Southwest Power Pool’s Balanced Portfolio Approach to Cost Allocation for Economic Upgrades

RECB Assessment Workshop

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Background

- In the SPP RTO bylaws, the Regional State Committee (SPP RSC) was given the responsibility for developing cost allocations for transmission upgrades.
- In 2005, the RSC recommended a cost allocation for Reliability Upgrades and for Upgrades related to the Designation of New or Changed Generation Resources.
  - 1/3 Postage Stamp
  - 2/3 Beneficiary Zones (via positive MW-mile impacts)

Economic Upgrades

- Over the past two years, the Cost Allocation Working Group (CAWG) of the SPP RSC has worked with stakeholders to develop a cost allocation for Economic Upgrades.
- In January 2008, the RSC approved a concepts paper adopting the CAWG's recommendation of a "Balanced Portfolio" approach.

Balanced Portfolio Approach

The concepts behind a Balanced Portfolio approach were developed over a three stage process:

1. Determine the appropriate benefit metrics;
2. Set out a portfolio rather than project-by-project approach; and
3. Determine appropriate ways to balance the benefits of a portfolio with a region-wide allocation of the costs of the portfolio.

1. **Benefit Metrics**

- All of the state Commissions in the SPP set rates via regulated cost-of-service.
  - Missouri, Kansas, Oklahoma, Arkansas, Non-ERCOT portion of Texas, New Mexico and Louisiana
- Thus, generation is not separated from load, and this implies that Adjusted Production Cost is an appropriate measure for near-term benefits from transmission upgrades that reduce congestion.

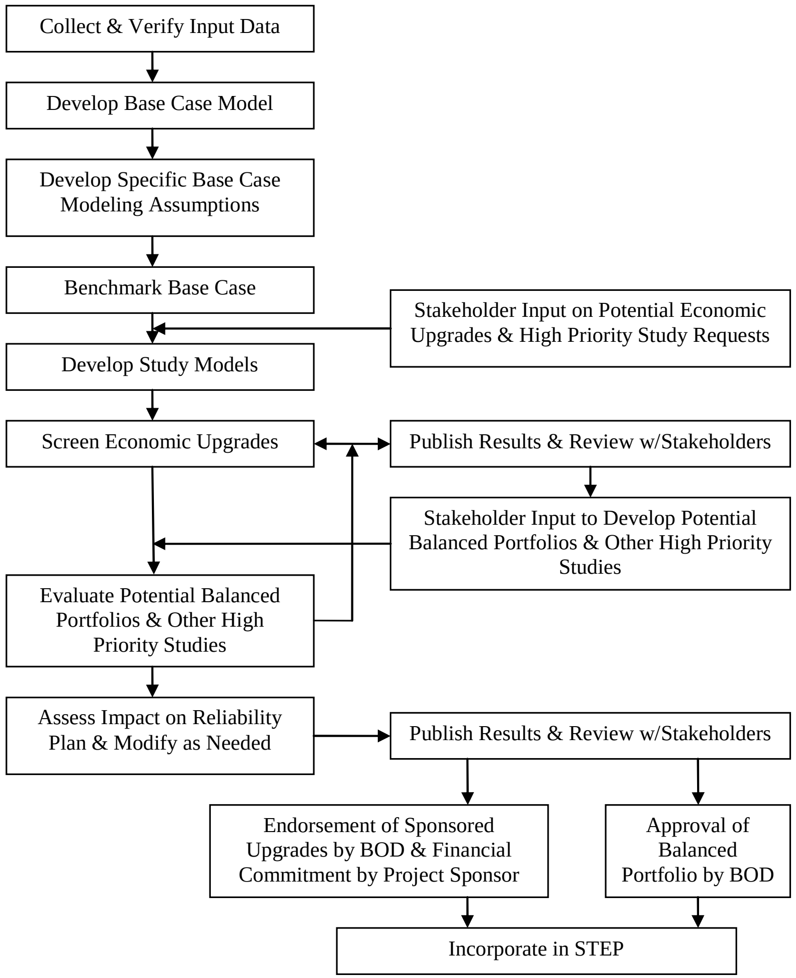
Adjusted PC = PC + Purchases - Sales

- The concepts paper also includes other benefit metrics that can be used as appropriate methods for measurement are developed.
  - Reduction in system losses;
  - Differing environmental impacts;
  - Improvement to capacity margin and operating reserve requirements;
  - Energy, capacity and ancillary service market facilitation;
  - Increased competition in wholesale markets;
  - Reliability enhancement, including storm hardening and black start capability;
  - Critical infrastructure and homeland security.

2. **Portfolio** vs. Project-By-Project

- A project-by-project approach was seen as potentially becoming divisive among the various states.
- Also, the near-term Adjusted PC metric for an approved project can change significantly when new projects are added.
- CAWG and stakeholders decided to circumvent these two difficult issues by taking a portfolio approach.
  - In this approach all projects within a portfolio are evaluated on a simultaneous basis over a 10 year period.
  - The SPP and its stakeholders will consider alternative portfolios.
    - Based on inputs from stakeholders and evaluation of existing congestion on the transmission system.
    - Fits well with the Order 890 approach requiring RTOs to evaluate high priority transmission upgrades.

Economic Assessment and Planning Study
Process Flow Chart



Note: SPP is not required to approve a Balanced Portfolio every year.

3. **Balanced** Portfolio

- A Balanced Portfolio is one in which the benefits for each SPP pricing zone exceed the **costs allocated to that zone via a Region Wide (postage stamp) rate**.
  - This is a “no losers” approach to balance, rather than attempting to equalize the benefit to cost ratio for all zones.
- Achieving balance is difficult because various zones are at different levels of transmission “robustness” relative to savings that can be achieved through reducing congestion via transmission upgrades.
  - Spreading around upgrades geographically will help, but may not achieve balance.
  - CAWG searched for other ways in which to achieve balance.

Voltage Restrictions

- To be included in the Portfolio an economic upgrade must include 345 kV or greater facilities
  - Lower voltage facilities may be included if needed to deliver benefits from higher voltage facilities.
  - CAWG recommended that an economic upgrade's cost of below 345 kV facilities should not exceed the cost of 345 kV and above facilities.
- However, this voltage restriction could be waived if lower voltage upgrade facilities are needed to help balance the portfolio.
  - Even with this addition, the recurring question was: "What to do if balance still cannot be achieved simply through adding upgrades?"

Transfers of Revenue Requirements from Zonal to Region-Wide Rate

- If the major cause of not being able to reach a balance is inequality across the footprint, then why not give zones that are more robust credit rather than penalizing them by forcing on them costs that exceed benefits?
- In order to achieve balance for deficient zones, where allocated costs exceed estimated benefits, stakeholders agreed to transfer revenue requirements currently collected from the zonal rate of deficient zones to be collected from the region-wide rate.
  - Transfers moves cost that are currently being collected 100% from deficient zones to be spread across all zones, resulting in an added benefits to deficient zones and a reduction in benefits to all other zones.

Thousands of dollars

Levelized Annual Revenues

Relatively Balanced Portfolio A

Results without Transfers

Zone	Benefits	Costs	NB (B-C)	B/C	LRS
1	$5,600	$4,100	$1,500	1.37	6.57%
2	$10,100	$14,000	-$3,900	0.72	22.44%
3	$3,600	$1,800	$1,800	2.00	2.88%
4	$2,400	$2,200	$200	1.09	3.53%
5	**-$100**	$500	-$600	-0.20	0.80%
6	$440	$900	-$460	0.49	1.44%
7	$7,100	$5,900	$1,200	1.20	9.46%
8	**-$200**	$400	-$600	-0.50	0.64%
9	$2,400	$3,000	-$600	0.80	4.81%
10	$14,000	$9,400	$4,600	1.49	15.06%
11	$2,400	$1,000	$1,400	2.40	1.60%
12	$700	$1,300	-$600	0.54	2.08%
13	$300	$700	-$400	0.43	1.12%
14	$11,800	$6,000	$5,800	1.97	9.62%
15	$1,700	$2,000	-$300	0.85	3.21%
16	$800	$900	-$100	0.89	1.44%
17	$12,600	$8,300	$4,300	1.52	13.30%
Total	**$75,640**	**$62,400**	**$13,240**	**1.21**	**100.00%**

Results with Transfers

Zone	Benefits	Costs	PS	Transfers	NB	B/C
1	$5,600	$4,100	$827	$0	$673	1.14
2	$10,100	$14,000	$2,823	-$6,723	$0	1.00
3	$3,600	$1,800	$363	$0	$1,437	1.66
4	**$2,400**	**$2,200**	**$444**	**-$244**	**$0**	**1.00**
5	-$100	$500	$101	-$701	$0	1.00
6	$440	$900	$181	-$641	$0	1.00
7	$7,100	$5,900	$1,190	$0	$10	1.00
8	-$200	$400	$81	-$681	$0	1.00
9	$2,400	$3,000	$605	-$1,205	$0	1.00
10	$14,000	$9,400	$1,895	$0	$2,705	1.24
11	$2,400	$1,000	$202	$0	$1,198	2.00
12	$700	$1,300	$262	-$862	$0	1.00
13	$300	$700	$141	-$541	$0	1.00
14	$11,800	$6,000	$1,210	$0	$4,590	1.64
15	$1,700	$2,000	$403	-$703	$0	1.00
16	$800	$900	$181	-$281	$0	1.00
17	$12,600	$8,300	$1,674	$0	$2,626	1.26
Total	**$75,640**	**$62,400**	**$12,583**	**-$12,583**	**$13,240**	**1.21**
			20.16%			

Thousands of dollars

Levelized Annual Revenues

Relatively Unbalanced Portfolio B

Results without Transfers

Zone	Benefits	Costs	NB (B-C)	B/C	LRS
1	$4,800	$6,000	-$1,200	0.80	6.40%
2	$17,000	$21,000	-$4,000	0.81	22.41%
3	$2,200	$2,700	-$500	0.81	2.88%
4	$3,000	$3,300	-$300	0.91	3.52%
5	**-$100**	$800	-$900	-0.13	0.85%
6	$700	$1,300	-$600	0.54	1.39%
7	$7,500	$8,900	-$1,400	0.84	9.50%
8	**-$200**	$600	-$800	-0.33	0.64%
9	$700	$4,500	-$3,800	0.16	4.80%
10	$23,000	$14,000	$9,000	1.64	14.94%
11	$3,300	$1,600	$1,700	2.06	1.71%
12	$1,700	$2,000	-$300	0.85	2.13%
13	$800	$1,000	-$200	0.80	1.07%
14	$42,900	$9,100	$33,800	4.71	9.71%
15	$23,000	$3,000	$20,000	7.67	3.20%
16	$1,300	$1,400	-$100	0.93	1.49%
17	$8,800	$12,500	-$3,700	0.70	13.34%
Total	**$140,400**	**$93,700**	**$46,700**	**1.50**	**100.00%**

Results with Transfers

Zone	Benefits	Costs	PS	Transfers	NB	B/C
1	$4,800	$6,000	$3,856	-$5,056	$0	1.00
2	$17,000	$21,000	$13,495	-$17,495	$0	1.00
3	$2,200	$2,700	$1,735	-$2,235	$0	1.00
4	$3,000	$3,300	$2,121	-$2,421	$0	1.00
5	-$100	$800	$514	-$1,414	$0	1.00
6	$700	$1,300	$835	-$1,435	$0	1.00
7	$7,500	$8,900	$5,719	-$7,119	$0	1.00
8	-$200	$600	$386	-$1,186	$0	1.00
9	$700	$4,500	$2,892	-$6,692	$0	1.00
10	**$23,000**	**$14,000**	**$8,996**	**$0**	**$4**	**1.00**
11	$3,300	$1,600	$1,028	$0	$672	1.26
12	$1,700	$2,000	$1,285	-$1,585	$0	1.00
13	$800	$1,000	$643	-$843	$0	1.00
14	$42,900	$9,100	$5,848	$0	$27,952	2.87
15	$23,000	$3,000	$1,928	$0	$18,072	4.67
16	$1,300	$1,400	$900	-$1,000	$0	1.00
17	$8,800	$12,500	$8,032	-$11,732	$0	1.00
Total	**$140,400**	**$93,700**	**$60,212**	**-$60,212**	**$46,700**	**1.50**
			64.26%			

Advantages of Transfer Approach

1. Simple Rate Design:
   - 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.
2. No Losers Approach:
   - Reduces weight put on estimates of benefits compared to beneficiaries pay or equalizing zonal benefit to cost ratios.
3. Credits:
   - Gives credits to zones with more robust transmission systems by reducing their zonal charges.

Implementation of Transfers

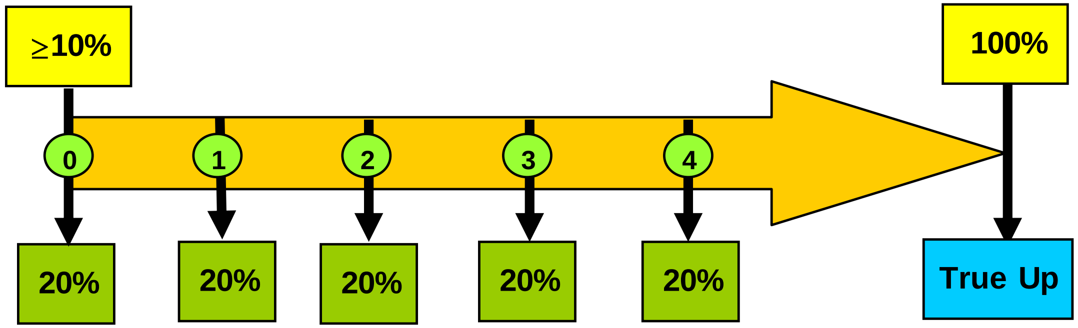
- Trigger Date:

  20% of the transfers take place at the date when 10% or greater of estimated annual revenue requirements from the upgrades go into SPP rates.

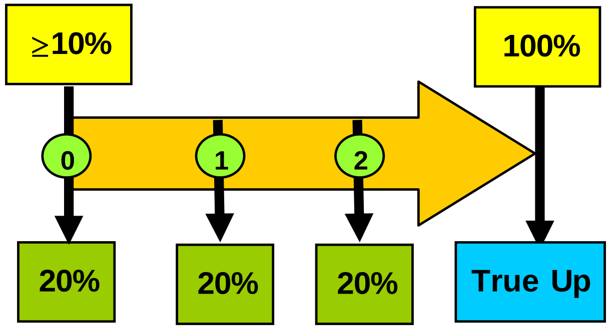
- Subsequent Transfers:
  - 20% per year over the next 4 years, unless
  - 100% of revenue requirements are in SPP rates prior to end of the 4 year period.
- True Up:
  - When 100% of revenue requirements are in SPP rates, the amount of transfers will be trued up to actual costs
  - Estimated benefits from the upgrades are not trued up

Two **Illustrations** of Implementation

100% in Rates after 4 year period



100% in Rates before 4 year period



Unintended Consequences

- SPP will review an approved Balanced Portfolio for unintended consequences that may result from:
  - Cancellation of an upgrade that is part of an approved Balanced Portfolio;
  - Significant unanticipated decreases in benefits or increases in the costs of upgrades that are part of an approved Balanced Portfolio; and
  - Significant unanticipated changes in the transmission system.
- Based on this review, an approved Balanced Portfolio may be reconfigured.