

STEP Budget DSM Amortization and Accounting Gadsby Curtailment Plan October 3, 2016



Rocky Mountain Power Utah Sustainable Transportation and Energy Program (STEP)

STEP Budget

DSM Amortization and Accounting



STEP Pilot Programs Budget

							Annual
	2017	2018	2019	2020	2021	Total	Average
EV Charging Infrastructure	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$10,000,000	\$2,000,000
Clean Coal Technologies							
Woody Waste Co-Fire	\$612,841	\$177,032				\$789,873	
Emerging CO2 Capture	\$381,557	\$668,301	\$125,000			\$1,174,857	
Sequestration Site Characterization - Phase 1	\$150,000					\$150,000	
CO2 Enhanced Coal Bed Methane Recovery		\$62,500	\$75,000	\$62,500	\$75,000	\$275,000	
Solar Thermal Assessment			\$65,083	\$83,083	\$38,833	\$187,000	
NOX Neural Net Implementation	\$547,806	\$178,924	\$216,719	\$32,000	\$32,000	\$1,007,449	
Advanced NOX Control	\$100,000	\$320,411	\$775,000	\$220,411		\$1,415,821	
Subtotal Clean Coal Technologies	\$1,792,204	\$1,407,167	\$1,256,802	\$397,994	\$145,833	\$5,000,000	\$1,000,000
Innovative Utility Programs							
Battery Storage - Solar	\$500,000	\$2,350,000		\$2,200,000		\$5,050,000	
Substation Metering	\$500,000	\$350,000	\$250,000			\$1,100,000	
Gadsby Emissions Curtailment	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$500,000	
Line Extension	\$1,000,000	\$1,000,000	\$500,000			\$2,500,000	
Other Innovative Technology			\$2,000,000	\$3,500,000	\$2,350,000	\$7,850,000	
Subtotal Innovative Utility Programs	\$2,100,000	\$3,800,000	\$2,850,000	\$5,800,000	\$2,450,000	\$17,000,000	\$3,400,000
USIP	\$2,584,112	\$2,584,112	\$2,584,112	\$2,584,112	\$2,584,112	\$12,920,558	\$2,584,112
Conservation, Efficiency and Other New Technology Programs ^(a)	\$1,015,888	\$1,015,888	\$1,015,888	\$1,015,888	\$1,015,888	\$5,079,442	\$1,015,888
Five Years Projected STEP Fund Use	\$9,492,204	\$10,807,167	\$9,706,802	\$11,797,994	\$8,195,833	\$50,000,000	\$10,000,000



DSM vs. STEP Pilot Programs



Current Utah DSM Balancing Account



- Differences between DSM surcharge collections and program costs are tracked in a DSM balancing account
- Objective of surcharge rate adjustments is to manage the DSM balancing account to zero
- A rate review process adjusts surcharge rates by considering planned DSM costs, expected retail sales volumes, and balancing account position



Key DSM Language - Utah Senate Bill 115

419	(ii) amortize the annual cost for demand side management over a period of 10 years;	439	(ii) establish and fund, via the additional expense described in Subsection (5)(a)(i), a
420	(iii) apply a carrying charge to the unamortized balance that is equal to the large-scale	440	regulatory liability; and
421	electric utility's pretax weighted average cost of capital approved by the commission in the	441	(iii) use the regulatory liability described in Subsection (5)(a)(ii) to depreciate thermal
		442	generation plant.
422	large-scale electric utility's most recent general rate proceeding; and	443	(b) (i) The commission may authorize the large-scale electric utility to use the
423	(iv) recover the amortization cost described in Subsection (2)(b)(ii) and the carrying	444	regulatory liability described in Subsection (5)(a)(ii) to depreciate thermal generation plant for
424	charge described in Subsection (2)(b)(iii) in customer rates.	445	which the commission determines depreciation is in the public interest for compliance with an
425	(3) The commission shall, before January 1, 2017, authorize a large-scale electric	446	environmental regulation or another purpose.
426	utility to implement a combined line item charge on the large-scale electric utility's customers'	447	(ii) The commission may not consider the existence of the regulatory liability described
427	hills to recover the cost to the large-scale electric utility of	448	in Subsection (5)(a)(ii) in a determination to accelerate depreciation under Subsection (5)(b)(i).
128	(a) demand side management, including the cost of amortizing a deferred balance:	449	(c) The commission shall allow the large-scale electric utility to apply a carrying
120	(b) the sustainable transportation and energy plan; and	450) charge to the regulatory liability described in Subsection (5)(a)(ii) in an amount equal to the
420	(c) the additional expense described in Subsection (5)(a)(i)	450	are scale electric utility's pretay average weighted cost of capital approved by the
430	(4) On December 04, 0040, the commission shall and the little color incentive measurem	451	commission in the large scale electric utility's most recent general rate proceeding
431	(4) On December 31, 2016, the commission shall end the Otan solar incentive program	452	(d) The commission may allow a large-scale electric utility to use the regulatory
432	and surcharge tariff and the large-scale electric utility shall stop accepting new applications for	450	liability carrying charge described in Subsection (5)(c) to offset the carrying charge described
433	solar incentive program incentives.	454	induity carrying charge described in Subsection (3)(c) to onset the carrying charge described
434	(5) (a) The commission may authorize a large-scale electric utility that capitalizes	400	(a) The large scale electric utility shall emply the corrying shares described in
435	demand side management costs under Subsection (2)(b) to:	400	(e) The large-scale electric utility shall apply the carrying charge described in
436	(i) recognize the difference between the annual revenues the large-scale electric utility	457	Subsection (5)(c) to runos that a large-scale electric utility is authorized to use to depreciate the method of the large scale electric
437	collects for demand side management and the annual amount of the large-scale electric utility's	450	triefmal generation plant under Subsection (5)(a) until the reduction in the large-scale electric utility's rate base associated with the thermal generation plant depresistion for which the funde
438	demand side management cost amortization expense as an additional expense.	459	unity's rate base associated with the thermal generation plant depreciation for which the funds
400		460	are used is renected in the large-scale electric dulity's customers rates.





*For simplicity, illustration assumes levelized spend and collection/spend parity over the 10 year period



DSM Deferral Illustration 2



*For simplicity, illustration assumes levelized spend and collection/spend parity over the 10 year period



DSM Deferral Balance Scenarios





DSM Deferral Entries Example – Year 1

- Year 1 assume program spend and surcharge collections are equal at \$70m (prior year programs costs: 2013-\$49m, 2014-\$84m, 2015-\$63m).
- Regulatory asset and liability carrying charges partially or fully offset depending on relative balances (bill lines 453-455).
- Regulatory asset and liability use the same carrying charge rate, defined as the (pre-tax weighted average cost of capital, bill lines 420-422, 449-455).
- Carrying charge is calculated by applying rate to prior-period ending balance and to averaged current period activity.
- DSM journal entries presented below are annual for illustrative purposes. Actual entries will occur monthly.

	DS	М	DS	M	DSM Re	g Asset			DS	SM	Inte	rest
<u>Year 1</u>	Reg A	sset	Reve	enue	Amo	rt Exp	Ca	sh	Reg	Liab	Exp/	(Inc)
1 Beginning Balance-Year 1	-			-	-					-		
2 DSM program costs incurred	70,000							70,000				
DSM surcharge collections				70.000			70 000					
(example assumes 4% rate)				70,000			70,000					
DSM amortization expense		7 000			7 000							
⁴ (\$70m/10 years, bill line 419)		7,000			7,000							
Move funds for future accelerated												
5 depreciation to reg liab			63,000							63,000		
(bill line 436-438)												
6 Carrying charge ^a										-	-	
7 Ending Balance-Year 1	63,000			7,000	7,000		-			63,000	-	

Footnotes

^a since regulatory asset and regulatory balances are equal, carrying charges fully offset and no entry is made

- Amounts are not intended to be precise, but are for illustrative purposes



DSM Deferral Entries Example – Year 2

• Year 2 - assume program spend less than surcharge collections

	DS	Μ	DS	SM	DSM Re	g Asset			DS	M	Inte	rest
Year 2	Reg Asset		Revenue		Amort Exp		Cash		Reg	Liab	Exp/	(Inc)
1 Beginning Balance-Year 2	63,000						-			63,000		
2 DSM program costs incurred	70,000							70,000				
3 DSM surcharge collections				71,000			71,000					
DSM amortization expense (current		14 000			14 000							
⁴ year plus cumulative prior)		14,000			14,000							
_ Move funds for future accelerated			57 000							57.000		
depreciation to reg liab			37,000							37,000		
6 Carrying charge										49	49	
7 Ending Balance-Year 2	119,000			14,000	14,000		1,000			120,049	49	



DSM Deferral Entries Example – Year 3

• Year 3 - assume program spend is greater than surcharge collections

	DS	Μ	DS	SM .	DSM Re	g Asset			DS	M	Inte	rest
Year 3	Reg A	sset	Revenue		Amort Exp		Cash		Reg	Liab	Exp/	(Inc)
1 Beginning Balance-Year 3	119,000						1,000			120,049		
2 DSM program costs incurred	71,000							71,000				
3 DSM surcharge collections				70,000			70,000					
4 DSM amortization expense (current year plus cumulative prior)		21,100			21,100							
5 Move funds for future accelerated depreciation to reg liab			48,900							48,900		
6 Carrying charge										54	54	
7 Ending Balance-Year 3	168,900			21,100	21,100		-			169,002	54	



Assumptions

- A plant or unit is designated for early closure in 5 years.
- Early closure requires \$60m of accelerated depreciation regulatory liability funds over a period of 5 years (remaining time to new closure date).
- Annual accelerated depreciation expense requirement is \$12m (\$60m/5 years).
- Carrying charge is still applied to regulatory liability funds used to accelerate thermal plant depreciation until a rate base reduction associated with the accelerated depreciation is reflected in customers' rates (bill lines 456-460).

	DSM				DSM	DSM	Interest
	Reg Asset	Accel Depr Exp	Revenue	Accum Depr	Reg Liab	Reg Liab Contra	Exp/(Inc)
Year 1 accelerated depreciation		12 000	12 000	12 000		12 000	
¹ from early closure decision		12,000	12,000	12,000		12,000	
Carrying charge calc (assumes reg							
2 asset & reg liab balances are equal,	-						-
contra value is excluded)							

- 3 years after early closure decision a rate review occurs and an accelerated depreciation reduction to rate base of \$36m (\$12m/year X 3 years) is now reflected in customers' rates.
- Assume regulatory asset and regulatory liability beginning balances are \$250m.
- Difference between regulatory asset and regulatory liability results in annual carrying charge of \$3.5m.

	DS	M							D	SM	DS	M	Inte	rest
	Reg A	sset	Accel De	epr Exp	Reve	enue	Accum	n Depr	Reg	Liab	Reg Liab	Contra	Exp/	(Inc)
1 Beginning balances	250,000							36,000		250,000	36,000			
2 Move contra balance to reg liab									36,000			36,000		
3 Carrying charge calc	3,510													3,510
4 Ending balances	251,755		-			-		36,000		214,000		-		1,755



Early Thermal Plant/Unit Closure-Example 2

Assumptions

- A plant or unit is designated for early closure with closure to occur immediately.
- Early closure requires entire \$60m of accelerated depreciation to be recognized in month of closure.
- Carrying charge is still applied to regulatory liability funds used to accelerate thermal plant depreciation until a rate base reduction associated with the accelerated depreciation is reflected in customers' rates.

DSM								DS	M	DSM		Inte	rest
	Reg As	sset Accel	Accel Depr Exp		Revenue		Accum Depr		Liab	Reg Liab	o Contra	Exp/	(Inc)
Accelerated depreciation		60.00	n		60.000		60.000			60.000			
¹ recognized month of closure		00,00	0		00,000		00,000			00,000			
Carrying charge calc (assumes reg													
2 asset & reg liab balances are equal,	-												-
contra balance excluded)													

- 3 years after early closure decision a rate review occurs and an accelerated depreciation reduction to rate base of \$60m is now reflected in customers' rates.
- Assume regulatory asset and regulatory liability balances are now \$250m.
- Difference between regulatory asset and regulatory liability results in annual carrying charge of \$5.9m (rate equal to pretax WACC).

	DS	M							D	SM	DS	M	Inte	rest
	Reg A	Asset	Accel De	epr Exp	Reve	enue	Accum	n Depr	Reg	Liab	Reg Liab	Contra	Exp/	(Inc)
1 Beginning balances	250,000							60,000		250,000	60,000			
2 Move contra balance to reg liab									60,000			60,000		
3 Carrying charge calc	5,850													5,850
4 Ending balances	255,850		-			-		60,000		190,000		-		5,850



 Balancing account includes STEP Pilot programs and Utah Solar Incentive Program ("USIP")(bill lines 485-488)

485	(7) A large-scale electric utility shall establish a balancing account that includes:
486	(a) funds allocated under Subsection (6)(a)(i);
487	(b) the program expenditures described in Subsection (6)(b);
488	(c) the unrecovered Utah solar incentive program costs described in Subsection (6)(c);

• Carrying charge amount to be determined by the commission (bill line 490)

490 (d) a carrying charge in an amount determined by the commission.

- Accounting treatment is determined by the nature of the individual STEP pilot programs and fits into one of three categories:
 - Standard program expenses
 - Capital projects
 - Gadsby curtailment
- For simplicity example entries for each of these three categories are presented in isolation



STEP Pilot Programs – USIP Standard Program Expenses

- At the end of 2016 USIP applications will close and any remaining USIP balance will carry over into the 2017 beginning balance of the combined USIP/STEP Pilot regulatory balance account
- Payouts will continue in 2017 forward as projects complete for participants approved before the end of 2016
- When all USIP payouts are complete, any unused balance would be available for cost effective programs or to reduce the DSM regulatory asset.

	STEP	STEP Pilot Reg Asset		Pilot STEP Re Revenue Amor		STEP Reg Asset <u>Amort Exp</u> <u>Cash</u>		Inte	rest	
	Reg							sh	Exp/	(Inc)
1 Pilot Beginning Balance		9,700					9,700			
2 USIP program payouts	5,000							5,000		
3 STEP Pilot surcharge collections				2,600			2,600			
4 STEP Pilot amortization expense		5,000			5,000					
⁵ Revenue adjustment (due to overcollected balance)	2,400			2,400						
6 Carrying charge (assumes 4.45%)		378							378	
7 STEP Pilot Ending Balance		7,678		5,000	5,000		7,300		378	

Footnotes

Amounts are not intended to be precise, but are for illustrative purposes



STEP Pilot Programs – Other Standard Program Expenses

	STEP	STEP Pilot		Pilot		STEP Reg Asset			Inte	rest
	Reg	Asset	et Rever		Amor	Amort Exp		Cash		(Inc)
STEP Pilot program costs incurred 1 (Expense: EV, Clean Coal, etc)	5,000							5,000		
2 STEP Pilot surcharge collections				5,200			5,200			
3 STEP Pilot amortization expense		5,000			5,000					
A Revenue adjustment (due to overcollected balance)		200	200							
5 Carrying charge (assumes 4.45%)		4							4	
6 STEP Pilot Ending Balance		204		5,000	5,000		200		4	



- When customer collections are used to fund capital expenditures, funds will be recorded as Contributions In Aid of Construction ("CIAC").
- CIAC treatment ensures customer-funded assets are not included in rate base for revenue requirement purposes.

	STEP	Pilot			STEP	Pilot			Inte	erest
	Reg	Asset	Capital	Assets	Reve	enue	Ca	sh	Exp/	(Inc)
STEP Pilot capital costs incurred (line ext, innovative tech, etc)			2,000					2,000		
2 STEP Pilot surcharge collections						1,900	1,900			
 3 Application of CIAC for STEP capital 4 Revenue adjustment 4 (no expense/revenue for STEP capital) 	2,000	1,900		2,000	1,900					
5 Carrying charge	2									2
6 STEP Pilot Ending Balance	102		-			-		100		2



- This scenario would occur if the system dispatch model prescribed that Gadsby units 1, 2, or 3 run during a time identified by the Utah Division of Air Quality as a non-attainment event.
- If this event were to occur, Gadsby would be curtailed and system net power costs would increase by the incremental difference of a market purchase.
- STEP funds would then be used to reduce net power costs by the amount of the increase attributed to the Gadsby curtailment event.

	STEP	Pilot	Net P	ower	STEP	Pilot			Inte	rest
	Reg Asset		Costs		Revenue		Cash		Exp/(Inc)	
1 STEP Pilot Gadsby curtailment occurs			200					200		
2 STEP Pilot surcharge collections						250	250			
3 System Net Power Costs adjustment	200			200						
<pre>Revenue adjustment 4 (no STEP expense/revenue for curtailment)</pre>		250			250					
5 Carrying charge		1							1	
6 STEP Pilot Ending Balance		51	-			-	50		1	



Rocky Mountain Power Utah Sustainable Transportation and Energy Program (STEP)

Gadsby Curtailment Program



What is Particulate Matter





UT DAQ PM 2.5 SIP

28 major sources in non-attainment area

Typical Winter Inversion Weekday		2010_(R2)				2015_(R9)						
Emissions (tpd)			Baseline				Growth & Control					
Source												
Category	NA-Area	Site	PM2.5	NOX	VOC	NH3	SO2	PM2_5	NOX	VOC	NH3	SO2
Point Sources	Salt Lake City, UT											
		ATK Thiokol Promontory	0.135	0.360	0.141	0.002	0.042	0.144	0.354	0.150	0.003	0.045
		Bountiful City Power	0.174	0.697	1.284	0.311	1.065	0.087	0.624	1.264	0.311	0.392
		Central Valley Water	0.000	0.005	0.001		0.000	0.082	0.209	0.049		0.002
Î		CER Generation II LLC - WVC	0.004	0.034	0.137	0.000	0.003	0.004	0.043	0.033	0.000	0.003
		Chemical Lime Company	0.015	0.039	0.005		0.002	0.015	0.039	0.005		0.002
		Chevron Refinery	0.036	0.043	0.001	0.000	0.034	0.008	0.058	0.002	0.000	0.044
		Flying J Refinery	0.501	2.991	0.663	0.026	1.774	0.105	1.950	1.234	0.022	1.092
		Geneva Rock Point of Mountain	0.069	0.269	0.050		0.037	0.084	0.323	0.060		0.026
		Great Salt Lake Minerals - Production Plant	0.132	0.249	0.023	0.002	0.018	0.107	0.304	0.061	0.003	0.026
		Hexcel Corporation Salt Lake Operations	0.048	0.217	0.180	0.079	0.024	0.103	0.102	0.111	0.129	0.009
		Hill Air Force Base Main	0.037	0.525	0.826	0.006	0.008	0.035	0.373	0.800	0.006	0.008
		Holly Refining Marketing	0.147	0.851	0.663	0.057	1.318	0.134	0.933	0.700	0.654	0.309
		Interstate Brick Brick	0.175	0.114	0.010		0.036					
		Kennecott Mine Concentrator	0.647	8.492	0.504	0.003	0.008	0.854	12.130	0.651	0.004	0.014
		Kennecott NC-UPP-Lab-Tailings	0.014	0.016	0.005	0.001	0.000	0.300	0.197	0.069	0.001	0.034
		Kennecott Smelter & Refinery	0.610	0.470	0.027	0.016	3.023	0.837	0.767	0.068	0.025	3.827
		Murray City Power	0.000	0.001	0.000		0.000					
		Nucor Steel	0.158	0.502	0.202	0.006	0.118	0.351	0.978	0.353	0.004	0.833
		Olympia Sales Co.	0.014	0.001	0.072	0.000	0.000	0.000	0.001	0.091	0.000	0.000
		Pacificorp Gadsby	0.067	0.443	0.031	0.065	0.006	0.067	0.437	0.031	0.065	0.006
		Pacificorp Little Mountain	0.021	1.014	0.007		0.011					
		Proctor & Gamble Paper Products Co.	0.099	0.043	0.067		0.003	0.575	0.674	0.654		0.007
		Silver Eagle Refining	0.011	0.246	0.359	0.012	0.003					
		Tesoro Refinery	0.710	1.162	0.806	0.011	2.808	0.272	1.297	1.005	0.010	0.819
		University of Utah	0.024	0.313	0.023	0.009	0.003	0.030	0.159	0.022	0.008	0.003
		Utility Trailer	0.002	0.117	0.215		0.001					
		Vulcraft	0.017	0.020	0.147	0.000	0.001	0.044	0.030	1.134	0.000	0.002
		Wasatch Integrated IE	0.019	0.903	0.033	0.039	0.292	0.024	0.832	0.042	0.049	0.371
		Salt Lake City, UT Total	3.885	20.138	6.482	0.645	10.638	4.261	22.811	8.590	1.294	7.874

Source: UDAQ PM 2.5 SIP Table 6.3



Gadsby Curtailment

When Utah DAQ issues an air quality event during winter inversions

The DAQ issues action alerts when pollution is approaching unhealthy levels. These alerts proactively notify residents before pollution build-up so they can begin to reduce their emissions. When pollution levels reach 15 μ g/m3 for PM2.5, DAQ issues a 'yellow' or voluntary action day, urging Utah residents to drive less and take other pollution reduction measures. At 25 μ g/m3, 10 μ g/m3 below the EPA health standard, DAQ issues a "red" or mandatory advisory prohibiting burning of wood and coal stoves or fireplaces.

RMP will voluntarily curtail Gadsby Units 1-3. Units 4-6 are not considered



STEP will reimburse the system costs of curtailing



How would it work



¹Only if economic to operate

²Will not curtail during emergencies or reliability concerns

³The amount available will be capped, once exhausted program ends



Dispatch Model

- An optimization model determines the optimal utilization of all thermal units by considering:
 - expected load requirements
 - fuel costs
 - variable O&M costs
 - implied market activity
 - purchase and sales agreements
- Model determines when units should be dispatched or backed down
- Calculate cost using Four Corners market price as for the day unit is backed down



Cost Estimate

- > Typical inversions last for 3 weeks.
- Analyzed 3 scenarios to evaluate economic impacts (assumed 1,462 hours of operation during winter months):

Scenario 0 - Normal operation

- 1) Gadsby does not run at all during Dec, Jan and Feb.
- 2) Gadsby does not run for 6 weeks (1 week in the end of Dec, all of Jan and 1 week in Feb)
- 3) Gadsby does not run for 3 weeks starting in the beginning of January.

Scenario 1 (3 months)				Scenario 2 (6 weeks)			
	Scenario 0	Scenario 1	Gain/Loss		Scenario 0	Scenario 2	Gain/Loss
Fuel cost	(\$245,180,621)	(\$242,442,269)	\$2,738,352	Fuel cost	(\$245,180,621)	(\$243,932,024)) \$1,24
Implied sale/purchase	\$45,674,281	\$41,490,919	(\$4,183,362)	Implied sale/purchase	\$45,674,281	\$43,816,871	l (\$1,85
Start-up Cost	(\$1,096,140)	(\$985,910)	\$110,230	Start-up Cost	(\$1,096,140)	(\$1,076,110)) \$2
		Net Gain/Loss	(\$1,334,780)			Net Gain/Loss	(\$58

Scenario 3 (3 weeks)			
	Scenario 0	Scenario 3	Gain/Loss
Fuel cost	(\$245,180,621)	(\$243,552,170)	\$1,628,450
Implied sale/purchase	\$45,674,281	\$43,768,192	(\$1,906,088)
Start-up Cost	(\$1,096,140)	(\$1,049,040)	\$47,100
		Net Gain/Loss	(\$230,538)



Gadsby Historical Winter Operation



Data from EPA's Acid Rain Clean Air Markets database



Summary

- Program only implemented during air quality events identified by UDAQ
- Total Program Budget is \$500,000
 - Once total Budget is exhausted program ends
- Program will not be implemented during periods of emergency or reliability concerns
- Reimbursement will only be requested if it was economic to operate





Thank You October 3, 2016

