

Southwest Power Pool's Balanced Portfolio Approach for Economic Upgrades

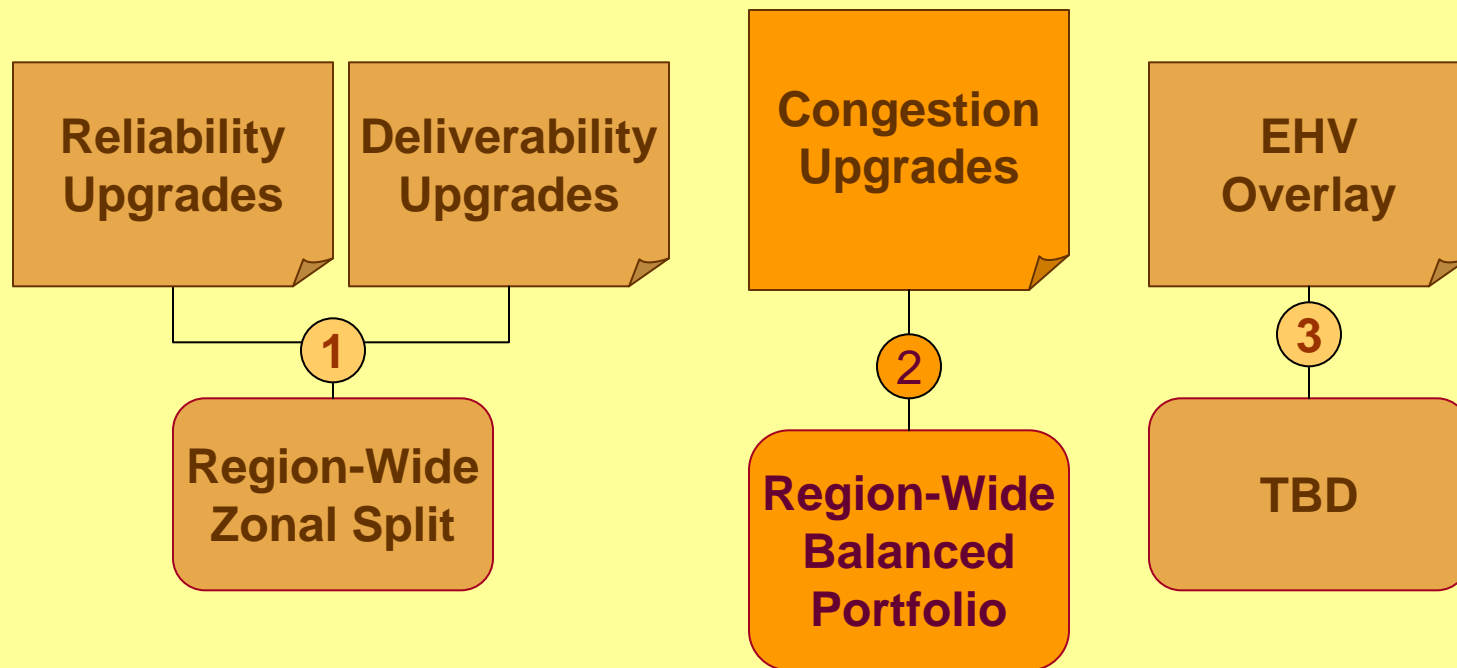
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SPP Cost Allocation Background

- SPP Regional State Committee (RSC) Board of Directors is comprised of Commissioners from state regulatory agencies in Arkansas, Kansas, Missouri, New Mexico, Oklahoma and Texas.
- RSC has the responsibility for developing cost allocations for transmission upgrades within the SPP
 - SPP is obligated to file at FERC any cost allocation proposals that are recommended by the RSC.
- RSC established the Cost Allocation Working Group with staff from each of the state commissions to work out the details for any cost allocation proposals
 - The CAWG holds monthly meetings open to all stakeholders
 - Michael Proctor (Missouri PSC) chairs the CAWG meetings

Categories of Transmission Upgrades & Cost Allocations



Developed in 4 Steps

- 1. Benefit Metrics**
- 2. Cost Allocation**
- 3. Balanced Portfolio Approach**
- 4. Transfer of Zonal Revenue Requirements**

1. Benefit Metrics

- Reviewed both Production Cost Savings and Savings from Reduced Load LMP
- Retail loads in SPP region of all the states are regulated

⇒ Adjusted production cost (APC) has its roots in state retail ratemaking, where

production expenses are determined as variable production costs plus purchase power costs less revenues from off-system sales.

Thus, APC savings translate to reduced rates for customers

⇒ APC savings are produced when transmission upgrades result in reduced congestion on the transmission system by allowing lower-cost generation trapped upstream from a transmission constraint to be substituted for higher-cost, downstream generation

Potential Metric Issues

- **Contract Dependent Wholesale Customers**
 - If long-term contracts are seen primarily as hedges against spot-market prices, then wholesale customers dependent on such contracts for power may not realize near-term benefits from savings in APC, unless such savings are flowed through their contracts.
 - Was a major issue in MISO, but did not appear to be an issue in SPP. Likely related more to retail access in MISO where there is a clear separation between generation and load.
- **Independent Power Producers**
 - If low-cost generation from an IPP generator w/o contracts to serve load is trapped in a zone, then relieving the congestion could result in higher costs to that zone.
 - Is a potential issue for wind generation in SPP when transmission to deliver wind power to load is not built and wind generation is trapped in supply zones.
 - Transmission upgrades to deliver wind generation is the primary focus of the EHV overlay proposals, not of the Balanced Portfolio.

Benefit to Cost Ratio

- **Benefits:**
 - APC savings are estimated over 10 year period, starting three years in the future
 - Upgrades are assumed to be completed on the same date
 - Reference case assumes all reliability/deliverability upgrades in place when planned or needed
- **Costs:**
 - Revenue Requirements using levelized fixed charge rate estimated over same 10 year period
- **Present Value of Benefits compared to Present Value of Costs.**
 - Balanced Portfolio must have a benefit to cost ratio greater than one (1.0) to be approved.

2. Cost Allocation

- **Allocating costs in proportion to benefits proved to be controversial among stakeholders**
 - Benefits from upgrades must be estimated for a given set of assumptions that were relevant for a relatively short period of time (10 years) compared to the life of the transmission assets (in the 30 to 40 year range).
 - Benefits from any upgrades implemented at a point in time would be changed by upgrades implemented at a later point in time.
- **It was determined that costs would likely be allocated on a region-wide basis through what is commonly called a “postage stamp” rate**
 - In order for this cost allocation to be fair to all load, the benefits to any load should exceed the resulting allocation of costs. This led to what is called a “Balanced Portfolio” approach.

3. Balanced Portfolio Approach

- **The next step was to determine whether to take a project-by-project or a portfolio approach**
 - a) **If transmission upgrades are evaluated on a project-by-project basis, any interaction among the projects would be missed, and the resulting measure of benefits would likely be incorrect.**
 - b) **Benefits from a single project would likely be cost-beneficial for certain pricing zones within the SPP and not cost-beneficial for other pricing zones.**
- **A portfolio approach would allow SPP to consider multiple projects with a goal of having the portfolio of projects be cost-beneficial for all pricing zones.**

From these considerations came the concept of developing a Balanced Portfolio of transmission upgrades.

Potential Balancing Issues

- If the robustness of the transmission system is fairly balanced throughout the SPP network, then developing a “Balanced Portfolio” of upgrades might be a feasible objective.

HOWEVER (“and there is always a however”)

- Without a history of regional transmission planning, individual transmission systems have been developed lacking a regional perspective.
- ⇒ **There is no reason to expect a balance across the various pricing zones within the SPP.**
- Thus, finding a portfolio of transmission upgrades that would prove to be cost-beneficial to all pricing zones when the costs are allocated on a region-wide basis may not be possible.

MAP OF SPP BALANCING AUTHORITIES

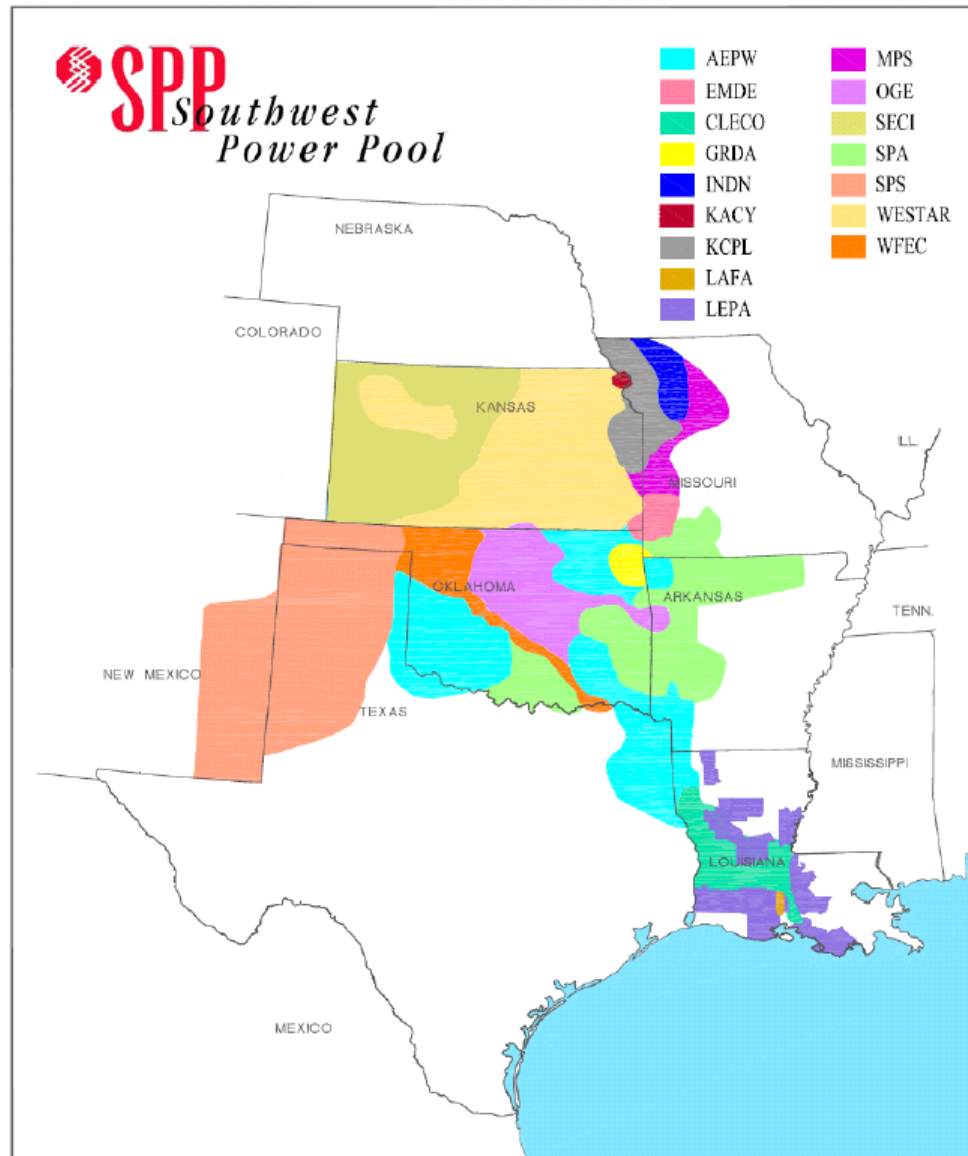


Figure III.6

AVERAGE MONTHLY PRICE BY BALANCING AUTHORITY

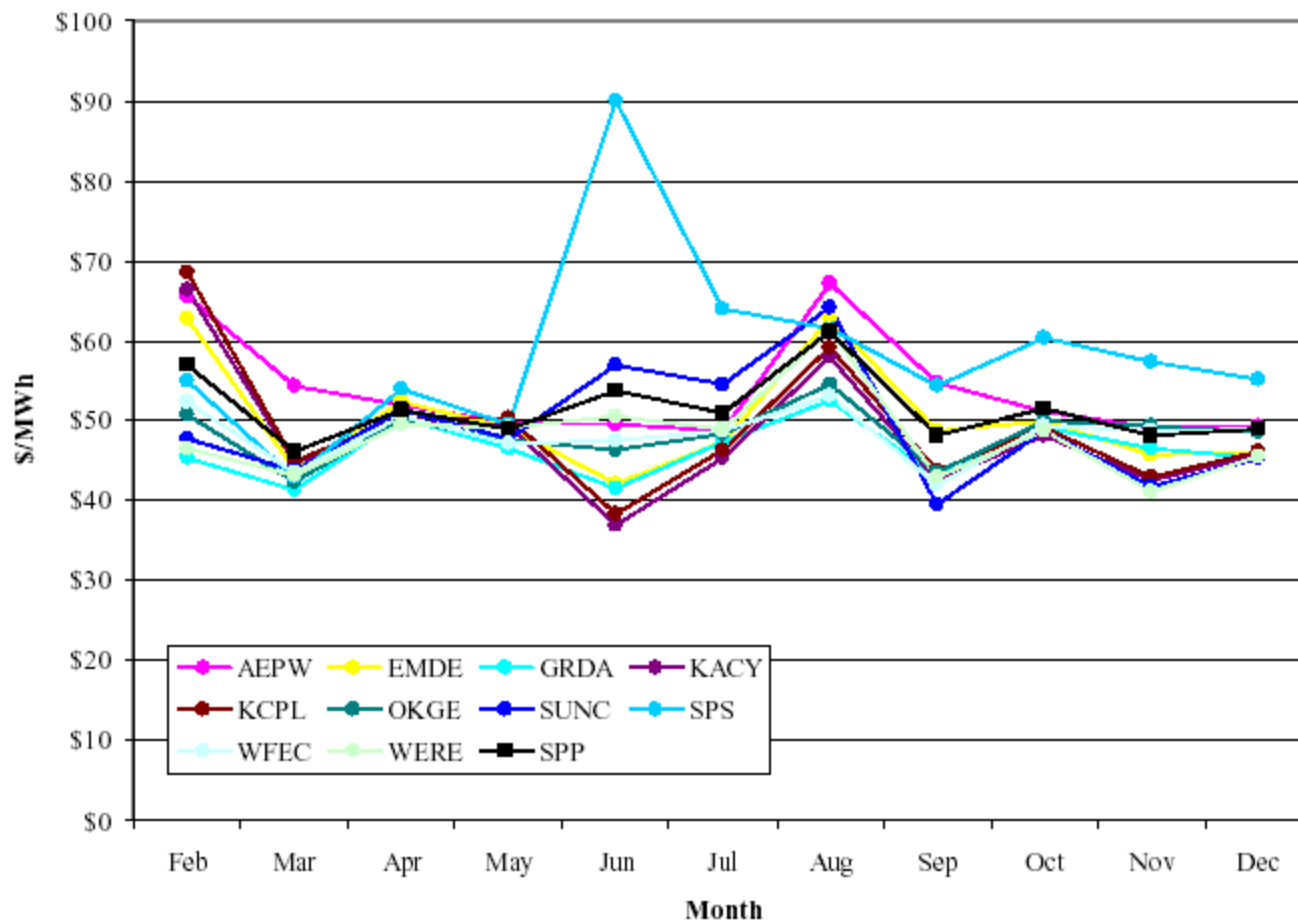


Figure III.7

**TRANSMISSION CONGESTION MAP
SUMMARY BY FLOWGATE**

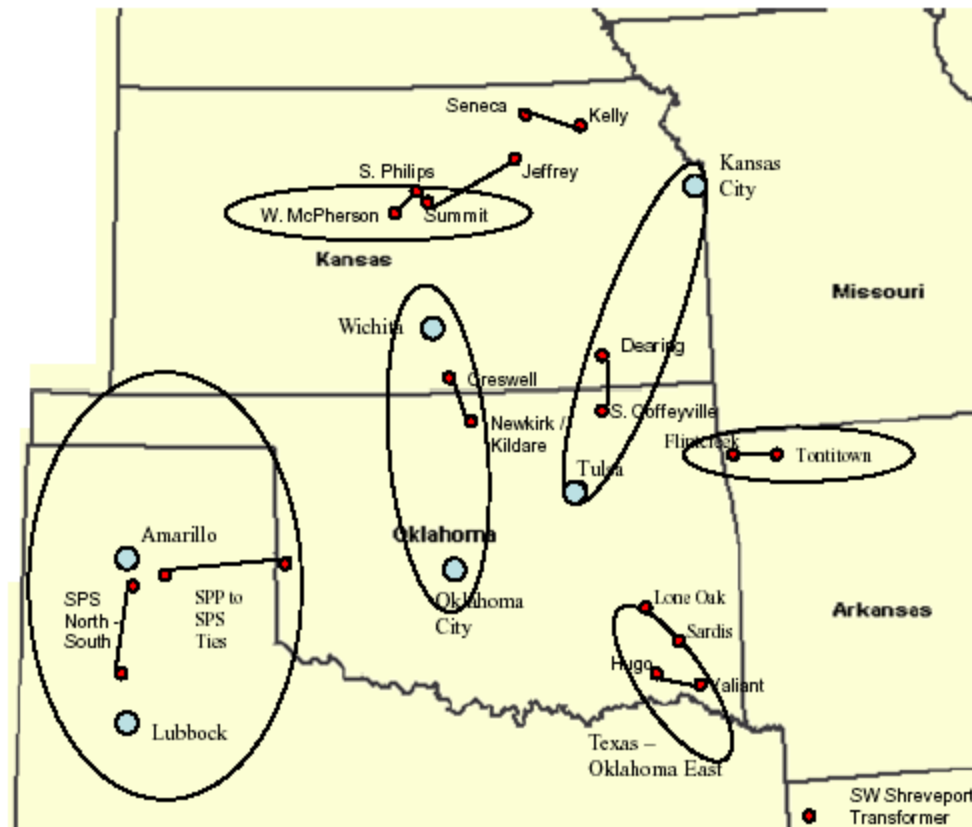
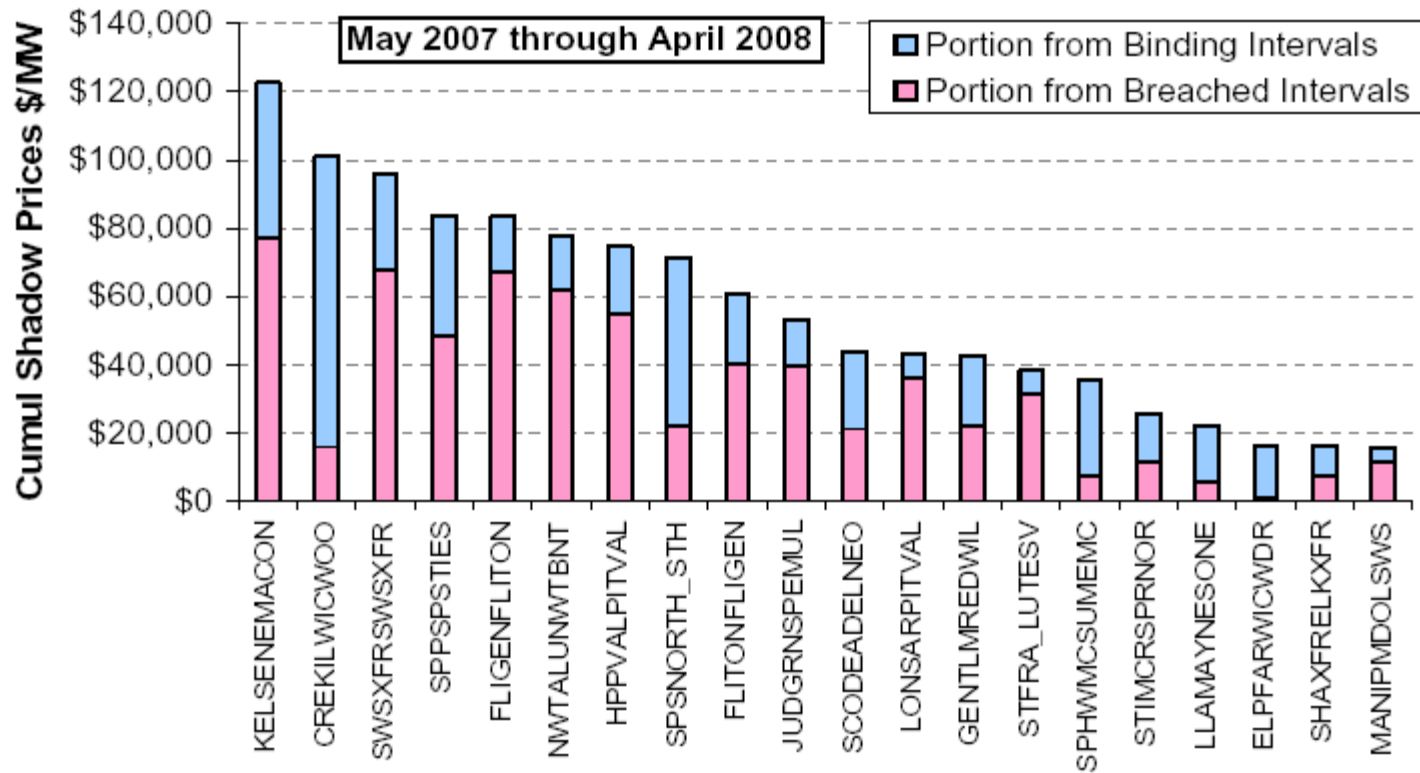


Figure A5

**Top 20 Flowgates by Cumulative Shadow Prices
Most Recent 12 Months of EIS Market**



Supplemental Report Summarizing EIS Market Flowgate Congestion; May 18, 2008; p.9

4. Transfer of Zonal Revenue Requirements

- **The transmission upgrades included in a Balanced Portfolio are for 345 kV and above projects.**
 - To help balance the portfolio, lower voltage upgrades can be included.
- **If this fails, then deficient zones (cost > benefits) are made whole by transferring revenue requirements from their zonal rate to the region-wide rate.**
 - Thus, what the load was formally paying 100% would now be shared by non-deficient zones, reducing rates to load in deficient zones (benefit) and raising rates in non-deficient zones (added cost).

Illustration

Results Before Transfers

Zone	Benefits	Costs	NB (B-C)	B/C	LRS
1	\$5,277	\$4,057	\$1,220	1.30	6.50%
2	\$19,030	\$13,959	\$5,071	1.36	22.38%
3	\$3,458	\$1,786	\$1,672	1.94	2.86%
4	\$2,372	\$2,243	\$129	1.06	3.60%
5	\$89	\$509	-\$420	0.17	0.82%
6	\$438	\$862	-\$424	0.51	1.38%
7	\$7,143	\$5,917	\$1,226	1.21	9.49%
8	-\$35	\$408	-\$443	-0.09	0.65%
9	\$2,436	\$3,003	-\$567	0.81	4.81%
10	\$33,609	\$9,351	\$24,258	3.59	14.99%
11	\$4,785	\$1,034	\$3,751	4.63	1.66%
12	\$563	\$1,303	-\$740	0.43	2.09%
13	-\$232	\$695	-\$927	-0.33	1.11%
14	\$41,919	\$6,023	\$35,896	6.96	9.66%
15	\$16,245	\$1,980	\$14,265	8.20	3.17%
16	\$726	\$940	-\$214	0.77	1.51%
17	\$12,649	\$8,309	\$4,340	1.52	13.32%
Total	\$150,472	\$62,379	\$88,093	2.41	100.00%

Results After Transfers

Zone	Benefits	Costs	PS	Transfers	NB	B/C
1	\$5,277	\$4,057	\$279	\$0	\$941	1.22
2	\$19,030	\$13,959	\$960	\$0	\$4,111	1.28
3	\$3,458	\$1,786	\$123	\$0	\$1,549	1.81
4	\$2,372	\$2,243	\$154	-\$25	\$0	1.00
5	\$89	\$509	\$35	-\$455	\$0	1.00
6	\$438	\$862	\$59	-\$483	\$0	1.00
7	\$7,143	\$5,917	\$407	\$0	\$819	1.13
8	-\$35	\$408	\$28	-\$471	\$0	1.00
9	\$2,436	\$3,003	\$207	-\$774	\$0	1.00
10	\$33,609	\$9,351	\$643	\$0	\$23,615	3.36
11	\$4,785	\$1,034	\$71	\$0	\$3,680	4.33
12	\$563	\$1,303	\$90	-\$830	\$0	1.00
13	-\$232	\$695	\$48	-\$975	\$0	1.00
14	\$41,919	\$6,023	\$414	\$0	\$35,481	6.51
15	\$16,245	\$1,980	\$136	\$0	\$14,129	7.68
16	\$726	\$940	\$65	-\$279	\$0	1.00
17	\$12,649	\$8,309	\$572	\$0	\$3,768	1.42
Total	\$150,472	\$62,379	\$4,292	-\$4,292	\$88,093	2.41
			100.00%	6.88%		

Benefits of Transfer Approach

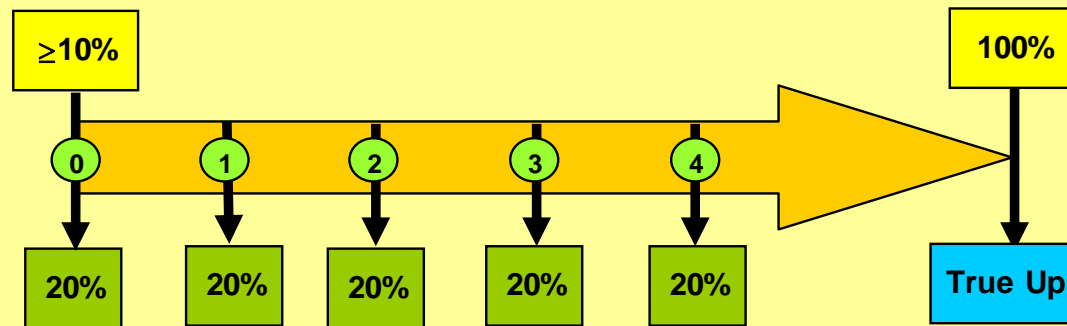
1. **Transfers of zonal revenue requirements (RR) gives credits to zones with more robust transmission systems by reducing their zonal charges.**
2. **Reducing zonal RR moves toward a region-wide rate rather toward a zonal rate that places upgrades costs into the zonal rate component on a “beneficiaries pay” basis.**
3. **“No Losers” approach reduces weight put on estimates of benefits compared to beneficiaries pay or equalizing zonal benefit to cost ratios.**
4. **Transfers of zonal RR provides a relative “easy” mechanism for treating zones with negative benefits.**

Some Tariff Details

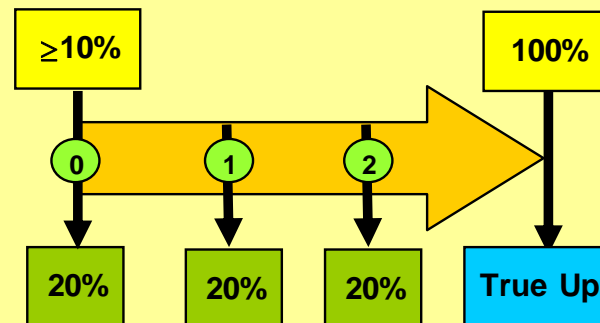
- 1. Implementation of Transfers**
- 2. Displacing or Deferring Other Upgrades**
- 3. Unintended Consequences**

1. Implementation of Transfers

100% in Rates after 4 year period



100% in Rates before 4 year period



2. Displacing or Deferring Other Upgrades

- **When a Balanced Portfolio displaces another upgrade, then the cost allocation for the displaced upgrade is treated as a benefit to those zones that no longer have to pay for the other upgrade.**
- **Cost savings for deferred upgrades are estimated and the cost allocation for the deferred upgrade is applied to the cost savings and treated as a benefit to those zones that incur these cost savings.**

3. Unintended Consequences

- **After a Balanced Portfolio is Approved:**
 - An upgrade in the portfolio is canceled;
 - Unanticipated decrease in benefits or increase in costs from the original estimates; and
 - A significant unanticipated change in the transmission system.
- **SPP shall review the status of an approved Balanced Portfolio for unintended consequences,**
 - SPP may recommend **RECONFIGURING** an approved Balanced Portfolio.
 - Such recommended reconfigurations would be subject to SPP Board approval.

Questions???