Comments on PSCo's SB-100 Filing

Jerry Vaninetti of Trans-Elect on behalf of the
Wyoming-Colorado Intertie

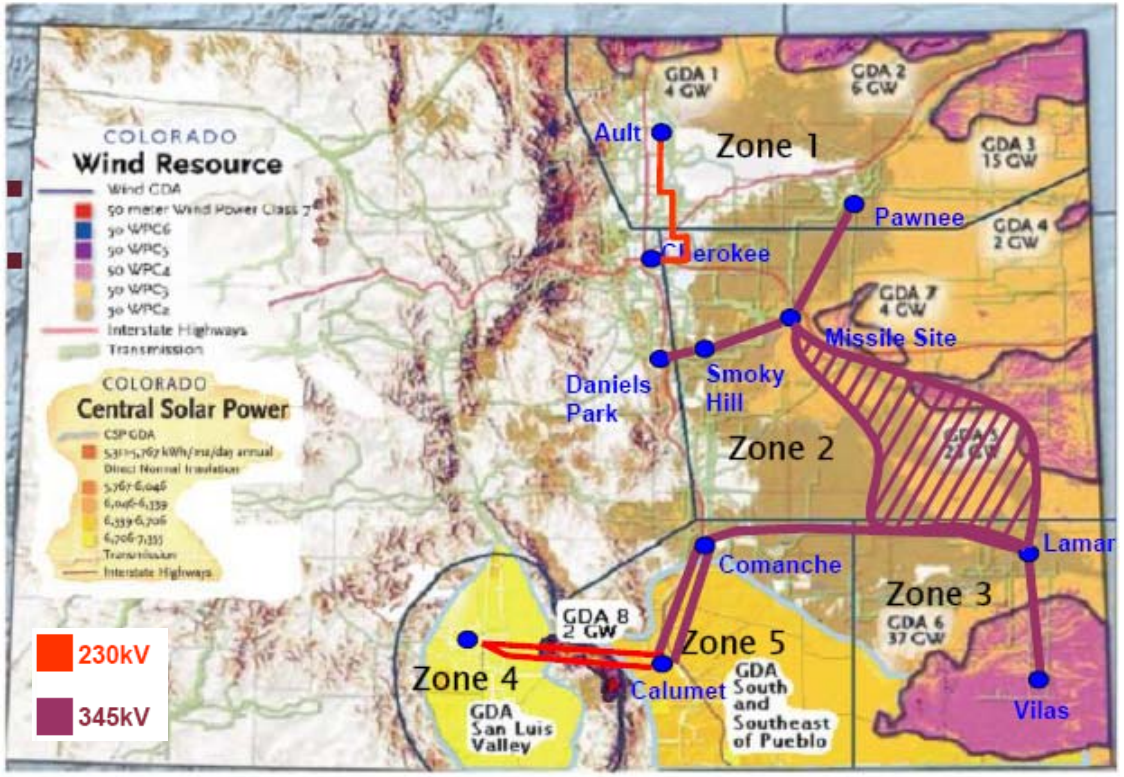
Colorado PUC
Denver, CO – January 12, 2009

The SB-100 Act

- Ensure adequacy of Colorado's electric transmission infrastructure
- Designation of Energy Resource Zones
- Plan transmission to deliver "beneficial energy resources"
- Expedited cost recovery for transmission construction
- Process to COD can range between 5-7 years

PSCo's 2008 SB-100 Plan

- Six transmission projects
- Access to all Zones
- $560 million for 2,200 – 3,600 MW of transmission capacity
- Ranking in three categories
  - Backbone
  - Bulk Transfer
  - Radial/Feeder Line
- Is this sufficient for decisions to be made?



Project	Description	Generation injection	Cost	Energy Zone	Priority
Pawnee – Daniels Park– 345 kV line	Second circuit 345 kV line in Energy zone 1.	300-500 MW	$65,000,000	1	Medium -1
Ault to Cherokee 230 kV	New mile 230kV line in energy Zone 1.	300-600 MW	$64,000,000	1	Medium -2
Missile Site	345/230 kV switching station on Pawnee to Daniel Park line in energy zone 2.	200-500 MW	$13,500,000	2	High-2
Lamar to Comanche 345 kV line and Lamar	New 345kV lines to access energy zone 3.	800-1000 MW	$240,000,000	3	High -3
Lamar to Vilas 345 kV line	New 345kV line in Energy Zone 3 to access wind rich area.		$27,000,000	3	Low
San Luis – Calumet – Comanche Line	Double circuit 230 kV line(SLV to Calumet) and double 345 kv line(Calumet to Comanche).	600-1000 MW	$150,000,000	4 and 5	High -1
Total			**$559,500,000**		

PSCo's 2008 SB-100 Filing

- We are largely supportive of the PSCo filing
  - PSCo has addressed both system and renewable delivery needs
  - PSCo's transmission planning is consistent with SB-100, SB-91, CCPG/CLRTP, and FERC Order 890 requirements
  - PSCo has provided extensive opportunity for stakeholder input, particularly renewable energy developers and advocates
  - PSCo has provided opportunities for partnering with utilities not subject to SB-100 to achieve economies of scale
  - PSCo's SB-100 filing is consistent with regional long-term transmission expansion plans (HPX) and CLRTP
  - PSCo has provided preliminary rankings but has asked for PUC guidance on prioritizing projects
- Concern
  - How can transmission projects be prioritized without having considered resource and delivery costs?
    - Building to the wrong locations or too many locations

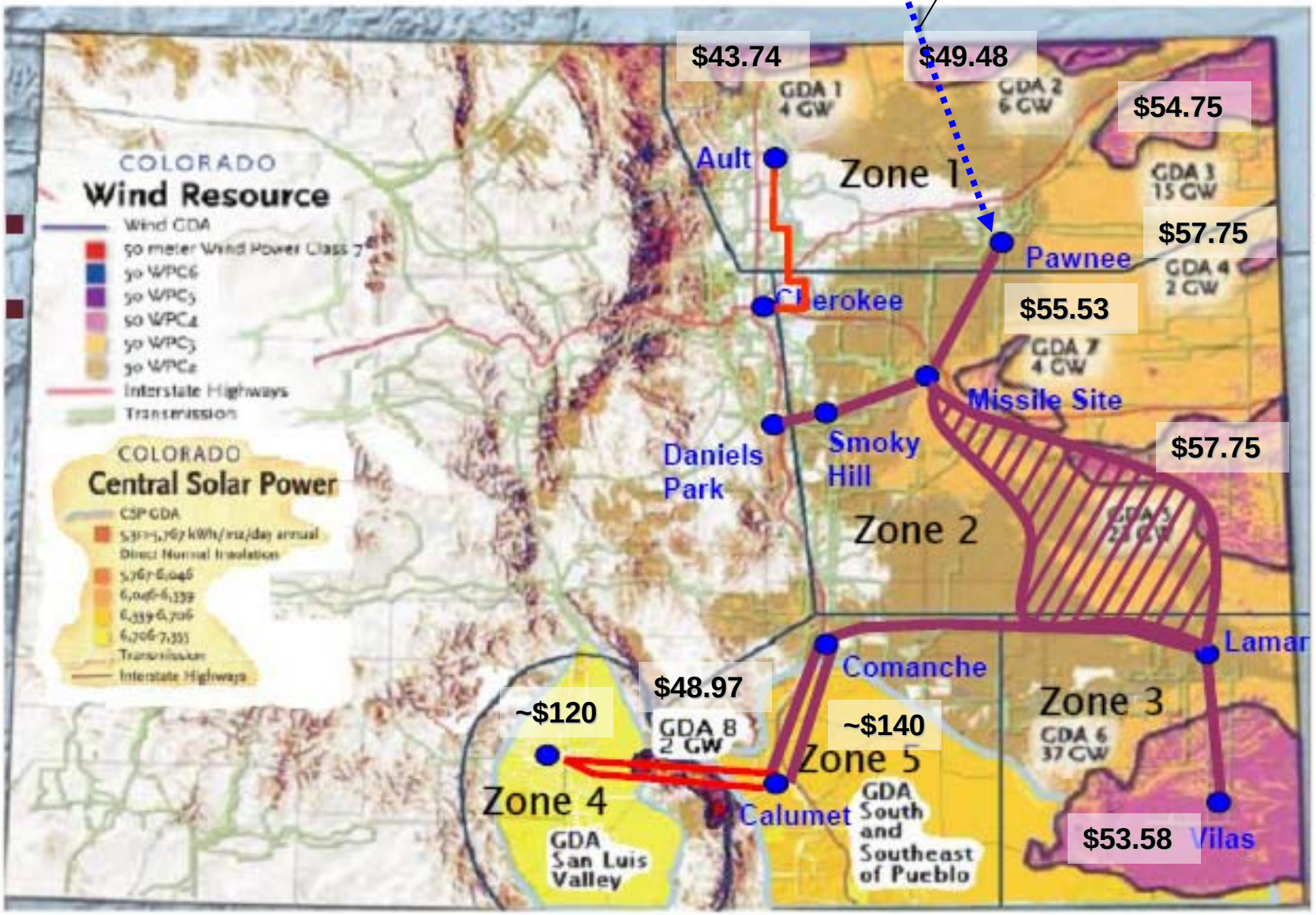
Wind Resource Costs Vary By Location

(Source: NREL from SB-91 Report)

Wind class	Primary location	Capacity factor	Cost per MWh
Class 7	Wyoming border, west of Pueblo	49.6%	$33-$39
Class 6		43.6%	$38-$45
Class 5		39.8%	$42-$49
Class 4	eastern Colorado	33.8%	$51-$59
Fossil Fuel Benchmark ($6/mmBtu natural gas price ¥ 9 mmBtu/MWh heat rate + 5% O&M adder)			$57

$/MWh for Best 1,000 MW within each GDA

(Source: NREL from SB-91 Report)



Note: Costs adjusted for PTC & ITC

Illustrative Delivered Cost Estimates

From PSCo SB-100 Presentation

Project	Generation injection	Cost	Energy Zone	Priority	Trans Cost $/MW	Renewable Resource	Estimated $/MWh Cost: Transmission (1)	Generation (2)	Other (3)
Pawnee – Daniels Park– 345 kV line	300-500 MW	$65,000,000	1	Medium -1	$162,500	CO-WIND	$7-$8	$43-$55	$5-$10??
					$162,500	WY-WIND	$16-$17	$36	$5-$10??
Ault to Cherokee 230 kV	300-600 MW	$64,000,000	1	Medium -2	$142,222	CO-WIND	$6-$7	$44	$5-$10??
Missile Site Substation	200-500 MW	$13,500,000	2	High-2	$38,571	CO-WIND	$2	$55-$58	$5-$10??
Lamar to Comanche 345 kV line and Lamar	800-1000 MW	$240,000,000	3	High -3	$266,667	CO-WIND	$13-$14	$54-$58	$5-$10??
Lamar to Vilas 345 kV line	~750MW ?	$27,000,000	3	Low	$30,000	CO-WIND	$14-$15	$54	$5-$10??
San Luis – Calumet – Comanche Line	600-1000 MW	$150,000,000	4 and 5	High -1	$187,500	CO-WIND	$8-$9	$49	$5-$10??
					$187,500	SOLAR	$8	$120	$5-$10??

(1) Estimated trunk line costs inclusive of SB-100 costs
(2) NREL estimates used in SB-91 (recently superseded with new information)
(3) Costs of generator leads, interconnections, integration, geographic diversity, time-of-day value, etc.

Conclusions & Recommendations

- PSCo's SB-100 filing is a good starting point for selecting transmission projects to deliver beneficial resources
  - It is insufficient for prioritizing and selecting projects
- Additional Issues for the PUC's consideration
  - Prioritization and selection of projects
  - Definition of "beneficial energy resources" – economics?
  - Role of resource and delivery costs to