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# Memorandum

To: Steve Klein, Legislative Joint Fiscal Office  
From: Tom Kavet  
CC: Andrew Perchlik, CEDF  
Date: March 22, 2011  
Re: Economic Overview of Clean Energy Development Fund Expenditures

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## EXECUTIVE SUMMARY

As requested, I have assembled a relevant database and reviewed the grants, tax credits, loans and other expenditures made by the Clean Energy Development Fund (CEDF) over the past five years. Over this period, the Fund has made more than \$15 million in direct project grants and related expenditures, provided almost \$10 million in tax credits and transacted more than \$3 million in loans. It has leveraged these total direct expenditures of more than \$28 million by nearly a factor of four, generating total project expenditures of almost \$110 million since 2006. It is estimated that nearly 80% of the fund's direct expenditures were critical in leveraging matching or additional project funding.<sup>1</sup>

<b>TABLE 1</b>					
<b>Expenditure Category</b>	<b>CEDF Funding</b>		<b>Total Project</b>		
	<b>Since 2006</b>		<b>Estimated Cost</b>		
				<b>Project Cost Percent of Total</b>	
Grant (or equivalent)	\$	15,195,895	\$	59,812,720	54.6%
Tax Credit	\$	9,684,641	\$	39,244,140	35.8%
Loan	\$	3,372,493	\$	10,546,675	9.6%
Total	\$	28,253,029	\$	109,603,535	100.0%

Because funding for the CEDF is derived primarily via payments from the Vermont Yankee nuclear power plant that did not affect Vermont ratepayers over this period, there is little offsetting negative economic impact at the state level associated with these expenditures.

<sup>1</sup> This analysis is based on a review of more than 1000 Individual projects by the JFO, with project characteristics provided by project recipients and Clean Energy Development Fund personnel. It should be noted that "grant" expenditures include \$427,328 in CEDF funds that were reallocated to AHS Community Assistance Funding and Button Up Vermont, VHFA Energy Saver Loans, and various VDOL and VDOA programs, and \$819,672 that was reallocated to the General Fund with no specific purpose.

Because these expenditures were directed solely to in-state projects, with most projects demanding substantial local labor and nearly 20% of all expenditures generating significant local manufacturing demand as well,<sup>2</sup> the economic impact of the Fund to the State of Vermont over this period has been exceptional. Although specific estimates of economic metrics such as jobs, income, output, etc., cannot be estimated without the use of a formal economic model, there is no doubt the Fund has represented a significant net economic benefit to the state, especially during a time of severe recession, employment declines and economic stress. An example of the local expenditure impact and reach of CEDF expenditures is detailed in Appendix A, which lists local firms retained in connection with the construction of seven methane digesters.

In addition to the direct expenditures from the development of the energy infrastructure supported by CEDF, longer term economic and environmental benefits will also be derived from the operation of these facilities. Total CEDF project-related nameplate electrical output should exceed 14 megawatts when completed, in addition to projects that also provide thermal heating output in tandem with or instead of electric power.<sup>3</sup> The funding of these projects also helps stimulate local expertise and manufacturing demand in the growing area of “green energy” development. This could lead to future export-based growth in this important emerging economic sector and concomitant job growth in the State.

Per the below Table 2, most of the projects are either solar (57%) or biomass (34%), with wind, hydro, efficiency measures, geothermal and related studies comprising the remainder. While solar projects tend to utilize a great deal of local labor during construction, they do not generate much in ongoing maintenance or fuel expenditures. Biomass facilities, which also utilize significant local content during construction, however, create ongoing demand for locally produced fuel during their productive life, creating a stream of future economic benefits to farmers, loggers, truckers and other connected to fuel production in the State.

<b>TABLE 2</b>				
<b>Energy Technology Sector</b>	<b>CEDF Funding</b>	<b>Total Project Estimated Cost</b>	<b>Project Cost Percent of Total</b>	
Biomass	\$ 8,653,704	\$ 36,720,888	33.5%	
CHP	\$ 7,500	\$ 15,000	0.0%	
Geothermal	\$ 125,000	\$ 684,000	0.6%	
Hydro	\$ 459,336	\$ 1,767,972	1.6%	
Efficiency	\$ 1,945,844	\$ 2,016,134	1.8%	
Solar	\$ 15,228,196	\$ 62,285,663	56.8%	
Study	\$ 821,874	\$ 2,961,636	2.7%	
Wind	\$ 1,001,575	\$ 3,142,242	2.9%	
Other	\$ 10,000	\$ 10,000	0.0%	
<b>Total</b>	<b>\$ 28,253,029</b>	<b>\$ 109,603,535</b>	<b>100.0%</b>	

<sup>2</sup> Ibid. This review found that about 22% of direct Fund expenditures and 18% of total project costs involved projects where more than 50% of the manufacturing components used in the project were locally produced.

<sup>3</sup> CEDF projects funded to date account for about 375 MMBTU/Hr at rated capacities.

Environmental benefits from these projects could also lead to important, though more difficult to measure, economic impacts. Depending upon how severe the costs of future global warming are and how these costs are measured, projects that reduce greenhouse gas emissions may have economic benefits that far exceed the simple construction and operational impacts described herein.

As shown in the below Table 3, CEDF projects have been distributed throughout the State in rough proportion to population. The largest share of both CEDF and project expenditures have been in Chittenden County, with Rutland, Washington, Bennington and Orleans counties following.

<b>TABLE 3</b>						
<b>County</b>	<b>CEDF Funding</b>	<b>Percent of State Total</b>	<b>Total Project Estimated Cost</b>	<b>Percent of State Total</b>	<b>Population Percent of State<sup>4</sup></b>	
Addison	\$ 1,494,528	5.3%	\$ 9,369,524	8.5%	5.9%	
Bennington	\$ 1,833,651	6.5%	\$ 10,980,344	10.0%	5.8%	
Caledonia	\$ 262,497	0.9%	\$ 838,876	0.8%	4.8%	
Chittenden	\$ 10,368,411	36.7%	\$ 33,684,510	30.7%	24.5%	
Essex	\$ 708	0.0%	\$ 9,309	0.0%	1.0%	
Franklin	\$ 2,084,065	7.4%	\$ 6,059,703	5.5%	7.8%	
Grand Isle	\$ 32,183	0.1%	\$ 130,657	0.1%	1.2%	
Lamoille	\$ 776,236	2.7%	\$ 2,445,669	2.2%	4.3%	
Orange	\$ 646,801	2.3%	\$ 2,177,940	2.0%	4.7%	
Orleans	\$ 2,113,076	7.5%	\$ 8,202,540	7.5%	4.4%	
Rutland	\$ 1,637,172	5.8%	\$ 11,400,657	10.4%	10.1%	
Washington	\$ 3,286,505	11.6%	\$ 10,515,162	9.6%	9.5%	
Windham	\$ 1,986,549	7.0%	\$ 6,594,114	6.0%	7.0%	
Windsor	\$ 1,730,645	6.1%	\$ 7,194,529	6.6%	9.1%	
<b>Total</b>	<b>\$ 28,253,029</b>	<b>100.0%</b>	<b>\$ 109,603,535</b>	<b>100.0%</b>	<b>100.0%</b>	

As noted in this analysis, Clean Energy Development Fund expenditures have clearly generated a substantial and positive economic impact in the State over the past five years. In order to estimate more precise employment, income, economic development and output effects, please let me know if you or others would like to utilize more extensive economic models maintained by the Joint Fiscal Office, such as REMI or REDYN, in order to quantify such effects.

<sup>4</sup> Note: County population shares are based on 2010 U.S. Census Bureau estimates (not actual 2010 Census data, which were not yet released at the time of this analysis).

# APPENDIX A

## **Local Content Example:**

**Vermont Firms Retained in Connection with the  
Expenditure of CEDF Funds for the Construction of  
Methane Digesters for Seven Selected Projects  
(Montagne, Rowell, St. Pierre, Chaput, Maxwell, Goodell,  
and Dubois Projects)**

**Vermont Firms Retained in Association with the Construction  
of Methane Digesters for Seven Selected Projects\***

<b>Vendor Name</b>	<b>Address/Town</b>
Action Concrete Cutting-Coring	Essex Junction, VT 05452
Adam Hallock Contractor	18 Laurel Ave, Bellows Falls, VT 05101
Agricultural Energy Consultants LLC	781 Holt Rd, Plainfield, VT 05667
AH Harris & Sons	994 South Brownell Rd., Williston, VT 05495
A.L. Tyler & Sons	175 Canal Street, Brattleboro, VT 05301
All In One Electric	3055 Buzzell Road, Newport Center, VT 05857
Allen Brothers, Inc	6023 Rt 5, Westminster, VT 01158
All Systems Repair	197 Main Street # A, Winooski, VT 05404
Armand Gagne Welding	P.O. Box 50, Highgate Center, VT 05459
Barker Steel	1631 West Enosburgh Rd, Enosburg Falls, VT 05450
Barrett Trucking	186 South Min Street, White River Junction, VT 05001
Bates Farm Home and Garden	P O Box 449, Enosburg Falls, VT 05450
Bazin Brothers Trucking	2425 Back Westminster Rd, Westminster, VT 05158
Bemis LLC	P.O. Box 289, Jacksonville, VT 05342
Billodeau and Wells - Accountant	20 Main Street, Essex Junction, VT 05452
Bill Sanville Garage Door and Painting Co.	190 Alderbrook Rd., Newport 05857
Bob Stanhope	9 River Streete, Richford, VT 05476
Buck Adams Trucking & Excavating	30 Laurel Ave, Bellows Falls, VT 05101
Brad King Concrete	154 Houghton Brook Rd, Putney, VT 05346
Branon Enterprizes	496 Bradley Road, Fairfield, VT 05455
Brent Brigham Construction	Fairfax Road, St. Albans, VT 05478
Brown Enterprises, Inc	50 Smith Haven Lane, South Londonderry, VT 05155
Calkins Sand and Gravel	Route 14, Coventry, VT 05825
Camp Precast Concrete Products	78 Precast Road, Milton, VT 05468
Carr Enterprises	Town Road 3, Bakersfield, VT 05441
Carson's Electric	6609 Ethan Allen Highway, St. Albans, VT 05478
Champlain Construction Inc	189 Birchard Park, Middlebury, VT 05753
Champlain Dairy Service Inc.	P O Box 184, Swanton, VT 05488
Champlain Door Co. Inc.	4182 Highbridge Rd, St. Albans, VT 05478
Champion Overhead Door	86 Hillside Drive, Dummerston, VT 05346
Code 3 Products	92 Canal Street # 2, Brattleboro, VT 05301
Corey Bertrand	Rice Hill Road, Franklin, VT 05457
Couture Sand and Gravel	50 Buck Road, Newport Center, VT 05857
Crocket Engineering LLC	P.O. Box 5205, Essex Junction, VT 05453
Crocket's Construction	509 Glover Rd., Derby, VT 05829
Cross Consulting Engineers	103 Fairfax Road, St. Albans, VT 05478
CVPS	77 Grove St. Rutland, VT 05701
Demag Rigger Crane Service Inc	100 Demag Drive, Williston, VT 05495
Deppman & Foley, PC	P O Box 569, Middlebury, VT 05453
Desrochers Construction	2 Houlton Street, St. Albans, VT 05478
Desrochers Farm Equipment	3761 Route 5, Derby, VT 05829
Desrochers Excavating and Crane Service	4209 Lake Road, Newport, VT 05857
Donald Domina	92 Upper French Hill Rd., Johnson, VT 05656
Donal Newcombs Masonry LLC	2620 West Rd, Putney, VT 05346
Dubois Farm Inc	2038 Route 17E, Vergennes, VT 05491
EJP	123 Airport Parkway, S. Burlington, VT 05403
Environmental Earth Moving Solutions	Underhill, VT
Everett J. Prescott Inc	2318 Airport Rd, Barre, VT 05641
F.W. Webb	7 Franklin Park West, St. Albans, VT 05478
Farmyard Store - heat pipes	Newport, VT
Felco Foundation	P.O. Box 137, Franklin, VT 05457
Fyles Bros Inc	425 Needham Hill Rd, Orwell, VT 05760
Gene's Electric	Main St., Newport Center, VT 05857
George R. Morgan III	West River Rd, Lincoln, VT
Gervais & Sons Inc.	P.O. Box 524, Enosburg Falls, VT 05450
Glen Peck Electric	300 Foote Street, Middlebury, VT 05753
Gravel and Shea - Attorney	76 St. Paul Street, Burlington, VT 05406
Green Mountain Electric Supply	5452 US Route 5, Newport, VT 05855
Green Mountain Power	163 Acorn Lane, Colchester, VT 05446
Green's Ace Hardware	Railroad Street, Enosburg Falls, VT 05450
G Stone Commercial	489 Foote Street, Middlebury, VT 05753
Guay General Repair	399 Hunt Hill Rd., Orleans, VT 05860
H.G. Berger & Son Inc.	16 Waugh Farm Rd., Swanton, VT 05488
Harrison Concrete	1803 Skunk Hill Rd, Fairfax, VT 05454
Harrison Redi-Mix/Concrete	P O Box 2098, Georgia, VT 05468
I.H. Charbonneau & Sons Inc.	12 Fairfield Hill Road, St. Albans, VT 05478

Independent Pipe & Supply Corp	25 Commerce Ave., S. Burlington, VT 05403
Jonathan Bump Contractor	36 Park Place, Brattleboro, VT 05301
John H. Brigham Consulting	Fairfax Road, St. Albans, VT 05478
J.P Carrara & Sons Inc	2464 Case Street, Middlebury, VT 05753
Kilbourn's Excavating	647 Burpee Rd, Bristol, VT 05443
Kristensen, Cummings, Phillips, and Carroll PC	15 Grove Street, Brattleboro, VT 05302
Lantagne Construction	Newport, VT
L & D Royer	477 Route 5, Irasburg, VT 05845
L.N. Consulting Inc.	P.O. Box 65178, Burlington, VT 05406
Legault Electric	308 South Main Street, Richford, VT 05476
Lussier Sawmill	4161 Watertower Road, Enosburg Falls, VT 05450
Mario Paul Excavating	463 US Route 5, Derby, VT 05829
Mercy's Farm Equipment	2896 South Main St., Montgomery Center, VT 05471
Merrill Gas Co Inc	55 Depot Street, Brattleboro, VT 05301
Mike's Fuels	3108 Route 22A, Bridport, VT 05734
Milton CAT	150 Cat Lane, Richmond, VT 05477
Milton Rental and Sales Center	7 Nancy Drive, Milton, VT 05468
Monette, John Attorney	5043 Rt 5, Derby, VT 05829
Mountainview Dairy Equipment	137 Windy Hill Road, Richford, VT 05476
NAPA Auto Parts	P O Box 367, Enosburg Falls, VT 05450
Neagley & Chase Construction Co.	80 Pearl St., Essex Junction, VT 05452
Neuses, Duprey, & Putnam	1 Cross Rd, Middlebury, VT 05753
New England Foam & Coating Co.	108 Concord Ave., St. Johnsbury VT 05819
New England Insulator	7 Liberty St., Swanton, VT 05488
Newport Daily Express	178 Hill St., Newport City, VT 05857
Newport Rental Center	5025 US Route 5, Newport, VT 05855
Newport Sand and Gravel	1912 Route 15E, Jihkson, VT 05656
Nye Insurance Agency	114 Upper Welden St., St. Albans, VT 05478
O'Brien Tree and Crane Service	38 Gray Ln, Putney, VT 05346
Paris Farmers Union	1438 Route 7 S, Middlebury, VT 05753
Pearson & Associates	P O Box 610, Stowe, VT 05672
Perrault Excavating & Building	P.O. Box 138, Newport Center, VT 05857
Pick and Shovel	54 Coventry Streete, Newport, VT 05855
Pioneer Motor and Drives, Inc.	30 Bernard Drive, S. Burl, VT 05403
Poulin Lumber	Route 5, Derby, VT 05829
Premiere Dairy Service	20 Beaugard Drive, St. Albans, VT 05478
Queen City Steel	P O Box 672, Burlington, VT 05402
Red Hed Supply	30 Troy Ave., Colchester, VT 05446
Reed's Equipment	137 Jersey Street South, Vergennes, VT 05491
RG Gosselin Concrete	P O Box 439, Derby, VT 05829
Rheal P Gevry Jr	1194 Otter Creek Hwy, New Haven, VT 05472
RK Miles Inc Lumber and Building Materials	88 Exchange Street, Middlebury, VT 05753
Robert N. Taplin Inc.	Route 5, Derby, VT 05829
Rodem Inc.	P.O. Box 314 Highgate, VT 05459
Ross Environmental Associates	P.O. Box 1533, Stowe, VT 05672
Sky Crane Services	473 Ruby Brace Rd, Starksboro, VT 05487
St. Albans Co-Op Creamery Inc	140 Federal Street, St. Albans, VT 05478
St. Albans Messenger	P O Box 1250, St. Albans, VT 05478
Stanhope Painting & Roofing	3868 Reservoir Rd., Berkshire, VT 05450
Stevens and Associates Engineering	97 Main Street, Brattleboro, VT 05301
Swanton Lumber Co. Inc.	P.O. Box 701, Swanton, VT 05488
Tarrant, Marks, & Gillies	44 East State Street, Montpelier, VT 05601
Taylor Rental Center	1448 Route 7 S, Middlebury, VT 05753
Temple Plumbing and Heating Inc	134 Westminster Rd, Putney, VT 05346
Therrien's Boilder & Mechanical	41 Birchcliff Parkway, Burlington, VT 05401
Tracy Degree Concrete	15 Outlook Street, Newport, VT 05855
VACE	P O Box 810, Montgomery, VT 05601
Valley Crane Services	283 Fort Bridgman Rd # 2, Vernon, VT 05354
Vermont Drilling and Blasting	355 Rocky Road, Johnson, VT 05656
Vermont Economic Development Authority	58 E. Street, Montpelier, VT 05601
Vermont Electric Cooperative	42 Wescom Rd., Johnson, VT 05656
Victoria Brown	150 South Champlain St., Burlington, VT 05401
Waitsfield Champlain Valley Telecom: Repair Service	3898 Main Street, Waitsfield, VT 05673
Wilcox Construction	Shoreham, VT
William Brooks	2 Federal Street, St. Albans, VT 05478
Wright Excavating Inc	County Road, Franklin, VT 05457
Wright's Plumbing and Heating	Quarry Road, Derby, VT 05829
Yankee Farm Credit	P.O. Box 240, St. Albans, VT 05478

\* Data Based on Montagne, Rowell, St. Pierre, Chaput, Maxwell, Goodell, and Dubois Projects, Funded by CEDF