**RÉPONSE DE SOCIÉTÉ EN COMMANDITE GAZ MÉTRO (GAZ MÉTRO)
À LA DEMANDE DE RENSEIGNEMENTS DU ROEÉ**

Intégration des bénéfices non énergétiques aux tests économiques du PGEÉ

Référence

i) R 3879-2014 cause tarifaire 2016, GM-110, document1 p. 21, l. 3 à 6

Préambule

« Cette conclusion est également partagée par un grand nombre de gestionnaires de programmes d'économies d'énergie gazière et électrique en Amérique du Nord (Energy Efficiency Screening Coalition 2013) employant la même méthodologie. »

En note de bas de page: *Effectiveness Screening in the United States.* Récupéré sur http://www.nhpci.org/publications/NHPC_EE-Screening-Coalition-Position-Paper-final_20131118.pdf

Demande

1.1 Veuillez fournir une copie du document mis en référence ?

Réponse :

Le document est déposé en annexe 1.

Référence

i) R-3809-2014, phase 2, D-2013-106, paragraphe 478

Préambule

« La Régie reconnaît que, dans un contexte d'évaluation, le TAP permet d'apprécier la part des bénéfices d'un programme qui sert à couvrir les coûts du distributeur pour ce programme. Son suivi permet l'étude de l'évolution de cette part. Dans ce contexte, le distributeur pourrait choisir d'effectuer un tel suivi dans ses évaluations de programmes. »

Nos soulignés

Demande

2.1 Veuillez expliquer pourquoi le distributeur détermine qu'il n'est pas utile de présenter les résultats du TAP ?

Réponse :

Dans son préambule, le ROEÉ ne considère que le paragraphe 478 de la décision D-2013-106 pris hors contexte.

Le paragraphe 478 de cette décision doit se lire à la suite des paragraphes 476 et 477 de cette même décision.

> « *[476] Le ROEÉ recommande à la Régie d'utiliser le test de l'administrateur de programme (TAP) conjointement avec le TCTR, à titre d'indicateur complémentaire, aux fins de l'évaluation des programmes en efficacité énergétique.*
>
> *[477] La Régie considère qu'il n'y a pas lieu de retenir cette recommandation. Même si, comme le mentionne le ROEÉ, le TAP est un indicateur plus simple, elle est d'avis que le TCTR est le test qui fournit la meilleure indication de la rentabilité d'un programme, puisqu'il compare l'ensemble des coûts à l'ensemble des bénéfices.*
>
> *[478] La Régie reconnaît que, dans un contexte d'évaluation, le TAP permet d'apprécier la part des bénéfices d'un programme qui sert à couvrir les coûts du distributeur pour ce programme. Son suivi permet l'étude de l'évolution de cette part. Dans ce contexte, le distributeur pourrait choisir d'effectuer un tel suivi dans ses évaluations de programmes.* » (Gaz Métro souligne)

Dans ce contexte, Gaz Métro n'a pas choisi d'effectuer un tel suivi dans ses évaluations de programmes ni de le présenter conjointement avec le TCTR à titre d'indicateur complémentaire aux fins de l'évaluation des programmes d'efficacité énergétique, car la Régie n'a pas retenu la recommandation du ROEÉ dans le cadre de sa décision sur la phase 2 du dossier R-3809-2012 rendue le 15 juillet 2013.

2.2 Veuillez déterminer si le distributeur considère que le TAP est un indicateur qui intègre efficacement les BNÉ ?

Réponse :

Non.

2.3 Si oui, veuillez expliquer pourquoi ?

Réponse :

Veuillez vous référer à la réponse à la question 2.2.

2.4 Sinon, veuillez expliquer pourquoi ?

Réponse :

Dans son rapport, Dunsky Expertise en énergie précise que le TCAP (ou TAP) se concentre sur les coûts et bénéfices pour l'administrateur de programmes seulement et exclut les BNÉ associés aux participants[1]. Gaz Métro est donc d'avis que le TAP n'intègre pas efficacement les BNÉ.

Question s'adressant à Dunsky Expertise en énergie :

Références

i) R-3809-2014, phase 2, D-2013-106, paragraphe 478
ii) R-3879-2014-B0502, p.4
iii) R-3879-2014-B0502, p.10, tableau 2 colonne test principale, ligne Washington

Préambule

Le groupe expert énumère la principale solution à l'enjeu fondamental de l'intégration des BNÉ

Demandes

3.1 Veuillez confirmer que le TAP (le test de l'administrateur de programme) tel que décrit à la référence i) et le TCAP (test du coût de l'administrateur du programme) en référence ii) et le terme PCAT en référence 3) sont tous des synonymes ?

Réponse de Dunsky Expertise en énergie :

Oui, ces termes sont tous des synonymes. Plus spécifiquement, le terme PACT réfère à l'acronyme anglais du TCAP, soit le Program Administrator Cost Test.

3.2 Sinon, veuillez expliquer les différences ?

Réponse :

Ne s'applique pas.

[1] B-0502, Gaz Métro-110, Document 3, page 5.

3.3 Veuillez vérifier la compréhension du ROEÉ : en référence iii), le ROEÉ comprend que dans l'État de Washington, le test principal pour l'électricité est le TCTR et que le test principal pour le gaz est le PACT ?

Réponse de Dunsky Expertise en énergie :

La compréhension du ROEÉ est la bonne. Il est important de mentionner que le régulateur a indiqué une préférence pour le TCTR comme test principal, lorsque celui-ci est équilibré, notamment par la prise en compte de la réduction du risque et des bénéfices non énergétiques. Lorsque cette prise en compte s'avère impossible, les distributeurs peuvent employer le TCAP[2]. Considérant les coûts requis pour réaliser une étude pour quantifier les impacts non énergétiques, les distributeurs gaziers ont opté pour le TCAP.

3.4 Si la compréhension du ROEÉ est mauvaise, veuillez expliquer ?

Réponse :

Ne s'applique pas.

Référence

i) R-3879-2014-B0502, p.9

Préambule

Le groupe d'expert explique la sélection des critères de base de la sélection de juridiction pour son balisage. Un des critères est notamment : que « le TCTR est le test principal pour évaluer la rentabilité économique des programmes »

Demandes

4.1 Sans faire une recherche exhaustive, pouvez confirmer ou infirmer que certaines juridictions (outre le Vermont) ont des tests de rentabilité principaux qui ne sont pas le TCTR ou une modification du TCTR ?

[2] Washington Utilities and Transportation Commission, Policy Statement on the Evaluation of the Cost-Effectiveness of Natural Gas Conservation Programs, Docket UG-121207, 9 octobre 2013.

Réponse :

Plusieurs juridictions utilisent des tests de rentabilité principaux qui ne sont pas le TCTR ou une modification du TCTR. Le tableau suivant (Tableau 1), adapté d'une étude[3] réalisée par l'American Council for an Energy Efficiency Economy en 2012, présente les différents tests de rentabilité utilisés aux États-Unis ainsi que le test principal.

Tableau 1: Utilisation des tests de rentabilité aux États-Unis

État	TCTR	TCAP	TP	TCS	TNT	Test Principal
Massachusetts†	x					TCTR
Californie	x	x	x	x	x	TCTR
Oregon		x		x		TCS
Rhode Island	x					TCTR
Vermont		x	x	x		TCS
Connecticut	x	x				TAP
New York	x					TCTR
Washington††	x	x	x			TCTR
Maryland	x	x	x	x	x	TCTR
Minnesota		x	x	x	x	TCS
Illinois	x					TCTR
Michigan	x	x	x	x	x	TAP
Colorado	x					TCTR
Iowa		x	x	x	x	TCS
Arizona				x		TCS
Maine	x					TCTR
Hawaii	x					TCTR
Wisconsin	x	x		x		TCTR
New Jersey	x	x	x	x	x	aucun
Pennsylvania	x					TCTR
District de Colombia				x		TCS
New Hampshire	x					TCTR
Utah	x	x	x		x	TAP
Caroline du Nord	x	x	x		x	TCTR
Delaware		x				TAP
New Mexico	x					TCTR
Ohio	x	x				TCTR
Floride	x		x		x	TCTR
Nevada	x			x		TCTR

[3] Kushler, M., Nowark, S., & Witte, P. (2012). *A National Survey of Sate Policies and Practices for the Evaluation of Ratepayer-Funded Energy Efficiency Programs.* American Council for Energy-Efficient Economy.

État	TCTR	TCAP	TP	TCS	TNT	Test Principal
Idaho	x	x	x		x	aucun
Arkansas	x	x	x		x	TCTR
Montana	x	x	x	x		TCTR
Kentucky	x	x	x		x	TCTR
Texas		x				TAP
Georgie	x	x	x	x	x	n/d
Oklahoma	x	x	x	x	x	TCTR
Virginie	x	x	x		x	TNT
Tennessee	x	x			x	TCTR
Indiana	x	x	x		x	TCTR
Kansas	x	x	x	x	x	TCTR
Nebraska	x	x	x			TCTR
Caroline du Sud						aucun
Missouri	x		x	x	x	TCTR
Dakota du Sud	x				x	TCTR
Wyoming	x	x	x	x	x	TCTR

† Le Massachusetts inclut des BNÉ dans la définition de son TCTR, et se rapproche conceptuellement du TCS.
†† L'État de Washington requiert des distributeurs gaziers l'emploi d'un TCTR balancé, incluant tous les BNÉ, autrement les distributeurs gaziers doivent utiliser le TCAP.

4.2 Si certaines juridictions utilisent d'autres tests, veuillez fournir les juridictions ainsi que les tests utilisés ?

Réponse :

Veuillez vous référer à la réponse à la question 4.1.

4.3 Veuillez indiquer si certaines juridictions utilisent plus d'un test principal ?

Réponse de Dunsky Expertise en énergie :

Une analyse exhaustive des pratiques en matière d'analyse de rentabilité n'a pas été réalisée et nous ne pouvons répondre à cette question.

4.4 Si oui, veuillez fournir le nom des juridictions ainsi que les tests utilisés ?

Réponse :

Veuillez vous référer à la réponse à la question 4.3.

Référence

i) R-3879-2014-B0502, p.12

Préambule

« Il est important de mentionner que l'usage du TCS par le Vermont n'implique pas une couverture beaucoup plus grande des BNÉ qu'un bon nombre des autres régions étudiées utilisant le TCTR. »

Nos soulignés

Demande

5.1 Veuillez détailler ce que vous entendez par « beaucoup plus grande des BNÉ » ?

Réponse de Dunsky Expertise en énergie :

L'analyse du degré de couverture des BNÉ dans chaque région est présentée au tableau 2 du rapport en référence. Bien que le Vermont semble plus exhaustif dans le degré de couverture de BNÉ, celui-ci est similaire à celui de l'Illinois, de l'Ontario et de Washington (pour l'électricité). Plusieurs autres états ont par ailleurs un degré de couverture très similaire, soit le Massachusetts et le New Hampshire (qui incluent par ailleurs des BNÉ-Société dans leurs coûts évités, donc non comptabilisés comme BNÉ).

Une couverture beaucoup plus grande des BNÉ aurait introduit plusieurs autres catégories de BNÉ que ceux présentés dans les autres régions (et présentés au tableau 1).

Références

i) R-3879-2014-B0502, p.30
ii) R-3879-2014-B0502, p.31 (tableau 19)
iii) R-3879-2014-B0502, p.32
iv) R-3879-2014-B0502, p.36 (tableau 21)

Préambule

A. « Les ajouts génériques proposés visant à capturer, de façon conservatrice, les BNÉ pour chacun des programmes sont présentés au Tableau 19 (page suivante). Ces valeurs, issues des calculs détaillés à la section 5.2, seraient utilisées dans le cadre du calcul du TCTR pour les programmes du distributeur » Ref i

B. « Ensuite, afin de refléter le fait que les contextes du Massachusetts et du Québec sont différents et dans le but de demeurer conservateur, nous avons appliqué un facteur de pondération de 75 % aux valeurs déterminées précédemment » Ref iii

Nos soulignés

Demandes

6.1 Veuillez expliquer la motivation de l'utilisation d'une pondération de 75 % pour crée un scénario conservateur ?

Réponse de Dunsky Expertise en énergie :

Les études portant sur la quantification des BNÉ réalisées au Massachusetts sont à notre connaissance les plus exhaustives réalisées à ce jour, et offrent un point de départ robuste pour déterminer la valeur des bénéfices énergétiques dans d'autres régions.

Cependant, en l'absence d'une évaluation quantitative détaillée des BNÉ au Québec, le facteur de pondération de 75 % permet à la fois aux tests économiques de tenir compte de la valeur réelle des BNÉ, sans toutefois courir le risque d'une surévaluation de ces bénéfices. La marge de sécurité de 25 % par rapport aux valeurs obtenues au Massachusetts devrait permettre d'adopter des ajouts génériques en lieu et place d'une quantification précise.

6.2 Veuillez fournir quelle serait la pondération pour un scénario positif et pour un scénario réaliste ?

Réponse de Dunsky Expertise en énergie :

La proposition d'un facteur de pondération de 75 % par rapport aux valeurs déterminées par les études au Massachussetts vise à permettre l'inclusion des BNÉ dans les tests de rentabilité avec suffisamment de certitudes que cet ajout ne surestimerait pas leur valeur. Il est impossible de déterminer quel serait le scénario réaliste pour le Québec sans une étude exhaustive sur la question. En lieu et place d'un scénario réaliste et positif, nous proposons une étude de sensibilité utilisant des facteurs de pondération de 100 % et 110 % des valeurs déterminées au Massachusetts.

6.3 Veuillez fournir les résultats du tableau 19 dans des scénarios positifs et du scénario réaliste ?

Réponse de Dunsky Expertise en énergie :

Le tableau suivant (Tableau 2) présente les résultats du tableau 19 de la pièce B-0502, Gaz Métro-110, Document 3, avec des facteurs de pondération de 100 % et 110 %.

Tableau 2: Sommaire des ajouts génériques par programme

		Ajout générique TOTAL		
	Facteur de pondération	75%	100%	110%
Résidentiel				
PE103	Thermostat électronique programmable	26 %	33 %	36 %
PE106	Sensibilisation résidentielle	N/A	N/A	N/A
PE111	Chaudières efficaces	26 %	33 %	36 %
PE113	Chauffe-eau sans réservoir Energy Star	26 %	33 %	36 %
PE123	Combo à condensation (projet pilote)	26 %	33 %	36 %
PE124	Fenêtre Energy Star	47 %	61 %	67 %
PE126	Supplément MFR - résidentiel	66 %	87 %	95 %
CII				
PE202	Chaudière à efficacité intermédiaire	18 %	23 %	25 %
PE204	Sensibilisation CII	N/A	N/A	N/A
PE207	Étude de faisabilité CII	6 %	7 %	7 %
PE208	Encouragement à l'implantation	17 %	22 %	24 %
PE210	Chaudières à condensation	18 %	23 %	25 %
PE212	Chauffe-eau à condensation	5 %	5 %	5 %
PE215	Infrarouge	18 %	23 %	25 %
PE220	Innovation	5 %	5 %	5 %
PE221	Sensibilisation en entreprise	N/A	N/A	N/A
PE224	Hotte à débit variable	18 %	23 %	25 %
PE225	Aérotherme à condensation (projet pilote)	18 %	23 %	25 %
PE226	Remise au point des systèmes mécaniques des bâtiments ou "Recommissioning" (projet pilote)	6 %	7 %	7 %
PE233	Rénovation	32 %	41 %	45 %
PE234	Pré-chauffage solaire (projet pilote)	18 %	23 %	25 %
PE235	Nouvelle Construction	3 %	3 %	3 %
PE236	Supplément MFR - CII	80 %	106 %	116 %
VGE				
PE211	Étude de faisabilité VGE	6 %	7 %	7 %

6.4 Veuillez fournir les résultats du tableau 21 avec du scénario positif et du scénario réaliste ?

Réponse :

Tableau 21: Analyse économique des programmes du PGEÉ 2014-2015 avec et sans les BNÉ

		TCTR ($)				TCTR (ratio)				TP($)				TNT ($)			
		TCTR sans BNÉ	TCTR avec BNÉ 75%	TCTR avec BNÉ 100%	TCTR avec BNÉ 110%	TCTR sans BNÉ	TCTR avec BNÉ 75%	TCTR avec BNÉ 100%	TCTR avec BNÉ 110%	TP sans BNÉ	TP avec BNÉ 75%	TP avec BNÉ 100%	TP avec BNÉ 110%	TNT sans BNÉ	TNT avec BNÉ 75%	TNT avec BNÉ 100%	TNT avec BNÉ 110%
		$	$	$	$	ratio	ratio	ratio	ratio								
PROGRAMMES RÉSIDENTIELS																	
PE103	**Thermostat**	430 596 $	633 398 $	687 998 $	711 398 $	2,23	2,81	2,97	3,04	1 438 164 $	1 826 397 $	1 944 555 $	1 995 194 $	(609 584)	(586 184) $	(586 184)	(586 184)
PE111	**Chaudière 85% +**	163 270 $	442 162 $	517 249 $	549 429 $	1,18	1,49	1,57	1,60	2 170 143 $	2 836 313 $	3 039 060 $	3 125 952 $	(1 297 273)	(1 264 045) $	(1 264 045)	(1 264 045)
PE113	**C-E instantané**	10 841 $	55 667 $	67 736 $	72 908 $	1,07	1,34	1,42	1,45	379 587 $	487 667 $	520 560 $	534 658 $	(247 803)	(240 648) $	(240 648)	(240 648)
PE123	**Combo condensation**	12 867 $	64 142 $	77 947 $	83 863 $	1,07	1,35	1,42	1,45	332 268 $	428 327 $	457 562 $	470 092 $	(260 298)	(253 596) $	(253 596)	(253 596)
PE124	**Fenetres Energy Star**	(8 948 $)	13 710 $	20 459 $	23 352 $	0,84	1,24	1,36	1,41	129 996 $	194 951 $	215 618 $	224 476 $	(92 535)	(91 089) $	(91 089)	(91 089)
PE126	**Supplément MFR- résidentiel**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sous-total résidentiel		**608 625 $**	**1 209 079 $**	**1 371 388 $**	**1 440 949 $**	**1,37**	**1,73**	**1,83**	**1,87**	**4 450 158 $**	**5 773 654 $**	**6 177 356 $**	**6 350 371 $**	**(2 507 493)**	**(2 435 562) $**	**(2 435 562)**	**(2 435 562)**
PROGRAMMES CII																	
PE 202	**Chaudière intermédiaire 85%**	674 211 $	1 132 409 $	1 259 686 $	1 310 597 $	1,36	1,61	1,67	1,70	2 971 047 $	3 708 462 $	3 954 267 $	4 052 589 $	(1 291 960)	(1 208 428 $)	(1 208 428 $)	(1 208 428)
PE 207	**Études CII**	1 180 784 $	1 302 455 $	1 322 733 $	1 322 733 $	2,39	2,54	2,56	2,56	2 626 244 $	2 721 278 $	2 752 956 $	2 752 956 $	(639 992)	(572 838 $)	(572 838 $)	(572 838)
PE 208	**Aide à l'implantation CII**	7 727 199 $	9 757 658 $	10 354 852 $	10 593 729 $	2,83	3,31	3,46	3,51	20 096 825 $	23 529 384 $	24 755 298 $	25 245 664 $	(4 268 725)	(3 871 981 $)	(3 871 981 $)	(3 871 981)
PE 210	**Chaudière condensation 90%**	14 131 051 $	18 668 378 $	19 928 746 $	20 432 893 $	2,28	2,69	2,80	2,84	33 667 355 $	40 052 962 $	42 181 497 $	43 032 911 $	(11 903 480)	(11 073 789 $)	(11 073 789 $)	(11 073 789)
PE 212	**C-E condensation 90%**	275 652 $	399 321 $	399 321 $	399 321 $	1,13	1,18	1,18	1,18	3 851 853 $	3 962 685 $	3 962 685 $	3 962 685 $	(2 071 723)	(1 969 078 $)	(1 969 078 $)	(1 969 078)
PE 215	**Infrarouge (CII)**	4 005 820 $	4 817 968 $	5 043 564 $	5 133 803 $	8,91	10,52	10,97	11,14	8 512 979 $	9 732 094 $	10 138 466 $	10 301 015 $	(1 999 196)	(1 864 285 $)	(1 864 285 $)	(1 864 285)
PE220	**Innovation technologique**	(479 612 $)	(472 034 $)	(472 034 $)	(472 034 $)	0,24	0,25	0,25	0,25	(151 868 $)	(147 303 $)	(147 303 $)	(147 303 $)	(365 522)	(360 792 $)	(360 792 $)	(360 792)
PE224	**Hotte à débit variable**	937 727 $	1 229 400 $	1 310 420 $	1 342 828 $	2,37	2,80	2,92	2,97	2 783 242 $	3 247 286 $	3 401 967 $	3 463 839 $	(1 081 185)	(1 032 573 $)	(1 032 573 $)	(1 032 573)
PE225	**Aérotherme à condensation**	(83 295 $)	(58 673 $)	(51 834 $)	(49 098 $)	0,62	0,73	0,76	0,78	160 304 $	192 551 $	203 300 $	207 600 $	(232 324)	(228 220 $)	(228 220 $)	(228 220)
PE226	**Recommissioning**	1 368 665 $	1 537 652 $	1 565 817 $	1 565 817 $	1,95	2,06	2,08	2,08	3 911 101 $	4 057 510 $	4 106 313 $	4 106 313 $	(1 580 383)	(1 485 959 $)	(1 485 959 $)	(1 485 959)
PE233	**Rénovation**	3 334 890 $	4 871 030 $	5 303 069 $	5 495 087 $	3,28	4,32	4,62	4,75	7 057 892 $	9 514 233 $	10 276 546 $	10 615 352 $	(1 608 227)	(1 464 214 $)	(1 464 214 $)	(1 464 214)
PE234	**Préchauffage solaire (pilote)**	(69 317 $)	(69 317 $)	(69 317 $)	(69 317 $)	0,00	0,00	0,00	0,00	0 $	0 $	0 $	0 $	(69 317)	(69 317 $)	(69 317 $)	(69 317)
PE235	**Nouvelle Construction**	5 716 593 $	7 461 331 $	7 461 331 $	7 461 331 $	2,44	2,88	2,88	2,88	12 340 771 $	12 340 771 $	12 340 771 $	12 340 771 $	(4 541 967)	(4 251 177 $)	(4 251 177 $)	(4 251 177)
Sous-total CII		**38 720 370 $**	**50 577 576 $**	**53 356 354 $**	**54 467 690 $**	**2,33**	**2,73**	**2,78**	**2,82**	**97 827 746 $**	**112 911 914 $**	**117 926 764 $**	**119 934 393 $**	**(31 654 000)**	**(29 452 652 $)**	**(29 452 652 $)**	**(29 452 652)**
PROGRAMMES VGE																	
PE 211	**Études VGE**	15 164 598 $	16 143 091 $	16 306 174 $	16 306 174 $	14,26	15,12	15,26	15,26	24 271 589 $	25 027 481 $	25 279 445 $	25 279 445 $	(2 132 411)	(1 626 355 $)	-1 626 355 $	(1 626 355)
PE218	**Aide à l'implantation (industriel)**	4 193 236 $	4 900 406 $	5 018 268 $	5 018 268 $	1,55	1,65	1,66	1,66	10 029 951 $	10 657 942 $	10 867 272 $	10 867 272 $	(1 954 591)	(1 588 212 $)	-1 588 212 $	(1 588 212)
PE219	**Aide à l'implantation (institutionnel)**	13 074 655 $	16 448 660 $	17 441 014 $	17 837 956 $	2,93	3,43	3,58	3,63	25 370 971 $	30 016 824 $	31 676 057 $	32 339 751 $	(4 991 034)	(4 382 897 $)	-4 382 897 $	(4 382 897)
Sous-total VGE		**32 432 489 $**	**37 492 158 $**	**38 765 456 $**	**39 162 398 $**	**3,09**	**3,42**	**3,50**	**3,53**	**59 672 511 $**	**65 702 247 $**	**67 822 774 $**	**68 486 468 $**	**(9 078 036)**	**(7 597 464 $)**	**(7 597 464 $)**	(7 597 464 $)
								OK								
Total PGEÉ		**71 761 484 $**	**89 278 813 $**	**93 493 198 $**	**95 071 036 $**	**2,55**	**2,89**	**2,98**	**3,02**	**161 950 415 $**	**184 387 815 $**	**191 926 895 $**	**194 771 231 $**	**(43 239 529)**	**(39 485 679 $)**	**(39 485 679 $)**	(39 485 679 $)

Références

i) DAYNIN, Elizabeth, AIONA, Jessica, HEDMAN, Brian, *Whose Perspective? The Impact of the Utility Cost Test*, Cadmus Group, 11 p. http://www.cadmusgroup.com/wp-content/uploads/2012/11/TRC_UCT-Paper_12DEC11.pdf

ii) NICKERMAN Luke, ASLIN, Richard, *Cost-Effectiveness Adjustments: How Effective Have States Been At Recreating the PAC?*, 2014 ACEEE Summer Study on Energy Efficiency in Buildings, p. 8-302 à 8-313, http://aceee.org/files/proceedings/2014/data/papers/8-1084.pdf

iii) DUNSKY, P., BOULANGER, F., & MATHOT, P. (2012). *Screening DSM: When the TRC Blocks Efficiency, What'sNext*? ACEEE Summer Study on Energy Efficiency in Buildings.

Préambule

Les trois textes mis en références font le constat similaire que les tests de rentabilité telle que le TCTR (non modifié) ont une tendance à bloquer la rentabilité des programmes en efficacité énergétique. Les trois textes en référence dont un signé, entre autres, par monsieur Dunsky suggère que pour faciliter l'intégration des BNÉ que les distributeurs intègre le test de l'administration publique (TAP) dans le processus décisionnel comme test principal à la décision.

Plusieurs des auteurs des textes en références considèrent que le TAP est plus simple à calculer et permet de prendre compte l'asymétrie l'information causée par le TCTR.

Demandes

7.1 Selon vous, est-ce que la modification du TCTR de Gaz Métro permettra de faciliter la création de nouveaux programmes en efficacité énergétique rentable ?

Réponse :

La considération des bénéfices non énergétiques (BNÉ) en plus des bénéfices énergétiques a un effet positif sur la rentabilité des programmes du PGEÉ de Gaz Métro tel qu'illustré aux tableaux 7 et 8 de la preuve de Gaz Métro[4].

Dans ce contexte, cet effet positif pourrait permettre de présenter de nouveaux programmes d'efficacité énergétique rentables qui ne l'auraient pas été sans la considération des BNÉ.

7.2 Si oui et sans faire de recherche exhaustive, pouvez-vous fournir des exemples juridiction qui ont pût améliorer leur portefeuille de programme en appliquant un TCTR modifié ?

[4] B-0506, Gaz Métro-110, Document 1.

Réponse :

Gaz Métro n'a pas d'informations détaillées à ce sujet et présume que les distributeurs inclus dans le balisage présenté dans la pièce B-0502, Gaz Métro-110, Document 3 ont pu améliorer la rentabilité de leur portefeuille de programme en considérant les BNÉ.

7.3 Considérez-vous que Gaz Métro doive utiliser le TAP comme test principal pour calculer la rentabilité de ses programmes de PGEÉ ?

Réponse :

Veuillez vous référer à la réponse à la question 2.1.

7.4 Si oui ? Pourquoi et comment ?

Réponse :

Veuillez vous référer à la réponse à question 2.1.

7.5 Sinon, pourquoi ?

Réponse :

Veuillez vous référer à la réponse à la question 2.1

7.6 Considérez-vous que l'utilisation du TAP favorise la mise en place de nouveau programme en efficacité énergétique rentable ?

Réponse :

Veuillez vous référer à la réponse à la question 2.1.

7.7 Si oui, sans faire de recherche exhaustive, pouvez-vous fournir des exemples de juridiction qui ont pu améliorer leur portefeuille de programme en appliquant le TAP?

Réponse :

Gaz Métro ne détient pas cette information et elle n'est pas disponible dans le rapport déposé à la pièce B-0502, Gaz Métro-110, Document 3.

7.8 Considérez-vous que la prise de décision quant à la rentabilité d'un portefeuille de programme soit facilitée par l'utilisation conjointe du TCTR tel que vous le proposez et du TAP comme test de rentabilité principale ?

Réponse :

La Régie a déjà pris position dans sa décision D-2009-046 sur le test de rentabilité principal à utiliser dès 2009 dans le dossier sur le Plan d'ensemble en efficacité et innovation énergétique.

> *[285] Elle demande à l'AEÉ d'utiliser le TCTR comme critère de rentabilité principal pour tous ses programmes et ceux des distributeurs inclus dans le PEEÉNT et de justifier le maintien des programmes présentant un TCTR négatif.*

Également, comme précisé à la réponse à la question 2.1, la Régie a déjà rejeté la recommandation du ROEÉ d'utiliser le test de l'administrateur de programme (TAP) conjointement avec le TCTR.

Par conséquent, Gaz Métro juge qu'il n'est pas utile au dossier de répondre à cette question.

7.9 Si oui, pourquoi ?

Réponse :

Veuillez vous référer à la réponse à la question 7.8.

7.10 Sinon, pourquoi ?

Réponse :

Veuillez vous référer à la réponse à la question 7.8.

Possible double comptage des économies d'énergie entre Gaz Métro et le BEIE

Référence

(i) Pour des solutions économiques et durables en efficacité et innovation énergétiques, Document, Document présenté par Gaz Métro à la consultation pour une politique énergétique du Québec, Mars 2015, page 11

Préambule

Dans le document déposé cité en rubrique, Gaz Métro indique :

> « Il faut viser la complémentarité des programmes et une calibration optimale des aides financières afin de maximiser chaque dollar disponible. Gaz Métro a été à même de constater que certains programmes du BEIE sont complémentaires à son offre en efficacité énergétique. Cependant, d'autres, tels que ÉcoPerformance, se superposent en partie aux programmes de Gaz Métro. Une entreprise peut alors recevoir des aides financières de Gaz Métro et du BEIE pour le même projet. »…
>
> Gaz Métro calibre les aides financières de ses programmes afin de couvrir une portion suffisante des surcoûts des mesures d'efficacité énergétique. Cette calibration fait l'objet d'une révision régulière lors des évaluations de programmes par des experts externes.
>
> Dans ce contexte, il faut se questionner sur la valeur ajoutée de verser des sommes additionnelles du BEIE pour réaliser une mesure d'efficacité énergétique alors que le projet aurait possiblement pu se réaliser sans cette aide financière additionnelle. Les sommes ainsi versées en trop font certainement le bonheur des participants, mais elles ne sont pas accessibles à d'autres projets, qui ne pourront se réaliser faute d'aide financière. La complémentarité des offres du gouvernement et des distributeurs est essentielle pour maximiser chaque dollar disponible.
>
> Finalement, le niveau des aides financières versées doit être mieux calibré afin que celles-ci soient justes et suffisantes et ainsi représenter un incitatif réel, sans toutefois être démesurées, ce qui inciterait les opportunistes à profiter d'aides financières qui ne constituent pas un élément décisif à leur prise de décision. »

Demandes

8.1 Quels sont les programmes du BEIE qui sont complémentaires aux programmes du PGEÉ de Gaz Métro, et en quoi sont-ils complémentaires?

Réponse :

Chauffez vert :

Ce programme vise le remplacement de systèmes à combustibles fossiles par des systèmes alimentés à l'électricité ou par d'autres énergies renouvelables.

Gaz Métro n'offre pas de programme couvrant cette mesure.

Rénoclimat :

Le programme Rénoclimat encourage les travaux de rénovation écoénergétique, c'est-à-dire des travaux qui ont pour but de diminuer la consommation d'énergie d'une habitation tout en améliorant son confort. Pour être admissibles à une aide financière, les travaux doivent porter sur l'enveloppe du bâtiment (amélioration de l'isolation et de l'étanchéité) ou sur les systèmes mécaniques utilisés dans l'habitation (installation ou remplacement de systèmes de ventilation, de chauffage (mazout ou propane), de chauffe-eau au propane et de thermostats électromécaniques pour les utilisateurs de mazout).

Gaz Métro n'offre pas de programme couvrant ces mesures.

Novoclimat :

Le programme Novoclimat 2.0 – volet Maison encourage la construction de maisons neuves à haute performance énergétique, selon des exigences de construction précises. Le premier propriétaire d'une maison neuve homologuée Novoclimat 2.0 reçoit une aide financière de 1 000 $ du ministère de l'Énergie et des Ressources naturelles, administrateur du programme Novoclimat 2.0.

Gaz Métro n'offre pas de programme couvrant cette mesure.

Éconologis :

Éconologis est un programme en efficacité énergétique destiné aux ménages à revenu modeste. Le Volet I du programme permet aux participants de profiter, gratuitement, de conseils personnalisés et de certaines mesures concrètes comme le calfeutrage des fenêtres, l'installation de coupe-froid pour les portes, l'isolation des prises électriques des murs extérieurs ou installation d'une pomme de douche à débit réduit. Quant au Volet II, il permet l'installation gratuite de thermostats électroniques.

Gaz Métro n'offre pas de programme couvrant le Volet I du programme Éconologis. Dans le cas du Volet II, les clients au gaz naturel sont dirigés vers Gaz Métro dans le cadre d'une entente contractuelle et les thermostats électroniques programmables sont installés par un mandataire de Gaz Métro dans le cadre du programme résidentiel *PE103Thermostats électroniques programmables*. Ces ménages ont également accès à une aide financière supplémentaire dans le cadre du programme *PE126 Supplément pour ménages à faible revenu*.

Ces programmes sont complémentaires à l'offre de Gaz Métro dans le sens où Gaz Métro n'offre pas d'aide à ses clients sur les volets couverts par le BEIE et le BEIE n'offre pas d'aide aux clients sur les volets couverts par l'offre de Gaz Métro.

8.2 Quels autres programmes du BEIE qu'ÉcoPerformance se superposent à quels programmes du PGEÉ de Gaz Métro et en quoi?

Réponse :

C'est principalement le programme ÉcoPerformance du BEIE qui en partie n'est pas complémentaire à l'offre de Gaz Métro. Les autres programmes sont en général complémentaires.

8.3 Combien d'entreprises ont reçu combien d'aide financières à la fois de Gaz Métro et du BEIE et pour combien de projets?

Réponse :

Deux des trois projets cités[5] dans les communiqués de presse ont reçu une aide financière de Gaz Métro pour la réalisation d'études de faisabilité permettant d'identifier les mesures qui pourraient être implantées. L'aide financière ainsi versée par Gaz Métro totalise 40 000 $.

Gaz Métro souligne que d'autres demandes d'aide financière ont été soumises pour ces trois projets dans le cadre du programme d'encouragement à l'implantation. Les projets n'étant pas encore complétés, les montants précis d'aide financière qui pourraient être versés pour l'implantation des mesures restent toutefois à être déterminés.

Au moment de procéder au versement de l'aide financière, Gaz Métro considérera les montants que le participant aura reçus du BEIE (ou tout autre organisme) et limitera au besoin le montant de l'aide financière offert. Voici d'ailleurs un extrait du Guide du participant pour les programmes d'études de faisabilité et d'encouragement à l'implantation du marché CII qui résume la modalité encadrant les autres sources de financement :

> *« Tout participant adhérant à un autre programme d'aide financière pour la réalisation de son projet s'engage à déclarer à Gaz Métro toute somme reçue et/ou à recevoir dans le cadre du même projet. Gaz Métro* versera *au client l'aide financière prévue au présent programme réduite en fonction des contributions versées par d'autres organismes dans le cadre du même projet afin que la portion payable par le client représente au minimum 25 % des coûts relatifs au projet. »*

[5] C-ROEÉ-0050, p. 2.

Ce type de modalité permet d'éviter que des projets reçoivent des montants d'aide financière qui pourraient dépasser les coûts du projet et de s'assurer qu'une portion des coûts est toujours assumée par le client.

8.4 Est-ce que Gaz Métro effectue vraiment une validation systématique de la calibration de l'aide financière de ses programmes lors des évaluations? Veuillez indiquer la méthodologie des résultats.

Réponse :

Les évaluations des programmes incluent généralement la révision des surcoûts des mesures promues. C'est un moment propice pour évaluer si l'aide financière en place est adéquate ou si des ajustements sont nécessaires.

Par exemple, à la suite de l'évaluation du programme PE103, Gaz Métro propose une révision de l'aide financière dans le cadre du présent dossier :

« L'évaluateur a revu le coût des thermostats électroniques non programmables à environ 65 $ non installés. Le coût incrémental des thermostats programmables baisse donc à 47 $ par rapport aux thermostats électroniques non programmables.

Par conséquent, Gaz Métro abaisse l'aide financière accordée aux thermostats électroniques programmables de 30 $ à 25 $ à compter du 1er octobre 2015. »[6]

8.5 Faudrait-il aussi se questionner sur la valeur ajoutée de verser des sommes additionnelles de Gaz Métro pour réaliser une mesure d'efficacité énergétique alors que le projet aurait possiblement pu se réaliser seulement avec l'aide du BEIE?

Réponse :

Gaz Métro est d'avis que la complémentarité des programmes doit être analysée *a priori* lors de la mise en place des programmes.

Dans le cas du programme ÉcoPerformance, mis en place à l'automne 2013 par le BEIE, il vise en partie des mesures déjà couvertes par les programmes de Gaz Métro qui étaient déjà implantés et déployés auprès de la clientèle de Gaz Métro bien avant l'automne 2013. La complémentarité aurait pu être analysée avant le déploiement du programme ÉcoPerformance, mais cet exercice n'a pas été fait.

[6] B-0506, Gaz Métro-110, Document 1, page 31.

Lorsque Gaz Métro conçoit un nouveau programme, elle débute par l'analyse de l'offre existante déjà accessible à ses clients et vise à encourager des mesures qui ne sont pas déjà couvertes. C'est ce que Gaz Métro a fait lorsqu'elle a lancé les programmes *PE123 Combo à condensation*, *PE224 Hotte à débit variable*, *PE225 Aérotherme à condensation* et *PE226 Remise au point des systèmes mécaniques des bâtiments*, en collaboration avec Hydro-Québec au cours des dernières années.

Si Gaz Métro conçoit de nouveaux programmes, elle s'assurera de poursuivre l'analyse de l'offre existante dans le marché puisqu'en fin de compte, ce sont les clients qui assument les coûts, soit via les coûts des programmes du PGEÉ ou encore via les coûts relatifs à la quote-part payable par les distributeurs d'énergie servant à défrayer une partie des coûts des programmes du BEIE.

8.6 Est-ce que Gaz Métro a entrepris des pourparlers avec le BEIE afin de trouver des solutions à cet enjeu?

Réponse :

Oui, Gaz Métro a eu des communications régulières avec le BEIE pour discuter des enjeux de complémentarité. Ainsi, plusieurs discussions ont eu lieu au cours de la dernière année, incluant notamment une présentation des activités de Gaz Métro en efficacité énergétique et des discussions lors de la consultation du BEIE en lien avec la commission sur la révision des programmes et dont une des questions portait spécifiquement sur la complémentarité des offres des distributeurs d'énergie et du BEIE.

Coût de revient du mètre cube économisé

Référence

(i) Gaz Métro 110, Document 1, page 27

Préambule

« **4.4.2 Ratio coût par mètre cube économisé**
Le tableau E de la pièce Gaz Métro-110, Document 2 présente les économies ainsi que les coûts totaux pour l'année 2015-2016. En appliquant la formule détaillée au lexique de la preuve, le ratio coût par mètre cube économisé du PGEÉ 2015-2016 est de 0,5300 $/m³, alors qu'il était de 0,4742 $/m³ à la Cause tarifaire 2015. »

Demande

9.1 Qu'est-ce qui explique cette hausse du coût du mètre cube économisé de plus de 10% comparativement à l'année dernière?

Réponse :

En examinant les coûts totaux par marché, comme illustré au tableau D de la pièce B-0507, Gaz Métro-110, Document 2, page 4, on constate une augmentation globale des coûts au niveau du marché CII. Cette augmentation représente 0,20 $/m³ de plus par rapport à 2014-2015.

Plus spécifiquement, cette hausse du $/m³ est attribuable à une augmentation du budget d'aide financière du programme *PE210 Chaudières à condensation* à la suite d'une augmentation anticipée de la participation brute, combinée à une baisse des économies nettes qui elle, est causée par une augmentation du taux d'opportunisme qui passe de 6 % à 28 % à la suite de l'évaluation du programme.

La diminution des économies nettes prévues pour le programme *PE226 Recommissionning* en 2015-2016 contribue aussi à cette hausse observée du ratio $/m³. Cette diminution par rapport à 2014-2015 des économies prévues pour le PE226 peut être attribuée principalement au fait que de plus petits bâtiments sont maintenant admissibles au programme.

Dans une perspective historique, le ratio global a varié depuis les dernières années de 0,5353 $/m³ en 2013-2014 à 0,4742 $/m³ en 2014-2015 à finalement 0,5300 $/m³ en 2015-2016. Le ratio du présent dossier tarifaire se compare donc à celui de 2013-2014.

Référence

(i) Gaz Métro 110, Document 1

Demandes

10.1 Sans effectuer de balisage exhaustif, veuillez fournir un comparatif des aides financières octroyées par d'autres distributeurs d'énergie et des montants maximums accordés pour les technologies et processus visés par les programmes PE 202, PE 207, PE 208, PE 210, PE 211, PE 212, PE 215. PE 218, PE 219, PE 225, PE 226, PE 233, PE 234, PE 235

Réponse :

Gaz Métro n'est pas en mesure de répondre à cette question sans faire un balisage exhaustif considérant le nombre de programmes mentionnés et la quantité de technologies et de mesures visés par ces programmes.

Des balisages auprès d'autres distributeurs d'énergie sont cependant souvent réalisés dans le cadre des évaluations de programmes. Ces balisages visent à comparer certains paramètres tels que la durée de vie des mesures, la structure et les niveaux d'aide financière, et les modalités. Les résultats des balisages s'intègrent à une méthodologie d'évaluation complète, ce qui permet de réaliser des constats en tenant compte d'un ensemble de résultats propres au programme évalué.

10.2 Veuillez indiquer, pour chaque programme énuméré précédemment, l'année de début du programme, le pourcentage du potentiel technico-économique économisé à ce jour ou le degré de transformation du marché à ce jour en précisant la manière d'évaluer la transformation, et la date de fin présumée du programme en fonction du degré de transformation accompli.

Réponse :

Programme	Date de début du programme
PE103 Thermostats programmables	2001-2002
PE111 Chaudière efficace	2001-2002
PE113 Chauffe-eau sans réservoir	2005-2006
PE123 Combo à condensation	20012-2013
PE124 Fenêtres Energy Star	2002-2003 (sous FEÉ) 2012-2013 (sous PGEÉ)
PE126 Supplément ménages à faible revenu (rés.)	20013-2014
PE202 Chaudière intermédiaire 85%+	2001-2002
PE207 Étude de faisabilité CII	2001-2002
PE208 Encouragement à l'implantation CII	2001-2002
PE210 Chaudières à condensation	2001-2002
PE212 Chauffe-eau à condensation	2003-2004
PE215 Infrarouge	2004-2005
PE220 Innovation	2009-2010
PE224 Hotte à vitesse variable	2010-2011
PE225 Aérotherme	2010-2011
PE226 Recommissionning	2010-2011

Programme	Date de début du programme
PE233 Rénovation	2004-2005 (sous FEÉ) 2012-2013 (sous PGEÉ)
PE234 Pré-Chauffage solaire	2004-2005 (sous FEÉ) 2012-2013 (sous PGEÉ)
PE235Nouvelle construction	2004-2005 (sous FEÉ) 2012-2013 (sous PGEÉ)
PE236 Bonification CII	2013-2014
PE211 Étude de faisabilité VGE	2001-2002
PE218 Encouragement à l'implantation VGE (industriel) ancien PE216	2001-2002 sous PE216 PE218 depuis 2008-2009
PE219 Encouragement à l'implantation VGE (institutionnel) ancien PE216	2001-2002 sous PE216 PE218 depuis 2008-2009

L'analyse du potentiel technico-économique[7] n'a pas été effectuée par programme, mais par mesure et par segment de marché. Il n'est donc pas possible de produire l'information par programme.

Dans le cadre de son dossier tarifaire 2012-2013[8], Gaz Métro avait présenté l'évaluation du potentiel maximal réalisable (PCMR).

Marchés	PTÉ 5 ans (en Mm³)	PTÉ 1 an (en Mm³)	PCMR (en Mm³)	PCMR accessible à Gaz Métro (en Mm³)	Résultats programmes PGEÉ & FEÉ 2010-2011 (en Mm³)
Résidentiel	57,0	11,4	5,7	2,7	0,9
Commercial et Institutionnel	289,9	58,0	29,0	22,7	16,9
Industriel	355,3	71,1	35,5	25,1	19,0
Total	**702,2**	**140,5**	**70,2**	**50,5**	**36,8**

[7] Rapport déposé à la Régie au dossier tarifaire R-3809-2012.B-0188. Gaz Métro-13, Document 5.
[8] R-3809-2012, B-0364, Gaz Métro-13, Document 1.

Selon l'information disponible, voici l'état d'avancement des résultats par rapport au PCMR cumulatif après avoir complété les années 2012-2013 et 2013-2014, soit les deux premières années de la période couverte par l'analyse de PTÉ.

Marchés	Potentiel commercial maximal réalisable (PCMR)	PCMR cumulatif 2 ans	Économies nettes totales (m3) 2012-2013	Économies nettes totales (m3) 2013-2014	Économies nettes Totales (m3) cumulatives 2 ans	Taux de réalisation cumulatif
Résidentiel	2 690 000	5 380 000	2 824 730	4 481 101	7 305 831	136%
CI	22 710 000	45 420 000	11 516 812	14 410 150	25 926 962	57%
Industriel	25 140 000	50 280 000	20 500 401	17 684 580	38 184 982	76%
Total PGEÉ	50 540 000	101 080 000	34 841 943	36 575 832	71 417 775	71%

Concernant la date de fin présumée des programmes, Gaz Métro ne détermine pas *a priori* la date à laquelle elle mettra fin à un programme en particulier. Cette analyse se fait dans le cadre des évaluations des programmes lors de l'analyse de marché. Advenant la transformation d'un marché visé par un programme du PGEÉ, elle sera constatée par l'évaluateur et fera partie de ses recommandations.

Régionalisation du PGEÉ

Demandes

11.1 Est-ce que Gaz Métro a considéré la possibilité de moduler sa stratégie d'intervention et son portfolio de programmes de façon régionalisée en fonction des niveaux de saturation du réseau observés?

Réponse :

Oui.

11.2 Sinon, pourquoi ?

Réponse :

Veuillez vous référer à la réponse à la question 11.1.

11.3 Si oui, quelles sont les conclusions et intentions de Gaz Métro à cet égard ?

Réponse :

Gaz Métro a récemment considéré cette possibilité dans le cadre des projets d'investissement visant l'amélioration et le renforcement des réseaux de transmission de l'Estrie et du Saguenay[9]. Dans ce document, Gaz Métro indique :

« *Gaz Métro s'est aussi interrogée sur la possibilité d'accroître ses efforts en efficacité énergétique afin de libérer de la capacité sur les réseaux de transmission.*

Les résultats des programmes du PGEÉ de Gaz Métro déployés depuis 2000-2001 ont permis de retarder les investissements nécessaires à l'augmentation de la capacité des réseaux, mais plusieurs éléments amènent Gaz Métro à penser que l'efficacité énergétique n'est pas la solution aux enjeux de saturation de réseau.

Gaz Métro a estimé les économies volumiques nécessaires pour répondre au besoin additionnel de capacité des réseaux saturés. Le tableau ci-dessous présente l'estimation des économies en efficacité énergétique qui seraient requises pour combler les besoins additionnels de capacité pour les trois tronçons.

[…]

Tel qu'illustré, des économies de 835 Mm³ de gaz naturel en efficacité énergétique seraient requises pour combler les besoins additionnels de capacité. Pour mettre en perspective ces économies volumiques de 835 Mm³, notons que l'objectif annuel du PGEÉ au dossier tarifaire 2015 est de 39,4 Mm³ et ce, pour l'ensemble de la franchise de Gaz Métro. De plus, il est important de mentionner qu'Artelys a déjà tenu compte de la contribution de l'efficacité énergétique à la réduction de la pointe dans l'élaboration de la prévision de la demande de pointe horaire à l'horizon 2024.

Gaz Métro a vérifié si des efforts additionnels en efficacité énergétique pouvaient être réalisés auprès de clients des ventes grandes entreprises afin de réduire, de façon importante, la pointe horaire des réseaux saturés de l'Estrie et du Saguenay. Après vérification, un maximum de 2 000 m³/h pourrait être libéré à la suite d'efforts additionnels en efficacité énergétique auprès de clients des ventes grandes entreprises des réseaux saturés de l'Estrie et du Saguenay.

Or, il est important de rappeler que la participation aux programmes d'efficacité énergétique dépend du moment où le client se situe dans son cycle d'investissement et que le client n'a pas l'obligation de participer aux programmes du PGEÉ.

Dans ce contexte, Gaz Métro ne pourrait contraindre ses clients situés sur les réseaux ayant des enjeux de capacité à investir pour mettre en place des mesures d'efficacité énergétique ciblées.

D'ailleurs, même si Gaz Métro était en mesure de le faire, l'ampleur des efforts requis dépasserait largement le potentiel des programmes du PGEÉ. Par conséquent, cette option ne peut assurer une réduction ciblée des besoins additionnels de capacité. »

[9] R-3919-2015, B-0047, Gaz Métro-1, Document 4.

Recommendations for Reforming Energy Efficiency Cost-Effectiveness Screening in the United States

Using the Resource Value Framework to Identify Those Efficiency Programs That Are in the Public Interest

November 18, 2013

Prepared by
the Energy Efficiency Screening Coalition

Original : 2015.07.09

Gaz Métro - 115, Document 7
Annexe 1 (33 pages en liasse)

The Energy Efficiency Screening Coalition

The Energy Efficiency Screening Coalition is a group of organizations and individuals that are working together to reform the way that electric and gas utility energy efficiency programs are screened for cost-effectiveness. The purpose of this coalition is to improve efficiency program screening practices throughout the United States, so that decision makers can determine which efficiency programs are in the public interest and what level of investment may be justified.

To date, the Energy Efficiency Screening Coalition has produced two written documents: this Position Paper and an accompanying set of Coalition Screening Principles.

Coalition Screening Principles

This is a one-page document that summarizes the over-arching energy efficiency screening principles that the Coalition has agreed to. It describes the need to reform energy efficiency screening practices, and outlines the concepts that were used to develop the recommendations in this Position Paper.

Coalition Position Paper

This Position Paper recommends a framework that should be used to reform energy efficiency screening practices. This paper was prepared by the following individuals: Tim Woolf, Synapse Energy Economics; Kara Saul-Rinaldi and Robin LeBaron, National Home Performance Council; Steve Cowell and Pat Stanton, Conservation Services Group. The authors would like to thank the following individuals for their contributions to this report: Howard Geller, Southwest Energy Efficiency Project; Sami Khawaja, Cadmus Group; Marty Kushler, American Council for an Energy-Efficient Economy; Peter Miller, Natural Resources Defense Council; Carol White, National Grid; and, the Policy Committee of Efficiency First.

Follow-Up Activities

The Coalition intends to develop additional materials to support and expand upon the recommendations outlined in this Position Paper. In addition, the Coalition intends to participate at legislative and regulatory proceedings in select states to advance its principles and recommendations.

Further Information

This Position Paper, the Coalition Principles document, and related materials from the Coalition, are available at the following website: http://www.nhpci.org/campaigns.html.

Contents

1. Introduction and Summary

The United States has an enormous potential to reduce electricity and gas costs through a wide variety of currently available and emerging end-use energy efficiency resources. Energy efficiency programs funded by electric and gas utilities have proven to be an effective means of developing those resources. These utility efficiency programs not only reduce electricity and gas costs, they also provide a wide range of additional benefits, including: reduced risk, assistance to low-income customers, other fuel savings, environmental benefits and economic development.

States routinely evaluate the costs and benefits of utility energy efficiency programs to identify those programs that are cost-effective, and therefore warrant ratepayer funding. The choices of methodologies and assumptions used for these evaluations, i.e., the screening practices, have a tremendous impact on the amount and type of utility energy efficiency resources that are implemented.

Current screening practices under-value the full potential for cost-effective energy efficiency.

However, current efficiency screening practices frequently understate the full potential for cost-effective energy efficiency resources. These practices have led to significant underinvestment in energy efficiency, and higher costs for electric and gas customers. This has occurred for several reasons:

- Many states use the Total Resource Cost (TRC) test[1] to screen energy efficiency programs, without sufficiently accounting for participant benefits. This test by definition includes program participant costs, so understating participant benefits results in a test that is inherently skewed against efficiency.
- Many states do not fully account for the contribution of energy efficiency programs to achieving their own energy policy goals.
- Many states do not account for some of the key benefits of energy efficiency resources, presumably because the benefits are inherently uncertain or are difficult to quantify.
- Many states use discount rates and other key planning assumptions that do not properly recognize the nature and benefits of utility efficiency resources.

The purpose of this position paper is to introduce a new framework efficiency screening designed to address these problems. In sum, we recommend that states re-evaluate their efficiency screening practices to ensure that they are consistent with industry best practices, are consistent with the state's energy policy goals, and will identify those efficiency resources that are in the public interest. We refer to our proposed process as the Resource Value Framework.

[1] Appendix A provides an overview of the five standard cost-effectiveness tests.

One important concept that we emphasize is that the choice of costs and benefits to include in a screening test should explicitly account for the state's energy policy goals. Examples of such energy policy goals include: assist low-income customers with high energy burdens; promote customer equity; reduce utility system risks; reduce fossil fuel use; reduce environmental impacts of energy; and promote economic development.

Another important concept that we emphasize here is that the Utility Cost test and Societal Cost test both represent reasonable methods for identifying the cost-effectiveness of energy efficiency resources. However, the Utility Cost test and the Societal Cost test may not be sufficient to identify energy efficiency resources that meet all of a state's energy policy goals and are in the public interest. The Utility Cost test, by design, does not allow for consideration of energy efficiency benefits that occur outside of the utility system – benefits that may be important to legislators, regulators and customers. The Societal Cost test can be difficult to apply in practice because of the challenges associated with estimating all of the potential societal costs and benefits, and because of concerns of the breadth of the impacts included in the test. Our recommendations are designed to allow states to address the issues associated with these two tests.

The choice of costs and benefits to include in a state's screening test should explicitly account for that state's energy policy goals.

In addition, we note that regulators and others are not confined to choose between these two tests. The Utility Cost and the Societal Cost tests represent two important theoretical constructs for how efficiency costs and benefits can be compared. However, a variation of these tests, or an alternative to these tests, may be better suited to meeting a state's energy policy goals.

Furthermore, we recommend that energy efficiency screening practices must somehow account for all relevant benefits – even those that are difficult to quantify and monetize. Ignoring these significant efficiency benefits will result in screening practices that are skewed against energy efficiency.

We recommend that states re-evaluate their current efficiency screening practices using our proposed Resource Value Framework. This framework is built upon the following core principles:

The Public Interest. The ultimate objective of energy efficiency screening is to provide sufficient information to determine whether proposed energy efficiency resources are in the public interest.

Energy Policy Goals. Efficiency program screening practices should account for the energy policy goals of each state, as articulated in legislation, commission orders, regulations, guidelines and other policy directives. These policy goals provide guidance with regard to which efficiency programs are in the public interest.

Relevant Benefits. Efficiency program screening practices should account for all the relevant benefits associated with the screening test used in that state. For example, a state that chooses to include participant costs in its screening test must also include participant non-energy benefits. If a state is unwilling or unable to include reasonable estimates of participant non-energy benefits, then it should not include the participant costs either.

Hard-to-Quantify Benefits. Efficiency screening practices should not exclude relevant benefits because they are difficult to quantify and monetize. In the absence of better approaches, proxy adders or multipliers should be used to approximate the magnitude of relevant benefits. Alternative benchmarks and regulatory judgment can also be used for those benefits where proxies are not available or appropriate.

Transparency. Efficiency program administrators should use a standard template to document their assumptions and methodologies, and to provide a transparent, consistent structure for presenting efficiency program costs and benefits.

Finally, we note that several other planning methodologies and assumptions play a critical role in the outcome of the efficiency screening process – regardless of the test that is used. With regard to these, we recommend that: (a) states use discount rates that properly account for the risk benefits of energy efficiency; (b) states require that efficiency resources be screened at the program level, not at the measure level; and, (c) states require that efficiency screening analyses include a study period that is long enough to capture the full savings of efficiency measures.

2. Criteria for Designing an Efficiency Screening Test

In designing an energy efficiency screening test, it is useful to articulate (a) the objective of energy efficiency screening, and, (b) the criteria that should be met when designing a test. Each of these is addressed in turn below.

We believe that the objective of efficiency screening is to determine whether proposed ratepayer-funded energy efficiency programs are in the public interest. The term "in the public interest" is used frequently in utility regulation to refer to the concept of balancing the multiple interests affected by the electric and gas industries, including the interests of the customers, the utilities, other market actors and the public at large.

The objective of efficiency screening is to determine whether proposed efficiency programs are in the public interest.

We believe that an efficiency resource should be considered in the public interest if its long-run benefits exceed its long-run costs, relative to other energy resources. The benefits and costs to include in this comparison do not necessarily need to be confined to utility costs and benefits, and the benefits and costs should not be confined to only those that can be put into monetary terms. We return to these two key points below.

We recommend that in designing an energy efficiency screening test, states should meet at least the following criteria:

1. Compare all energy resources in a comparable manner.
2. Provide sufficient information to determine whether proposed energy efficiency programs are in the public interest.

3. Explicitly account for the energy policy goals of the state, as articulated in legislation, commission orders, regulations, guidelines and other policy directives.

4. Explicitly account for all the relevant benefits associated with the screening test used in that state. For example, a state that chooses to include participant costs in its screening test must also include participant non-energy benefits.

5. Not exclude relevant benefits because they are difficult to quantify and monetize.

6. Provide a transparent framework for presenting the methodology, assumptions, inputs and outputs.

7. Allow for practical application by efficiency program administrators and meaningful review by regulators and other stakeholders.

3. The Resource Value Framework

3.1 Key Concepts Underlying the Resource Value Framework

It is important to emphasize that we are not recommending a single new test, with specifically defined costs and benefits, that each state should use. Instead, we are recommending a framework and a process that each state should use to re-evaluate their current screening tests and make sure that the test they use is consistent with the state's energy policy goals.

The Utility Cost Test and the Societal Cost Test

The Utility Cost test and the Societal Cost test both represent reasonable methods for identifying the cost-effectiveness of energy efficiency resources. Ideally, both tests should be considered when screening energy efficiency resources, because they both provide useful information regarding cost-effectiveness. However, in practice it is often necessary to choose a primary test for screening energy efficiency, for those resources that pass one test but not another. This paper focuses on the critical factors that states should consider when designing the *primary* test used to screen efficiency.

Furthermore, the Utility Cost test and the Societal test may not be sufficient to identify energy efficiency resources that meet all of a state's energy policy goals and are in the public interest. The Utility Cost test, by design, does not allow for consideration of energy efficiency benefits that occur outside of the utility system – benefits that may be important to legislators, regulators and customers. The Societal Cost test can be difficult to apply in practice because of the challenges associated with estimating all of the potential societal costs and benefits, and because of concerns of the breadth of the impacts included in the test. Our recommendations are designed to allow states to address these issues associated with these two tests.

It is important to recognize that states are not confined to an either/or choice between the Utility Cost test and the Societal Cost test.

Our recommendations here are designed to address those limits to the Utility Cost and Societal Cost tests. It is important to recognize that states are not confined to an either/or choice between these two tests. The Utility Cost and the Societal Cost tests represent two important theoretical constructs for how efficiency costs and benefits can be compared. However, a variation of these tests, or an alternative to these tests, may be better suited to meeting a state's energy policy goals. Below we outline an approach that states can use to design an efficiency screening test that is most appropriate for them.

Accounting for Public Policy Goals

Most, if not all, states have already established energy policy goals that will be affected by energy efficiency resources. Examples of such energy policy goals include: assist low-income customers with high energy burdens; increase the diversity of energy resources; improve system reliability; reduce fossil fuel use; reduce environmental impacts of energy; and promote economic development.

These energy policy goals are established in different ways, e.g., through executive directives from governors, through legislation, through regulations, through commission guidelines, and through commission orders. These goals also evolve over time. These energy policy goals are a reflection of how the state wishes to influence the development of its electric and gas industries. Energy efficiency can and should play a critical role in that development.

In developing a test to screen energy efficiency resources, it is important to explicitly consider the energy policy goals of that state. Otherwise, the efficiency screening process will not result in the set of resources that best meets those energy goals. In addition, the decision to move beyond the Utility Cost test, and to include benefits and costs that are outside of the utility system, is essentially a policy decision. It should therefore be made based upon the energy policies of the state.

Participant Costs and Benefits

As noted above, the decision to include participant costs in the screening analysis is essentially a policy decision. Our recommended screening approach allows for regulators to account for participant costs, i.e., total resource costs, in their screening tests. However, participant costs can only be included in the screening analysis if reasonable estimates of participant benefits are also included, including non-energy benefits. Otherwise, the screening test is inherently skewed against energy efficiency, and is unacceptable because it provides inherently inaccurate and misleading results.

In other words, the Resource Value Framework is flexible enough that regulators who prefer to account for both participant costs and utility costs for screening purposes can do so – but only if the test includes reasonable estimates of the participant benefits.[2] We do not recommend, however, even using the term "total resource cost" or "TRC" test, because this might imply that states can use the TRC test the way that it is currently applied in many places (where participant non-energy benefits are significantly undervalued), and this is not what we are recommending.

[2] In Section 8 we note that we will provide guidance on what a "reasonable" estimate of participant benefits might be, in a separate report.

Accounting for Relevant Hard-to-Quantify Benefits

Some of the benefits associated with energy efficiency resources are difficult to quantify and monetize. This is particularly true for some non-energy benefits, and is also true for some of the benefits associated with achieving energy policy goals.

It is essential that benefits relevant to a particular screening test not be excluded on the grounds that they are too difficult or too uncertain to monetize. We use the term "relevant" benefits in this paper to refer to those benefits that are necessary to ensure that the chosen screening test is meaningful and complete. For example, if a state has an energy policy goal of assisting low-income customers with their high energy burdens, then those benefits should be accounted for somehow in the screening test. As another example, if a state chooses to include participant costs as part of the screening test, then the test should also include participant non-energy benefits (see above). In this case the participant non-energy benefits become relevant and the state should find some way to account for them in the screening test.

There is a range of options available to account for relevant energy efficiency benefits, including:

1. Monetization, which refers to estimating benefits in terms of dollar impacts, which can then be added to the other dollar costs and benefits in the analysis. This is how most, if not all, of the utility system costs and benefits are estimated.

2. Quantification, which refers to developing quantified values of benefits, even if those values are not, should not, or cannot be put into monetary terms. For example, it is possible to quantify the magnitude of particulate air emissions that may be avoided by energy efficiency resources, and this would be useful information even in the absence of monetary values for the health and environmental impacts of those emissions.

3. Proxy adders, which refers to adjustments (either in terms of a percent of benefits or in terms of $/MWh or $/therm) that are meant to approximate the value of the benefit as closely as possible.

4. Alternative screening benchmarks, which refers to developing screening standards that inherently account for the fact that some benefits are not accounted for. For example, regulators could decide that low-income programs whose Utility Cost test benefit-cost ratios are greater than 0.9 are in the public interest, to reflect the low-income benefits that are not otherwise accounted for in the monetized results.

5. Regulatory judgment, which refers to the ability of regulators to account for hard-to-quantify benefits without using any of the options above. For example, regulators may decide that certain lost opportunity or market transformation efficiency programs whose Utility Cost test benefit-cost ratios are less than one are nonetheless in the public interest because of their unquantified benefits, without specifying proxy adders or alternative benchmarks.

The choice of which approach to use to account for hard-to-quantify benefits should be dictated by the particular benefit, the information available, and the accuracy required by the state. Here we discuss approaches for a few key benefits that deserve particular attention.

- Low-income benefits. Several studies have quantified and monetized the non-energy benefits of low-income energy efficiency programs, and at least two states (Massachusetts and Rhode Island) use monetized value for these benefits. Several other states use proxy adders to account for these benefits, while still others do not apply cost-benefit standards to low-income programs under the assumption that they will be in the public interest. (Synapse 2012b) Any of these approaches may be reasonable, as long as they reflect the likely magnitude of low-income benefits, which have been shown to be significant.

- Other fuel savings. These occur when an electric (or gas) utility implements efficiency measures that result in savings of "other" fuels, such as gas (or electricity), oil or propane. These benefits should be put into monetary terms because the magnitude of the savings is typically easy to quantify, and those are typically easy to monetize using relevant prices for those fuels.

- Market transformation benefits. These benefits can be significant and can impact many customers, even those that do not directly participate in the efficiency programs. However, they can sometimes be difficult to quantify and monetize, due to the diffuse nature of the impacts, the limitations of relevant data, and the fact that the impacts may occur over several years. Due to the significance and importance of these benefits, they should be accounted for using alternative benchmarks or regulatory judgment, if better options are not available.

3.2 Description of the Resource Value Framework

The Resource Value Framework

We recommend that states review or re-evaluate their current efficiency screening tests, and develop new tests that account for the considerations and recommendations made in this paper. As noted above, we are not recommending a single new test with specifically defined costs and benefits. Instead, we are recommending a framework and a process that states should use to re-evaluate their current screening tests and make sure that the test they use is consistent with industry best practices for screening, is consistent with the state's energy policy goals, and will identify those efficiency resources that are in the public interest.

In developing a new energy efficiency screening test, each state should use a framework that meets the following core principles.

The Public Interest. The ultimate objective of energy efficiency screening is to provide sufficient information to determine whether proposed energy efficiency resources are in the public interest.

Energy Policy Goals. Efficiency program screening practices should account for the energy policy goals of each state, as articulated in legislation, commission orders, regulations, guidelines and other policy directives. These policy goals provide guidance with regard to which efficiency

programs are in the public interest. While many states do this already, we believe it is important that these policy goals be explicitly identified and accounted for, and that all relevant policy goals be addressed.

Relevant Benefits. Efficiency program screening practices should account for all the relevant benefits associated with the screening test used in that state. For example, a state that chooses to include participant costs in its screening test must also include participant non-energy benefits. If a state is unwilling or unable to include reasonable estimates of participant non-energy benefits, then it should not include the participant costs either.

Relevant Hard-to-Quantify Benefits. Efficiency screening practices should not exclude relevant benefits because they are difficult to quantify and monetize. In the absence of better approaches, proxy adders or multipliers should be used to approximate the magnitude of relevant benefits. Alternative benchmarks and regulatory judgment can also be used for those benefits where proxies are not available or appropriate.

Transparency. Efficiency program administrators should use a standard template to document their assumptions and methodologies, and to provide a transparent, consistent structure for presenting efficiency program costs and benefits.

This approach for designing an efficiency screening test allows for some flexibility for each state; and the resulting test that is adopted may be different across different states.[3] However, in each case the resulting test will (a) be based on a clearly articulated rationale; (b) account for the energy policy goals relevant to the state; and (c) include all relevant benefits regardless of how difficult they are to monetize. In each case, the test should provide sufficient information for the state to identify which energy efficiency resources are in the public interest.

For some states, application of this framework might lead them to a test that is focused on the regulated utility costs and benefits. For other states, with a wide range of energy policy goals, this framework may lead them to a test that includes a broader set of public costs and benefits. For still other states, our approach will lead them to a test that is somewhere in between these two points.

Table 1 presents an illustration of the Efficiency Resource Value Framework, including the types of benefits to be considered in developing an efficiency screening test. It also indicates who the primary beneficiaries are: the utility system, program participants, or the general public. Note that this is only a partial list of the types of benefits offered by efficiency resources. For a more complete list, see RAP 2013.

Table 1 also presents the methodologies that can be used to account for each benefit, as well as our recommendation for which methodologies should be used. The numbers that are

This approach for designing an efficiency screening test allows for some flexibility for each state. The resulting test may vary across states, but each test should be transparent and tied to the state's goals.

[3] We note that this is consistent with today's practices, where many states include different sets of costs and benefits, despite reliance upon the three standard tests: Utility Cost, TRC and Societal Cost tests.

presented in the methodology columns indicate our preference for which methodology to use for each type of benefit. The number one represents the first preference, etc. A blank cell indicates that the relevant methodology cannot or should not be used.

Table 1. Outline of Efficiency Benefits to be Considered in the Resource Value Framework

Primary Beneficiary	Benefit	Methodology to Account for Benefit:				
		Moneti-zation	Quanti-fication	Proxy	Alternative Benchmarks	Regulatory Judgment
The Utility System	Energy	1	--	--	--	--
	Capacity	1	--	--	--	--
	Transmission & Distribution	1	--	--	--	--
	Price Suppression	1	--	--	--	--
	Environmental Compliance	1	--	--	--	--
	Utility Non-Energy Benefits	1	--	--	--	--
The Utility System	Promote Customer Equity	--	--	--	2	1
	Avoid Lost Opportunities	--	--	--	2	1
	Market Transformation	--	--	--	2	1
The General Public	Reduced GHGs	1	2	3	--	--
	Reduced Other Pollutants	1	2	3	--	--
	Reduced Health Care Costs	1	2	3	--	--
	Economic Development	--	--	--	--	1
Participants	Other Resource Savings	1	2	3	--	--
	Low-Income Benefits	1	2	3	4	5
	Non-Energy Benefits	1	2	3	--	--

Note that this is a partial list of benefits, presented here for illustrative purposes.

Table 1 illustrates the key elements of the Resource Value Framework as follows:

1. The first set of benefits are those that are experienced by the utility system, and that can be monetized. These benefits should be included in any efficiency screening test, and should be monetized.

2. The second set of benefits are those that are experienced by the utility system, but are difficult to monetize. These benefits should be accounted for using other approaches if needed, such as alternative benchmarks or regulatory judgment. Whether to include these benefits should be dictated by the energy policy goals of the state.

3. The third set of benefits include those that are experienced by the general public. Ideally, these would be monetized, but proxies could be used if needed. Economic development benefits are unique here because they should not be directly added in to the monetized benefits, due to the risk of double-counting benefits. Economic development benefits should be considered qualitatively, outside of the quantitative results of the screening test. Whether to include these benefits should be dictated by the energy policy goals of the state.

4. The fourth set of benefits are those that are experienced by the program participants. Whether to include these benefits should be dictated by the energy policy goals of the state. If a state decides that it wants to include participant costs in the screening test, then reasonable estimates of the participant non-energy benefits must also be included. The participant non-energy benefits should ideally be monetized, but alternative methods to account for them can be used if needed.

Flexibility and Specific Considerations

Our proposal for the Resource Value Framework is explicitly designed to allow each state the flexibility to determine which costs and benefits to include in its screening test, based on its own energy policy goals. However, there are two issues that we encourage states to consider when deciding which cost and benefits it should include in its screening tests.

First, we urge states not to include participant costs and participant non-energy benefits in their screening test. The challenges associated with identifying all of the relevant participant non-energy benefits are significant, and are more likely to result in understated benefits and skewed screening results. Nonetheless, as stated several times above, if a state does choose to include participant costs in their screening test, then it must also include reasonable estimates of participant non-energy benefits.

Second, states who choose to rely primarily on the Utility Cost test should ensure that the test properly accounts for customer equity. One of the key policy goals that all states should achieve is the goal of ensuring that all customers have meaningful access to efficiency programs. This is especially important with regard to low-income efficiency programs – without low-income programs some of the customers most in need of efficiency savings will not be able to benefit from the programs. Therefore, states should not require or allow program administrators to use a narrowly-defined Utility Cost test that does not properly account for the customer equity benefits associated with low-income efficiency programs.

Context and Precedent

Note that many states have already applied some of the elements of our recommendation in developing their energy efficiency screening tests. However, few states apply all of the elements in the comprehensive, transparent and standardized way that we recommend. We expect that comprehensive application of all of these considerations will help offer improvements in efficiency screening in many states; some may experience moderate improvements while most are likely to experience significant improvements.

Also note that the approach described above, particularly the recommendation to consider energy policy goals to determine what is in the public interest, has an important regulatory precedent. Most states have developed some regulatory mechanisms to promote the development of renewable resources; including renewable portfolio standards, long-term contracts, net metering policies, and more. In many of these instances the utility is allowed to use ratepayer funds to support renewable resources that cost more than conventional generation sources. These renewable resource policies typically do not require that the resources pass a cost-effectiveness screening test. Furthermore, it is generally understood that many renewable resources are more expensive than conventional generation, and therefore would not pass the Utility Cost test if they were subject to it.

The general concept of accounting for energy policy goals in deciding what resource is in the public interest has important precedents, including renewable energy policies.

The reason that such renewable resource policies are so widely adopted is that renewable resources help to meet key energy policy goals, e.g., reduced carbon emissions, reduced air emissions, and reduced use of fossil fuels, price stability, and local job creation. These energy policy benefits of renewable resources are widely understood by governors, legislators, regulators, and even the average citizen walking down the street. Energy efficiency offers these same energy policy benefits, and more, yet many states do not account for them, or do not fully account for them, when screening energy efficiency. We believe it is time to reform the efficiency screening process so that these key energy policy benefits are properly accounted for.

3.3 The Roles of the Five Standard Tests for Screening Energy Efficiency

It is useful to explain how the Resource Value Framework compares to the five standard cost-effectiveness tests that are used today. Appendix A provides an overview of the five standard cost-effectiveness tests. Here we explain how the Resource Value Framework should build off of the Utility Cost test and the Societal Cost test, and how the other three tests should not play a role in energy efficiency screening.

The Utility Cost test and the Societal Cost test. The Resource Value framework builds off of two of the standard efficiency screening tests: the Utility Cost test and the Societal Cost test. The Utility Cost test is important because it provides information on the utility system impacts; i.e., the direct costs and benefits that are experienced by the utility that will affect utility revenue requirements, and that therefore will affect utility customer costs. The Societal Cost test is important because it allows for consideration of additional impacts that are often important to regulators and others, such as

environmental impacts and economic development impacts. The Resource Value Framework builds off of each of these tests by including explicit and transparent consideration of those costs and benefits important to each state.

The Total Resource Cost test. We recommend that the Total Resource Cost (TRC) test not be used for screening energy efficiency programs, despite its widespread use in the industry today. The TRC test is designed to include the "total" cost of an efficiency resource: i.e., both the utility cost and the participant cost. However, once the screening test is expanded to include the total cost of a resource, then the perspective of the test has shifted from the utility perspective to the societal perspective. Consequently, those states that decide it is important to include both the participant cost and the utility cost of a resource should recognize that they are essentially considering societal costs, and should recognize what that implies about the appropriate benefits to consider.

The Resource Value Framework builds off of the Utility Cost and the Societal Cost tests, by considering the specific energy policies of each state.

Furthermore, the TRC test is very difficult to apply properly in practice. Most states that use the TRC test ignore or significantly undervalue participant non-energy benefits. (ACEEE 2012). By definition the TRC test includes the cost incurred by the efficiency program participant. If the participant non-energy benefits are not also accounted for, or are significantly understated, then the TRC test will be skewed against energy efficiency, and will understate the cost-effectiveness of energy efficiency. (See Neme and Kushler 2010; and, Synapse 2012a).

The Participant Cost test. We also recommend that the Participant Cost test not be used for screening energy efficiency programs. While this test has an important role in indicating how participants might benefit from efficiency investments, and in guiding decisions about customer incentives, it does not provide dispositive information regarding the decision of whether utility customer funding should be used to support an efficiency program.

The Ratepayer Impact Measure test. We also recommend that the Ratepayer Impact Measure (RIM) test not be used for screening energy efficiency resources. Rate impacts are not a matter of cost-effectiveness, and therefore concerns about rate impacts should be addressed separately from the cost-effectiveness analysis. When evaluating rate impact concerns, it is important to do so comprehensively, by assessing rate impacts, bill impacts and participation rates. The results of the RIM test do not provide any such information, and therefore cannot help inform with the decision of whether certain energy efficiency resources are in the public interest. (See SEE Action 2011).

3.4 How the Framework Differs from the California Standard Practice Manual

The California Standard Practice Manual (SPM) has been widely used as a guide for how to apply the efficiency screening tests. (CA PUC 2001). The SPM has been very useful in outlining some of the key elements of efficiency screening.

However, the CA SPM is outdated and does not address some of the key cost-effectiveness issues and challenges facing regulators today.[4] In particular, the CA SPM does not provide guidance on how to account for the benefits associated with energy policy goals. The CA SPM explicitly notes that policy rules are not a part of the manual, but that policy rules "are an integral part of any cost-effectiveness evaluation." (CA PUC 2001, page 7) In addition, the CA SPM does not provide much guidance on how to address non-energy benefits, particularly participant non-energy benefits. (CA PUC 2001, page 20-21).

Our recommendations differ from the CA SPM in several key ways. First, we recommend that energy policy goals be explicitly accounted for when screening energy efficiency. In fact, the decision of whether to include the total costs of efficiency resources, and the decision of whether to consider societal costs, are themselves policy decisions.

The California Standard Practice Manual needs to be updated to address key policy issues facing states today.

Second, we recognize that there is a range of screening tests that exist beyond just the Utility Cost test and the Social Cost test, and that states have some flexibility in choosing which test should be the primary test for screening energy efficiency programs within their state.

Third, we recommend that relevant benefits not be excluded from the screening test, regardless of how difficult it is to quantify and monetize them. This includes accounting for energy policy benefits and relevant participant non-energy benefits.

Fourth, we recommend that participant costs should not be included in efficiency screens unless participant benefits are included as well.

Fifth, we recommend that the Participant Cost test, the Rate Impact Measure test, and the TRC test (as defined in the CA SPM) not be used for the purpose of screening energy efficiency programs.

Combined, these differences lead to some critically important improvements over the traditional screening tests described in the CA SPM.

3.5 Examples of How the Resource Value Framework Can be Applied

Here we offer two examples of how this approach can be applied, based on issues that are relevant to efficiency program administrators today.

Low-income benefits. Some states may choose to use the Utility Cost test for screening energy efficiency resources, yet also recognize that low-income programs offer a variety of non-energy benefits that should be accounted for when screening energy efficiency programs. In this case, the state could begin with the Utility Cost test and add some consideration for low-income non-energy benefits on top of that. This could be done with monetized values, with proxy adders, with alternative benchmarks, or with regulatory judgment. In fact, many states do this already. Thus our proposal is

[4] Note that as evidence for this point, the California Public Utilities Commission currently has a docket open to update and enhance its energy efficient screening practices. (CA PUC Staff 2013).

entirely consistent with existing practices. What we are recommending is that similar practices to be applied to other types of efficiency benefits and efficiency programs.

Avoiding Lost Opportunities. Several states are currently finding that their gas efficiency programs are becoming uneconomic due to recent reductions in gas prices. Some of them are debating whether these programs should be scaled back or terminated. In these cases, regulators may find that there are certain energy policy benefits associated with maintaining the programs, despite the fact that they are not passing the narrowly constructed and limited cost-effectiveness test in use today. These energy policy benefits include: avoiding lost opportunities, maintaining customer equity, promoting market transformation, and more. In this case, regulators can find that continuation of these programs is in the public interest because of these hard-to quantify benefits.

4. Using the Framework to Document Efficiency Screening Assumptions

We recommend that states require program administrators to use a standardized template for presenting the results of their energy efficiency screening. A standardized screening template will encourage transparency and consistency, and will indicate how program administrators have applied the various components of the Resource Value Framework. A standardized template will also help improve communication between program administrators and efficiency stakeholders, and help streamline the regulatory review of energy efficiency programs.

Table 2 presents a recommended format for such a template. This table includes a list of the types of costs and benefits that might be chosen by a state when applying the Resource Value Framework described above. This template can be seen as a checklist for important costs and benefits, and key public policy goals that states should consider in designing their energy efficiency screening practices.

The templates should also make explicit the key assumptions used in the screening analysis. This would include the discount rate being used, the analysis period, whether the screening is being done at the program or portfolio level, and other assumptions identified in each state. References with full citations should be included for each of the inputs to the template.

Note that this template does not include a full itemization of all the benefits of energy efficiency, particularly all of the non-energy benefits. For a more comprehensive list of all the energy efficiency benefits that could be included in a standardized template, see RAP 2013.

We recommend that states require program administrators to use the Resource Value Framework for presenting the results of their energy efficiency screening.

Table 2. The Resource Value Framework

REQUIRED	**Program Name:**		**Date:**	
	1. Key Assumptions, parameters and summary of results			
	Analysis Level	☐ Program		
		☐ Portfolio		
	Measure Life		Discount Rate	
	Projected Annual Savings		Projected Lifetime Utility Savings	
	2. Utility Monetized Costs		**Utility Monetized Benefits**	
	Program Administration		Avoided Energy Costs	
	Incentives Paid to Participants		Avoided Capacity Costs	
	Shareholder Incentive		Avoided T&D Costs	
			Wholesale Market Price Suppression	
			Avoided Environmental Compliance Costs	
			Utility Non-Energy Benefits	
	NPV Total Utility Costs		NPV Total Utility Monetized Benefits	
RECOMMENDED	**3. Public Monetized Costs**		**Public Monetized Benefits**	
			Public Benefits of Low Income Programs	
			Reduced GHG Emissions	
			Reduced Pollution	
			Conserve Other Fuel and Water Resources	
			Reduce Public Health Care Costs	
	NPV Total Policy Costs		NPV Total Policy Monetized Benefits	
OPTIONAL - NOT RECOMMENDED	**4. Participant Monetized Costs**		**Participant Monetized Benefits**	
	Participant Contribution		Participants' Savings of Other Fuels	
			Participant Non-Energy Benefits	
			Low Income Participant Non-Energy Benefits	
			Participants' Water and Sewer Savings	
			Participants' Reduced O&M Benefits	
			Participants' Health Impacts	
			Participant Employee Productivity	
			Participant Comfort	
			Other Participant Non-Energy Benefits	
	NPV Total Participant Cost		NPV Total Monetized Participant Benefits	
REQ'D	**Summary of Monetized Costs and Benefits**			
	Total Monetized Costs		**Total Monetized Benefits**	
	Monetized Benefits-Cost Ratio		**Net Monetized Benefits**	
RECOMMENDED	**Consideration of Non-Monetized Benefits and Costs**			
	Non-Monetized Benefits		**Comments**	
	Promotion of Customer Equity			
	Avoided Lost Opportunity			
	Promoting Market Transformation			
	Economic Development			
REQ'D	**Determination**			
	☐ Program is in the Public Interest		☐ Program is not in the Public Interest	

Reference required for all values.

5. Choosing Discount Rates and Accounting for Risk

Introduction and Summary

Discount rates are commonly used to compare future streams of costs and benefits in a consistent way, by estimating the present values and expressing them in a common reference year. The choice of discount rate will have a significant impact on these present values; relatively high discount rates will significantly reduce the value of costs and benefits in the later years of the study period, while relatively low discount rates will reduce that value by much less. A discount rate of zero means that costs and benefits in future years are valued as much as costs and benefits today. The choice of discount rates is especially important for energy efficiency resources, whose costs are typically incurred in early years while benefits are experienced over many years.

Discount rates are used to account for two inter-related concepts: the time value of money and the riskiness of the investment.[5] The time value of money is captured in the cost of capital that an investor uses to finance an investment; and the cost of capital is one of the key determinants of the discount rate. The riskiness of an investment is an indication of the uncertainties that might affect the cost and benefits of an investment over time; and those investments that are expected to have a low risk can be discounted using a relatively low discount rate to reflect that risk. Because of the important relationship between the choice of discount rate and the risk of an investment, we discuss risk in the next section, and then discuss discount rates in the section after that.

We recommend that states explicitly and comprehensively consider the risk reduction benefits of energy efficiency resources when choosing a discount rate.

In sum, we recommend that states explicitly and comprehensively consider the risk benefits of energy efficiency resources when choosing a discount rate for the efficiency screening test. Efficiency offers significant benefits in terms of financial risk, project risk, and portfolio risk. We recommend that the utility weighted average cost of capital not be used to set the discount rate, because this rate does not reflect the full risk benefits associated with energy efficiency resources. Instead, states should use a low-risk discount rate, a risk-adjusted discount rate, a societal discount rate, or a combination of these, all of which can help account for the full value of the risk benefits of energy efficiency.

Types of Risk in Resource Planning

There are three types of risks related to investments in general, and utility system resource planning in particular:

[5] Discount rates can also include the effects of inflation. In this paper, we refer to "real" discount rates, which should be applied to real or constant dollars. When using real discount rates, the impact of inflation is removed from the discount rate. For example, at 2 percent inflation, a real discount rate of 3 percent is equivalent to a nominal discount rate of 5 percent.

- *Financial risk* refers to the risk associated with funding an investment. The funding source used to make an investment determines the "cost of capital" for that investment. Different sources of capital have different levels of risk associated with them.

- *Project risk* refers to the risks associated with planning, constructing and operating a particular project or resource. In utility planning, supply-side resources face project risk from many factors, such as siting constraints, fuel price volatility, construction costs uncertainty, current and future environmental regulations. Demand-side resources experience different project risks, such as customer adoption rates, technology performance, and contractor performance.

- *Portfolio risk* refers to the risk experienced by an investor from the total portfolio of investments, projects, or resources. Different combinations of investments, projects or resources will result in different levels of overall risk for the investor. One common practice for reducing portfolio risk is to diversify investments.

Energy efficiency resources are potentially low-risk for all three of these types of investment risks. If energy efficiency programs are funded by a system benefit charge, or some other reconciling charge, then there is a very low financial risk associated with them. In other words, efficiency programs that are funded by fully reconciling charges to all customers have a very low cost of capital. In these cases, energy efficiency resources have a lower financial risk than supply-side resources, where the financial risk is best characterized by the utility's weighted average cost of capital.

With regard to project risk, efficiency resources typically have much less project risk than supply-side resources. Efficiency resources may have some project risk (e.g., customer adoption, technology performance), but these are relatively small risks, particularly now that many states have been operating efficiency programs for many years and have developed enough experience to make reasonable predictions of program participation and results. Supply-side resources, on the other hand are subject to considerable project risks (e.g., construction costs, siting constraints, fuel price volatility, swings in electricity demands, market risks). In general, energy efficiency resources have significantly lower project risk than supply-side resources. (Ceres 2012).

With regard to portfolio risk, energy efficiency programs can help diversify the mix of resources in a utility system, thereby reducing risk on the whole system. In addition, energy efficiency resources are very diverse by their nature, because they involve a variety of programs, offering a variety of options to a variety of customers. If one component of the total set of efficiency programs does not turn out as well as expected, it will only have a small effect on the performance of the total set of programs. Furthermore, energy efficiency reduces the rate of customer energy and demand growth, which provides the utility with more time and flexibility to identify the amount and type of new supply-side resources (generation, transmission and distribution) that are needed to meet customer demand. In general, energy efficiency resources can help to significantly reduce portfolio risk.

Accounting for Risk Through Discount Rates

Risk can be accounted for in several ways when screening energy efficiency resources. For example:

- The discount rate can be selected, or adjusted, to account for the risk benefits of energy efficiency. This option is discussed in more detail below.
- In states that use integrated resource planning (IRP) to determine the appropriate level of energy efficiency resources to implement, risk assessment modeling techniques can be used to assess risks associated with different resources and resource portfolios.
- A proxy can be applied to the energy efficiency benefits, as an approximation for the risk benefits of energy efficiency.
- Some combination of the above.

We recommend that states use the discount rate as the primary mechanism to account for risk when screening energy efficiency. Risk assessment through IRP can be a useful tool to account for risk, but may not be practical or available for many efficiency program administrators. Proxy adjustments can be made to account for risk benefits, but these are very simplistic and approximate at best. The choice of discount rate allows for a relatively explicit way to address the risks associated with costs and benefits experienced over different time periods.

While there are several ways to address risk in resource planning, we recommend that states use the discount rate as the primary mechanism to account for risk.

When states choose a discount rate to account for risk, each of the three types of risk should be addressed separately. First, states should explicitly consider the financial risk, i.e., the cost of capital, based on the source of funds used to finance the efficiency programs in the state. For those states that use a reconciling charge on distribution customers to collect funds for efficiency programs, a low-risk discount rate should be used to screen those programs. For those states that recover the utility efficiency costs by including them in rate base at the time of a rate case, similar to the treatment of supply-side resource costs, the utility's weighted average cost of capital is a better indicator of the financial risk associated with those efficiency programs.

Second, states should explicitly consider the project risk benefits offered by energy efficiency. Since energy efficiency has relatively low project risk, then that should be accounted for by adjusting the discount rate. This would mean reducing the discount rate relative to the rate that was chosen to account for financial risk.

Third, states should explicitly consider the portfolio risk benefits offered by energy efficiency. Portfolio risk might vary across different states, depending upon the extent to which the state's supply-side resources are diversified. Since energy efficiency can typically reduce portfolio risk, then that should also be accounted for by adjusting the discount rate. This would mean reducing the discount rate relative to the rate that was chosen to account for financial and project risk. In this way, the final discount rate would reflect the impacts of all three types of planning risks.

Finally, it is important to note that the choice of which discount rate to use is essentially a policy decision. This choice is a reflection of the weight that states want to place on today's costs and benefits relative to those of future years. States that place a relatively high value on future benefits, for

example the benefits of reducing greenhouse gas emissions, should opt for a relatively low discount rate.

Choice and Value of the Discount Rate

There appears to be a common perception that when using the Utility Cost test to screen energy efficiency resources, the discount rate should equal the utility weighted average cost of capital; and that when using the Societal Cost test, the discount rate should equal a societal discount rate. We recommend that states think much more broadly than this about their choice of discount rate.

First, as noted above in Section 3, the perspective that is reflected in many of the efficiency screening tests that are in practice today, particularly for the majority of states that use the TRC test, is not as simple as the utility perspective or the societal perspective. Most states combine costs and benefits that accrue to the utility with those that accrue to individual customers, and sometimes with those that accrue to society.

Second, the screening practice that we recommend above is intended to represent costs and benefits associated with state energy policy goals, as well as costs and benefits to the utility system. Consequently, states that adopt this approach are not confined to the perspective of the utility system or of society as a whole, but should consider discount rates that are likely to lead to efficiency programs that are in the public interest.

Third, and most importantly, the choice of discount rates should explicitly take account of the three different types of resource planning risks, as described in the previous section. In order to properly account for these risks, it may be appropriate choose a discount rate that is neither a utility discount rate nor a societal discount rate.

The final question to address is what value a state should choose for a discount rate, given all the considerations above. What value should be used for a low-risk discount rate? A societal discount rate? A risk-adjusted discount rate? There is a large body of literature on this issue, and states have used different approaches to select energy efficiency discount rates.[6] However, we provide several points below to help guide states in choosing a value that is appropriate for their screening practices.

- Utility weighted average cost of capital. This would be an appropriate starting point for those states with energy efficiency programs that are financed the same way that supply-side resources are financed: by adding the costs into rate base at the time of a rate case. This addresses the financial risk associated with the cost of capital used to finance the efficiency resource.

- Low-risk discount rate. This would be an appropriate starting point for those states with energy efficiency programs financed with a low cost of capital. A low-risk discount rate could be based on a generic market indicator of a low-risk investment. For example the interest rates on US Treasury Bills are widely regarded as a good indication of virtually risk-free

[6] See for example Synapse 2013.

investments. Another example is the prime lending rate used by banks in making their loans. Both of these indicators of low-risk investments change over time.

- Societal discount rates. This would be an appropriate starting point for those states that use the Societal Cost test, or that otherwise include several societal benefits in their cost-effectiveness screening practices. The societal discount rate should reflect society's cost of capital and society's willingness to accept risks. Compared to individuals and firms, society should have a broader tolerance for receiving benefits in the future, and should also be better able to access funds at a lower borrowing cost. Consequently, the societal discount rate should be relatively low. For some purposes it can even be set at zero or below zero.

- Risk-adjusted discount rates. As described above, discount rates can be adjusted to account for risks, especially project risks and portfolio risks that are not accounted for in the cost of capital for a project. In other words, once a discount rate is chosen on the basis of the cost of capital, whether it be a utility cost of capital, a low-risk discount rate or a societal discount rate, it can be adjusted further to account for reduced project risks and reduced portfolio risks associated with energy efficiency resources.

Bringing all of these points together leads to some general conclusions. First, the utility weighted average cost of capital is too high for a discount rate because it does not properly account for the risk benefits of energy efficiency – even for those states that rely upon the Utility Cost test and recover efficiency program costs through rate base. Second, after discount rates are adjusted for all three types of risk they would likely be significantly lower than the utility weighted average cost of capital.

Two recent surveys of several states' screening practice indicates that efficiency program administrators currently use a variety of different rationales for choosing discount rates for screening energy efficiency, and that the values chosen are quite different as well. (Synapse 2013a and Synapse 2013b). Another survey indicates that for more than half of the states the discount rate used to screen energy efficiency is proposed by the utility, while for less than one fifth of the states they are developed by the commission. (ACEEE 2012).

The utility weighted average cost of capital is too high for a discount rate. Properly accounting for the risk benefits of energy efficiency should lead to significantly lower discount rates.

These surveys suggest that there is a large opportunity across the states for improving the way that discount rates are chosen for energy efficiency screening, and the way that discount rates are used to account for the risk benefits of energy efficiency resources. We recommend that, at a minimum, each state should explicitly identify the rationale for choosing a discount rate, explicitly account for all three types of risks in choosing a discount rate, and explicitly identify why the chosen discount rate will help identify those efficiency resources that are in the public interest.

6. Screening Level

In general, program administrators can screen energy efficiency programs at four different levels:

- Measure level. Evaluation at the measure level means that each individual component (i.e., measure, technology, or action to increase efficiency) of an efficiency program must be cost-effective on its own. Screening at the measure level is the most restrictive application of the cost-effectiveness tests.

- Program level. Evaluation at the program level means that the measures within a program must be cost-effective collectively. Some measures may not be cost-effective on their own, but would be considered cost-effective when combined with all of the other measures of the program.

- Sector level. Evaluation at the sector level means that the programs within a sector (e.g., low-income, residential, commercial, industrial) must be cost-effective collectively. Some programs may not be cost-effective on their own, but would be considered cost-effective when combined with all of the other programs of the sector.

- Portfolio level. Evaluation at the portfolio level means that the programs within a portfolio (i.e., combing all programs together) must be cost-effective collectively. Some programs may not be cost-effective on their own, but would be considered cost-effective when combined with all of the other programs of the portfolio. This is the most flexible and least restrictive application of the cost-effectiveness tests.

A recent ACEEE report surveyed states on the level at which program administrators screen for cost-effectiveness. The survey found that a variety of approaches are used across the states: most states screen at the portfolio level and the program level, although nearly half of those states noted that they had some expectations at the program level (e.g., low-income programs, pilot programs, etc.) where the benefit-cost test was not required or waivers were granted. Roughly 30 percent of states screen at the measure level, and a majority of those states provide exceptions for things like low-income programs and/or situations where measures can be bundled together into a cost-effective package of measures (e.g., certain whole house type programs). (ACEEE 2012, p.31).

We recommend that program administrators screen energy efficiency resources at the program level, not at the measure level.

We recommend that program administrators screen energy efficiency resources at the program level, because this level best represents the costs and benefits that occur as a result of utility efforts to combine a set of actions (e.g., marketing, education, technical support, financial support, etc.) into a single package offered to customers. All of these actions should be considered together when evaluating an efficiency resource. Further, we recommend that program administrators *evaluate and report* the cost-effectiveness of efficiency resources at the program level, the sector level and the portfolio level. The results of the analysis at all three of these levels provide very useful information for regulators and others in evaluating energy efficiency resources and plans.

Efficiency resources should not be screened at the measure level. First, screening at the measure level prohibits the ability to account for the interrelationships between different measures, and the fact that some high-cost measures might help customers adopt lower-cost measures, resulting in greater overall net benefits. Second, experience has demonstrated that measure-level screening can exclude measures

that are cost-effective from the participant perspective, increase the transaction costs of contractors and customers, create lost opportunities, and hinder the goal of achieving comprehensive, whole-house or whole-building efficiency savings. Third, measure-level screening prevents program administrators from taking advantage of economies of scale, either within measures or within a program, that might make measures and programs more cost-effective.

Finally, it is useful to note that in addition to screening energy efficiency programs for planning purposes, program administrators also screen energy efficiency programs at the point of implementation, i.e., field screening. Field screening can be applied during the process of auditing homes and businesses for retrofits, and may be important to provide customers with guidance as to which efficiency measures will be appropriate to the unique conditions of their building. We recommend that the Participant Cost test be used in field screening, because this test indicates which efficiency measures are cost-effective from the participating customer's perspective.

7. Study Period

Energy efficiency measures produce savings over the full course of their useful lives. Depending on the measure, the useful life can be as long as 20 years, 30 years, or more. Energy efficiency screening practices should include the savings available over the full life of the energy efficiency measure. This requires using a study period that is long enough to capture savings over their full useful lives. Shorter study periods will skew the cost-effectiveness results against energy efficiency.

We recommend that the study period used to screen energy efficiency programs be at least as long as the longest measure life in the program. This would result in a study periods of 20 year; and for those energy efficiency measures with long useful lives (e.g., those that affect new building construction) a study period of 30 years.

If program administrators do not have the inputs or the models to account for such long study periods, then other methodologies should be used to capture the benefits in the later years that are not included in the study period. For example, "end effects" calculations can be made to adjust the benefits that are derived using a shorter study period.

8. Important Related Issues that Will Be Addressed Separately

We recognize that there are many issues related to energy efficiency screening that are not addressed in this position paper but are very important to ensure that efficiency screening is conducted properly. We propose to set those aside for now so that we can focus our attention on the energy efficiency screening tests. Related issues that warrant attention at a later time include the following:

- What constitutes "reasonable" estimates of participant non-energy benefits?
- What proxy values should be used to account for the hard-to-monetize costs and benefits?

- When screening energy efficiency programs, should the savings account for free-riders, spillover and market transformation? If so, how?
- How should stakeholders consider customer rate and bill impacts when screening energy efficiency programs?
- Others?

9. Summary of Recommendations

Resource Value Framework

States should review or re-evaluate their efficiency screening practices by applying the Resource Value Framework described in this paper.

States should clarify that the objective of energy efficiency screening is to determine whether energy efficiency programs are in the public interest.

States should require that efficiency program screening practices account for the energy policy goals of each state, as articulated in legislation, commission orders, regulations, guidelines and other policy directives.

States should require that efficiency program screening practices should account for all the relevant benefits associated with the screening test used in that state, including those related to achieving state energy policy goals and those related to relevant non-energy benefits.

States should require that efficiency screening practices should not exclude relevant benefits because they are difficult to quantify and monetize.

States should explicitly decide whether the screening test will account for the participant cost of the efficiency resource. If a state decides to include participant costs, then the screening test must also include reasonable estimates of the participant benefits, including non-energy benefits. If a state is unwilling or unable to include reasonable estimates of participant non-energy benefits, then it should not allow the participant costs to be included.

States should require efficiency program administrators to use a standard template to document their assumptions, methodologies and results, and to provide a transparent, consistent structure for presenting efficiency program costs and benefits.

Other Tests

The Total Resource Cost test, as it is currently applied in most states today, should not be used for screening energy efficiency programs, because it can significantly understate program participant non-energy benefits.

The Ratepayer Impact Measure test should not be used for screening energy efficiency programs, because rate impacts are not a matter of cost-effectiveness, and this test does not provide meaningful information to assess the customer equity impacts of efficiency programs.

The Participant Cost test should not be used for screening energy efficiency programs, because it does not reflect the costs and benefits necessary for deciding whether a program is in the public interest.

Additional Issues

States should explicitly and comprehensively consider the risk benefits of energy efficiency resources when choosing a discount rate for the efficiency screening test. The discount rate should not equal the utility weighted average cost of capital, because this value is too high given the significant risk benefits from energy efficiency programs.

Program administrators should screen energy efficiency resources at the program level, not at the measure level.

Program administrators should use a study period that is long enough to include the full operating lives of the measures included in the energy efficiency programs.

Several important, related screening methodologies should be addressed in a separate study. The subjects should include: estimates of participant non-energy benefits; proxy values used to account for hard-to-monetize costs and benefits; accounting for net savings versus gross savings from efficiency programs; and consideration of rate and bill impacts when screening energy efficiency programs.

10. References

ACEEE 2012. American Council for an Energy Efficient Economy, "A National Survey of State Policies and Practices for the Evaluation of Ratepayer-Funded Energy Efficiency Programs," February 2012, available at: http://www.aceee.org/research-report/u122.

CA PUC 2001. California Public Utilities Commission, "California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects," October 2001, available at: http://www.energy.ca.gov/greenbuilding/documents/background/07-J_CPUC_STANDARD_PRACTICE_MANUAL.PDF.

CA PUC Staff 2013. California Public Utilities Commission Staff, "California's Experience in Incorporating Non-Energy Benefits into Cost-Effectiveness Tests," Joy Morgenstern, Senior Regulatory Analyst, presented at International Energy Agency Conference on Capturing Multiple Benefits of Energy Efficiency, Ottawa, Canada, October 16.

Daykin et al. 2012. Elizabeth Daykin, The Cadmus Group; Jessica Aiona, The Cadmus Group; Brian Hedman, Hedman Consulting, "Whose Perspective? The Impact of the Utility Cost Test," December 11, 2012, available at: http://www.cadmusgroup.com/wp-content/uploads/2012/11/TRC_UCT-Paper_12DEC11.pdf.

Eckman 2011. Tom Eckman, "Some Thoughts on Treating Energy Efficiency as a Resource," ElectricityPolicy.com, May 2, 1011, available at: http://www.electricitypolicy.com/archives/3118-some-thoughts-on-treating-energy-efficiency-as-a-resource.

Haeri and Khawaja 2013. Hossein Haeri and M. Sami Khawaja, "Valuing Energy Efficiency: The Search for a Better Yardstick," Public Utilities Fortnightly, July 2013, available at: http://www.fortnightly.com/fortnightly/2013/07/valuing-energy-efficiency?authkey=aa2986b87d0fbbce625f243752a462709bf972274a13deb4b7cc4cdcefdd6a5a.

NHPC (2011). National Home Performance Council, Robin LeBaron. "Getting to Fair Cost-Effectiveness Testing: Using the PAC Test, Best Practices for the TRC Test, and Beyond," September 2011.

NAPEE 2008. National Action Plan for Energy Efficiency, "Understanding Cost-Effectiveness of Energy Efficiency Programs: Best Practices Technical Methods, and Emerging Issues for Policy-Makers," November 2008, available at: http://www.epa.gov/cleanenergy/documents/suca/cost-effectiveness.pdf.

Neme and Kushler 2010. Chris Neme and Marty Kushler, "Is it Time to Ditch the TRC? Examining Concerns with Current Practice in Benefit-Cost Analysis." 2010 ACEEE Summer Study on Energy Efficiency in Buildings, available at: http://aceee.org/proceedings-paper/ss10/panel05/paper06.

NMR (2011). NMR Group, Inc. "Massachusetts Program Administrators: Massachusetts Special and Cross-Sector Studies Area, Residential and Low-Income Non-Energy Impacts (NEI) Evaluation," August 15, 2011.

RAP 2013. Regulatory Assistance Project, "Recognizing the Full Value of Energy Efficiency: What's Under the Feel-Good Frosting of the World's Most Valuable Layer Cake of Benefits," September 2013, available at: http://www.raponline.org/document/download/id/6739.

SEE Action 2011. State Energy Efficiency Action Network, "Analyzing and Managing Bill Impacts of Energy Efficiency Programs: Principles and Recommendations," Driving Ratepayer-Funded Energy Efficiency through Regulatory Policies Working Group, July 2011.

SERA (2010). Skumatz Economic Research Associates, Inc., "Non-Energy Benefits: Status, Findings, Next Steps, and Implications for Low-Income Program Analyses in California," Prepared for Sempra Utilities, Revised Report, May 11, 2010.

Synapse 2011. Synapse Energy Economics, Inc., "Avoided Energy Supply Costs in New England: 2011 Report," July 21, 2011, amended August 11, 2011, available at: http://www.synapse-energy.com/Downloads/SynapseReport.2011-07.AESC.AESC-Study-2011.11-014.pdf.

Synapse 2012a. Synapse Energy Economics, Inc., "Best Practices in Energy Efficiency Program Screening: How to Ensure that the Value of Energy Efficiency is Properly Accounted For," prepared for the National Home Performance Council, July 2012, available at: http://www.synapse-energy.com/Downloads/SynapseReport.2012-07.NHPC.EE-Program-Screening.12-040.pdf.

Synapse 2012b. Synapse Energy Economics, Inc., "Energy Efficiency Cost-Effectiveness Screening: How to Properly Account for Other Program Impacts and Environmental Compliance Costs," prepared for Regulatory Assistance Project, November 2012, available at: http://www.synapse-energy.com/Downloads/SynapseReport.2012-11.RAP.EE-Cost-Effectiveness-Screening.12-014.pdf.

Synapse 2013a. Synapse Energy Economics, Inc., "Avoided Energy Supply Costs in New England: 2013 Report," July 12, 2013, available at: http://www.synapse-energy.com/Downloads/SynapseReport.2013-07.AESC.AESC-2013.13-029-Report.pdf.

Synapse 2013b. Synapse Energy Economics, Inc., "Energy Efficiency Cost-Effectiveness Screening in the Northeast and Mid-Atlantic States," prepared for the Northeast Energy Efficiency Partnerships EM&V Forum, October 2, 2013.

Tetra Tech (2012). Tetra Tech, Inc. "Massachusetts Program Administrators: Final Report – Commercial and Industrial Non-Energy Impacts Study," June 29, 2012.

11. Appendix A: Overview of Existing Energy Efficiency Screening Tests

The Standard Cost-Effectiveness Tests

The costs and benefits of energy efficiency are qualitatively different from those of supply-side resources in that they can have different implications for different parties. As a result, five cost-effectiveness tests have been developed to consider efficiency costs and benefits from different perspectives. Each of these tests combines the various costs and benefits of energy efficiency programs in different ways, depending upon which costs and which benefits pertain to the different parties. These tests are described below and summarized in Table A-1.[7]

Table A-1. Components of the Energy Efficiency Cost-Effectiveness Tests

	Participant Test	RIM Test	Utility Cost Test	TRC Test	Societal Cost Test
Energy Efficiency Program Benefits:					
Customer Bill Savings	Yes	---	---	---	---
Avoided Energy Costs	---	Yes	Yes	Yes	Yes
Avoided Capacity Costs	---	Yes	Yes	Yes	Yes
Avoided Transmission and Distribution Costs	---	Yes	Yes	Yes	Yes
Wholesale Market Price Suppression Effects	---	Yes	Yes	Yes	Yes
Avoided Cost of Environmental Compliance	---	Yes	Yes	Yes	Yes
Reduced Risk	---	Yes	Yes	Yes	Yes
Utility Non-Energy Benefits (e.g., reduced arrears)	---	Yes	Yes	Yes	Yes
Participant Non-Energy Benefits (e.g., reduced O&M)	Yes	---	---	Yes	Yes
Societal Non-Energy Benefits (e.g., environmental)	---	---	---	---	Yes
Energy Efficiency Program Costs:					
Program Administration Cost	---	Yes	Yes	Yes	Yes
EE Measure Cost: Program Financial Incentive	---	Yes	Yes	Yes	Yes
EE Measure Cost: Participant Contribution	Yes	---	---	Yes	Yes
Lost Revenues to the Utility	---	Yes	---	---	---

[7] These tests are sometimes defined slightly differently by different public utility commissions. For comprehensive descriptions and discussions of these tests, see CA PUC 2001 and NAPEE 2008.

- The Societal Cost Test[8] - This test includes the costs and benefits experienced by all members of society. The costs include all of the costs incurred by any member of society: the program administrator, the customer, and anyone else. Similarly, the benefits include all of the benefits experienced by any member of society. The costs and benefits are the same as for the TRC Test, except that they also include externalities, such as environmental costs and reduced costs for government services. The societal test also includes the use of a lower, societal discount rate.

- The Total Resource Cost (TRC) Test - This test includes the costs and benefits experienced by all utility customers, including both program participants and non-participants. The costs include all the costs incurred by the program administrator, plus all the costs incurred by the customers. The benefits include all the avoided utility costs, plus any OPIs experienced by the participating customers, such as avoided water costs, other fuel savings, reduced operations and maintenance costs, improved productivity in school and at work, improved sales for businesses with improved aesthetics, improved comfort levels, health and safety benefits, and more.

- The Utility Cost Test[9] - This test includes the energy costs and benefits that are experienced by the energy efficiency program administrator. The costs include all expenditures by the program administrator to design, plan, administer, deliver, monitor, and evaluate efficiency programs, offset by any revenue from the sale of freed up energy supply. The benefits include all the avoided utility costs, including avoided energy costs, avoided capacity costs, avoided transmission and distribution costs, and any other costs incurred by the utility to provide electric services (or gas services in the case of gas energy efficiency programs).

- The Participant Test - This test includes the costs and benefits experienced by the customer who participates in the efficiency program. The costs include all the direct expenses incurred by the customer to purchase, install, and operate an efficiency measure. The benefits include the reduction in the customer's electricity bills, any financial incentive paid by the program administrator, and OPIs experienced by the participating customer.[10]

- The Ratepayer Impact Measure (RIM) Test[11] - This test provides an indication of the impact of energy efficiency programs on utility rates. The results of this test provide an indication of the impact of energy efficiency on those customers that do not participate in the energy efficiency programs. The costs include all the expenditures by the program administrator, plus the "lost revenues" to the utility as a result of the inability to recover fixed costs over fewer sales. The benefits include the avoided utility costs.

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[8] The California Standard Practice Manual (SPM) considers the Societal Cost Test to be a variant on the TRC Test (CA PUC 2001, p 18). Many states and studies depart from the SPM by drawing a more complete distinction between these two tests.

[9] This is sometimes referred to as the Program Administrator Cost test or the Energy System Test.

[10] Throughout this analysis we use the term program administrator to refer to the entity that implements energy efficiency programs, whether it be a vertically integrated utility, a distribution utility or a third party administrator.

[11] This has previously been referred to as the Non-Participant Test and the No-Losers Test.

How the Standard Cost-Effectiveness Tests are Being Used Today

A recent survey by ACEEE provides a useful summary of how the cost-effectiveness tests are used across the states.[12] Nationwide, a total of 45 jurisdictions have some level of formally approved ratepayer-funded energy efficiency programs in operation.[13] All of these jurisdictions use some type of benefit-cost test in connection with their ratepayer-funded energy efficiency programs.[14] Most states have some type of legal requirement for the use of such tests, either by legislation or regulatory order (ACEEE 2012, p 30).

Many states examine more than one benefit-cost test. The ACEEE survey found that 36 states (85 percent) apply the TRC Test; 28 states (63 percent) apply the Utility Cost test; 23 states (53 percent) apply the Participant test; 22 states (51 percent) apply the RIM test, and 17 states (40 percent) apply the Societal Cost test (ACEEE 2012, p 12).

However, regulators tend to adopt one of these tests as the primary guideline for screening energy efficiency programs. The ACEEE survey found that 95 percent of states rely on a single, primary screening test for defining energy efficiency cost-effectiveness, as follows:

- The TRC test is used by 29 states (71 percent) as the primary test for screening efficiency.
- The Societal Cost test is used by six states (15 percent) as the primary test for screening efficiency. [15]
- The Utility Cost test is used by five states (12 percent) as the primary test for screening efficiency.
- The RIM test is used by one state (2 percent) as the primary test for screening efficiency. [16]

Most states (70 percent) apply the cost-effectiveness tests, often with exceptions, at both the program and the portfolio level. A minority of states (30 percent) apply the cost-effectiveness tests at the measure level (ACEEE 2012, p 5).

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[12] The ACEEE report provides the results of a comprehensive survey and assessment of the current "state of the practice" of utility-sector energy efficiency program evaluations across the 50 states and the District of Columbia. The study examines many aspects relating to how states conduct their evaluations and the key assumptions employed, including the use of cost-effectiveness tests (ACEEE 2012).

[13] The 45 jurisdictions include 44 states and the District of Columbia. The states that have essentially no formally approved utility ratepayer-funded energy efficiency programs are Alabama, Alaska, Louisiana, Mississippi, North Dakota, and West Virginia (ACEEE 2012, p 3).

[14] This is not the case for load management/demand response programs or renewable energy programs, where only 67 percent and 28 percent of states, respectively, report using benefit-cost tests for those ratepayer funded programs (ACEEE 2012, p 30).

[15] Note that, while only six states were identified as using the Societal Cost test for screening energy efficiency programs, a larger number of states include environmental impacts in their resource planning and citing practices in general. A 2001 study found that a majority of states include environmental protection in certification and citing decisions by regulatory commissions, and 16 state commissions have general authority or responsibility to consider environmental matters in regulatory decisions (Dworkin et al. 2001). Several states also require electric and gas utilities to account for environmental impacts in their integrated resource plans.

[16] Shortly after ACEEE published its findings, the one state using the RIM test as its primary test (Virginia) enacted a new law providing that a program or portfolio of programs "shall not be rejected solely based on the results of a single test" (see Code of Virginia, C. 821, §§ 56-576 (Approved April 18, 2012)). The practical impact of this new law on efficiency screening in Virginia is not yet clear.

White Paper - Recommendations of Reforming Energy Efficiency Cost-Effectiveness Screening in the United States: Using the Resource Value Framework to Identify Those Efficiency Programs That Are in the Public Interest (November 2013)

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