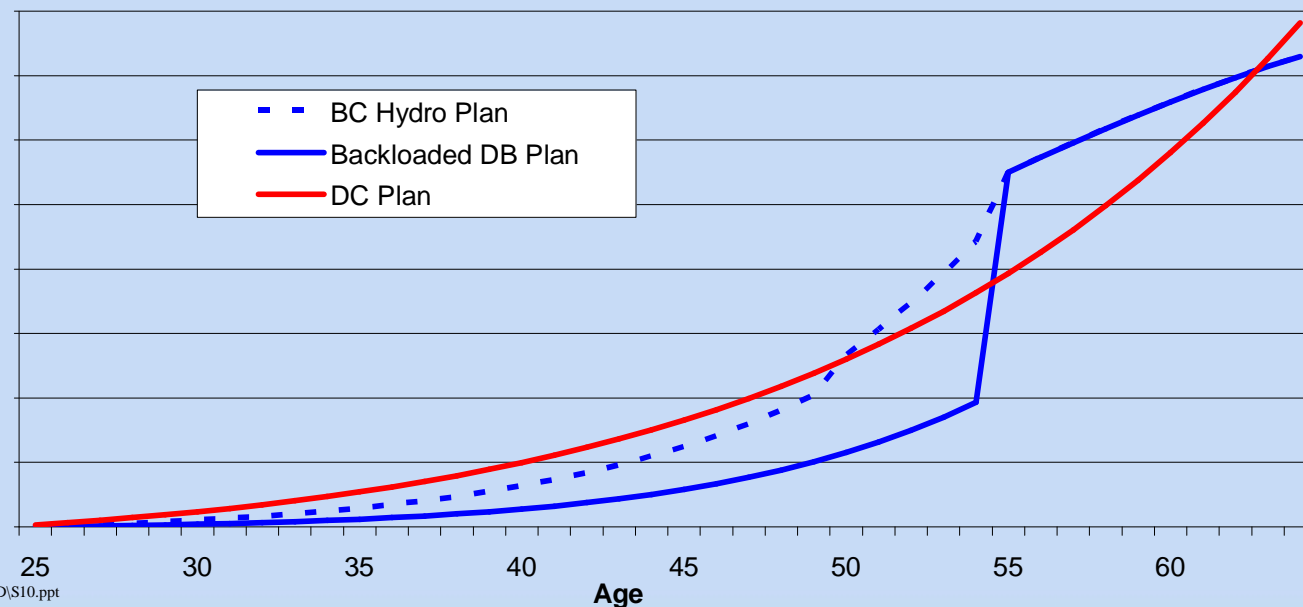
Overview of Current Plan: Risk sharing arrangements

- BC Hydro's "pension deal":
 - **Downside:** If liabilities exceed assets, BC Hydro has the obligation to fund any deficiencies caused by asset / liability mismatches in the BFA
 - **Upside:** If assets exceed liabilities, the deal is not as clear:
 - the plan allows BC Hydro to reduce or eliminate contributions as long as, cumulatively since 1990, the employer contributions are not less than employee contributions
 - in practice, BC Hydro has not taken full advantage of its ability to reduce contributions, and has voluntarily shared contribution reductions with employees
 - recent case law has increased the uncertainty generally around the employer's entitlement to use surplus
 - excess investment return in respect of inactive liabilities is transferred from the BFA to the IRA, but deficient investment returns do not trigger a transfer back (deficient returns are accumulated, and must be depleted before transferring to the IRA). Therefore, the cost of having long term returns that are significantly less than the actuarial assumption will fall to the employer.
 - This arrangement is asymmetrical; the upside is smaller than the downside for BC Hydro

Overview of Current Plan: Misconception about termination values

Misconception: “The current DB plan provides significantly less portability than would a DC plan”

- Unlike many DB plans which are more “back-loaded”, the current BC Hydro plan provides relatively generous benefits to employees who terminate employment before becoming eligible to retire
- The graph below illustrates that the “**shape**” of the benefit accrual under the current plan is closer to a DC plan than many DB plans which are “back-loaded” because of the early retirement subsidy, the pre-retirement indexing and the 1 – ½ times contribution minimum lump-sum benefit
 - of course, the relative **level** of benefits could be quite different depending on the plan design and the investment returns under the DC plan
- Furthermore, employees who terminate before being eligible to retire have the same portability options under the current plan as they would under a DC plan



Appendix

Competitive Market View

- summary of plan provisions
- summary of data used for this analysis
- summary of assumptions used in relative value analysis



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Summary of Plan Provisions

Legend:

	BC Hydro
	DB Plans
	DC Plans

Co.	Type of Plan	Eligibility to join the Plan	Employee Contributions	Employer Contributions	Normal Form of Benefit (DB only)	Normal Retirement Benefit (DB only)	Early Retirement Benefit (DB only)
BCH	DB	3 months of service	4.417% up to YMPE + 6.31% over Maximum employee contribution = 50% of PA \$1,000 (\$8,450 in 2003)	Based on actuarial valuation	Life only with 10 year guarantee	1.4% of FAE5 up to AYMPE5 + 2% of FAE5 in excess of AYMPE5 <i>Base pay plus certain variable pay, best consecutive 5 years</i>	Unreduced if age 60 or age 55 and age + service >= 85 Reduced 3% per year prior to earliest unreduced age If retire between 50-54 with 10 or more years of service and age+service>=65, reduced 3% per year prior to 60
A	DB	2 years of service	None	Based on actuarial valuation	If single: life only with 10 year guarantee; If spouse: J&S 60%	1.25% of 26-month average earnings up to average YMPE + 1.75% of 26-month average earnings in excess of average YMPE <i>Base pay + bonus, best consecutive 26 months</i>	Unreduced if age 60 or age + service >= 85 Reduced 4.8% per year prior to earliest unreduced age <i>Note: for terminations prior to age 55, full actuarial reduction from 65</i>
B	DB	Immediate	6.3% up to basic exemption + 4.5% over basic exemption and up to YMPE + 6.3% over Maximum employee contribution in 2002 = \$4,522.26	Based on actuarial valuation	J&S 50%	1.55% of FAE5 up to AYMPE5 + 2.25% of FAE5 in excess of AYMPE5 <i>Base pay + bonus</i>	Unreduced if age >= 55 and age + service >= 85; or if age >= 60 and service >= 15 years If >= 15 years of service, reduced 3% per year prior to earliest unreduced age; If < 15 years of service, actuarial reduction
C	DB	3 months of service	4% up to YMPE + 5% over	Based on actuarial valuation	If single: life only with 5 year guarantee; If spouse: J&S 2/3 with 5 year guarantee	2% of FAE3 - 0.625% of AYMPE5 <i>Base pay + incentives</i>	Unreduced if age 65 or age + service >= 82 Reduced 6% per year prior to earliest unreduced age
D	DB	Immediate for regular employees; 90 days for probational employees; Provincial minimum requirements for temporary employees	4% up to YMPE + 6% over Maximum employee contribution = \$11,430	Based on actuarial valuation	J&S 66-2/3%	2% of FAE3 - 0.5% of FAE5 up to AYMPE5 <i>Base pay + bonus</i>	Unreduced if age + service >= 82 for union; 84 for non-union; age 60 for some executives If 25 years of service, reduced 3% per year from 60 If 15-25 years of service, 2% per year from 60-65 and 3% per year from 55-60 If 2-15 years of service, actuarial reduction
E	DB + Group RRSP Plan	3 months of service for DB Plan <i>Immediate eligibility for Group RRSP</i>	None for DB 2% employee contributions to Group RRSP (no matching employer contributions)	Based on actuarial valuation	Life only guaranteed 10 years	1.2% of FAE3 Senior executives appointed after 1/1/97: 2% of FAE3 Senior executives appointed before 1/1/97: 1.2% for service prior to appointment and 2% after <i>Base pay + bonus</i>	Unreduced if age 60 or age 55 with 35 years service (<i>senior executives age 55 and age + service >= 80</i>) Reduced 3% per year prior to earliest unreduced age

Summary of Plan Provisions

Legend:

	BC Hydro
	DB Plans
	DC Plans

Co.	Type of Plan	Eligibility to join the Plan	Employee Contributions	Employer Contributions	Normal Form of Benefit (DB only)	Normal Retirement Benefit (DB only)	Early Retirement Benefit (DB only)
F	DB	Immediate	5.5% up to YMPE + 7% over (to a maximum of 35 years of service)	Based on actuarial valuation	J&S 60%	1.3% of FAE5 up to AYMPE5 + 2% of FAE5 in excess of AYMPE5 <i>Base pay + overtime+ bonus+ incentives</i>	Unreduced if age 60 with 2 years of service, or age + service >= 85 Reduced 3% per year prior to age 60 <i>Note: for terminations prior to age 50, the deferred pension payable at age 55 or later is reduced by 5% per year prior to age 60</i>
G	DB + voluntary Group RRSP (not valued)	Basic Plan: Immediate for full time; optional for part time employees Supplemental Plan: for senior employees	Basic Plan for earnings up to Income Tax Act limits: 4.675% up to YMPE + 6.55% over Supplemental Plan for earnings > Income Tax Act limits: 2.325% up to YMPE + 0.45% over	Based on actuarial valuation	Basic: Life only with 5 year guarantee Supplemental: If single: life only with 10 year guarantee; If spouse: J&S 1/3	Basic: 1.4% of FAE5 up to AYMPE5 + 2% of FAE5 in excess of AYMPE5 Supplemental: 2% of FAE5 <i>Base pay only, best consecutive 5 years</i>	Basic: Unreduced if age + service >= 85 Reduced 3% per year prior to earliest unreduced age Supplemental: Unreduced if age 60 or age + service >= 80 Reduced 3% per year prior to 80 points
H	DB	Immediate	5.1% up to YMPE + 7% over	Based on actuarial valuation	J&S 2/3	1.6% of FAE5 up to AYMPE5 + 2% of FAE5 in excess of AYMPE5 <i>Base pay only</i>	Unreduced if age 60 or age + service >= 80 Reduced 3% per year prior to earliest unreduced age
I	DC for new employees	Immediately join plan; Vesting after 2 years	None	10% of base pay + bonus	N/A	N/A	N/A
J	DC for new employees	Immediately join plan; Vesting after 2 year	2% of base pay + bonus	< 5 years of service: 5% 6-10 years of service: 6% >10 years of service: 8% of base pay + bonus	N/A	N/A	N/A
K	Choice DB or DC (DC valued)	Immediately join plan; Immediate vesting	Optional contributions 0% - 4% of base; + voluntary contributions to max of 8% of base	4% of base + match 50% of employee optional contribution up to 2% of base	N/A	N/A	N/A
L	DC	Immediately join plan; Vesting after 2 years	Non-union and one union: 5% of base pay + bonus & other incentives; Other union employees: 4.2% of base & incentives + optional contributions	Non-union and one union: match up to 6% of base pay + bonus & other incentives; Other union employees: match up to 5.8% of base & incentives	N/A	N/A	N/A
M	DC for new employees	Join after 6 months of service; Vesting after 1 year	5% of base pay	5% of base pay	N/A	N/A	N/A
N	Group RRSP	Join after 18 months of service; Immediate vesting	5% of base pay + optional contributions	60% of employee contributions	N/A	N/A	N/A

Summary of Data used to Determine the Relative Values of the Plans

Age		
Age Range	Count	%
Under 25	89	2%
25 – 29	169	5%
30 – 34	302	8%
35 – 39	413	11%
40 – 44	485	13%
45 – 49	664	18%
50 – 54	788	21%
55 – 59	559	15%
Over 59	202	6%
Total	3,671	100%
Average	46.4	

Service		
Service Range	Count	%
Under 1	177	5%
1 – 4	627	17%
5 – 9	357	10%
10 – 14	719	20%
15 – 19	167	5%
20 – 24	452	12%
25 – 29	794	22%
30 – 34	286	8%
35 or More	92	3%
Total	3,671	100%
Average	16.7	

Base Pay		
Pay Range	Count	%
Below \$20,000	0	0%
20,000 – 29,999	5	0%
30,000 – 39,999	313	9%
40,000 – 49,999	724	20%
50,000 – 59,999	1,000	27%
60,000 – 69,999	623	17%
70,000 – 79,999	409	11%
80,000 – 89,999	288	8%
90,000 or More	309	8%
Total	3,671	100%
Average	\$61,610	

Sex		
Sex	Count	%
Female	885	24%
Male	2,786	76%
TOTAL	3,671	100%

Summary of Assumptions used to Determine the Relative Values

- Valuation interest rate: 6.50%
- Annual salary increases: 3.25%
- Annual YMPE increases: 3.00%
- CPI increases: 2.25%
- Retirement ages and decrement rates:
 - Age 55 25%
 - Age 60 33%
 - Age 62 50%
 - Age 65 100%
- Representative turnover decrement rates:
 - Age 25 10%
 - Age 35 5%
 - Age 40 3%
 - Age 45 2%
 - Age 50 1%
- Mortality based on the UP94 table projected to 2002. Separate tables for males and females
- DC plan matching contributions:

Annual Salary	Participating Employee Contributions as a Percent of Pay	Percent of Employees Participating
Under \$30,000	5.75%	85%
\$30,000 - \$59,999	6.50%	85%
\$60,000 - \$79,999	7.25%	85%
\$80,000 - \$99,999	7.50%	85%
\$100,000 and Over	7.00%	85%