Alaska Renewable Energy Fund

Status Report • January 21, 2012

Cover Photos Subject and Credits:

<table>
<tr><td>1. Climbing inside Alaska Environmental Power's EWT 900 at Delta Junction Wind by Mike Craft, AEP</td><td>2. Field Measurements at the proposed intake site of the Five Mile Creek Hydroelectric Project by Doug Ott, AEA</td><td>3. Alaska Gateway School District's wood-fired boiler at the Tok School by Ron Brown, AEA</td></tr>
<tr><td colspan="3">4. Burning densified biomass fuel at Chena Power's Organic Rankine Cycle power plant in North Pole by Chena Power, LLC.</td></tr>
<tr><td>5. Seawater heat pumps at the Seward SeaLife Center by Seward SeaLife Center</td><td>6. Wells being drilled for the Juneau International Airport's ground source heat pump by City and Borough of Juneau</td><td rowspan="2">7. Vestas V17 wind turbine at Kokhanok by Rich Stromberg, AEA</td></tr>
<tr><td colspan="2">8. Humpback Creek Hydro Project by Cordova Electric Cooperative</td></tr>
</table>

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Table of Contents

Introduction

The Alaska Renewable Energy Grant Recommendation Program, established in 2008 under AS 42.45.045, provides public funding for the development of eligible renewable energy projects in Alaska. To date the Alaska Energy Authority (AEA) has issued five solicitations for renewable energy proposals.

This report provides an update on funding allocation, progress on projects under development, and performance of construction projects that have been completed. Additional information on the funding solicitations, methods for evaluating proposals, and AEA's recommendations is available on AEA's website, www.akenergyauthority.org.

Project Development and Grant Progress

Grant Progress

To date AEA has issued 170 grants for Rounds I-IV projects (table 1).

Table 1. Summary of RE Fund grants and funding as of January 20, 2012

	Round I	Round II	Round III	Round IV	Round V	Total
Applications Received	**112**	**118**	**123**	**108**	**97**	**558**
Projects Funded	**79**[1]	**30**	**25**	**74**	**TBD**	**208**
Grants in Place	**72**	**29**	**19**	**50**	**0**	**170**
Grants Cancelled	**5**	**1**	**2**	**0**	**0**	**8**
Amount Requested ($M)	**$ 453.8**	**$ 293.4**	**$ 223.5**	**$ 123.1**	**$132.9**	**$1,226.7**
AEA Recommended ($M)	**$ 100.0**	**$ 36.8**	**$ 65.8**	**$ 36.6**	**$43.1**	**$ 282.3**
Appropriated ($M)	**$ 100.0**	**$ 25.0**	**$ 25.0**	**$ 26.6**	**TBD**	**$ 176.6**
Cash Disbursed ($M)	**$ 54.4**	**$ 16.7**	**$ 6.0**	**$ 2.6**	**$0**	**$79.7**
Available for reallocation ($M)	**$0**	**$ 0**	**$0 .2**	**$0**	**$0**	**$0.2**

1. Includes eleven projects from an earlier solicitation issued by AEA.

Table 2 provides a list of projects for which AEA has not issued grants and the reasons that the grant has not yet been issued. Reasons are as follows:

1. One or more earlier development phases need to be completed (14 projects). Work may include conceptual design, feasibility, final design, permitting, project financing and energy sales agreements.
2. Grantee action is needed (12 projects). AEA is waiting for information from grantees or for grantees to sign the agreement.

3. AEA and grantee action is needed (4 projects). AEA and the grantee are working through budget, scope, and schedule issues.
4. AEA action needed (3 projects). The grantee is waiting for AEA to respond.
5. Legislative approval is needed to change the grant recipient to a different entity (1 project).

If AEA concludes that these or other projects are not likely to progress within a reasonable time frame, AEA will move toward de-obligating funds and making funding available for other purposes consistent with legislative direction. See the Appendix for detailed status of individual projects.

Table 2. Grants not in place as of January 20, 2012.

Grant Number	Grantee	Project	Devel Phase	Recomm Funding	Reason for Grant Not in Place
ROUND I					
2195432	City of Bethel	Bethel Wind Power Project Times Four	Constr	2,598,320	Grantee action
2195440	Haida Power, Inc	Reynolds Creek Hydroelectric Construction	Constr	2,000,000	Grantee action
ROUND II - All grants issued.					
ROUND III					
7030003	City of Akutan	Akutan Hydroelectric Repair and Upgrade	Constr	1,391,000	Complete earlier phase
7030004	City of St. Paul Elec Util	City of St. Paul Fuel Economy Upgrade	Constr	98,149	Grantee action
7030021	Gwitchyaa Zhee Util Corp	District Wood Heating in Ft. Yukon	Constr	2,318,255	Complete earlier phase
ROUND IV					
7040065	Alaska Power Company	Reynolds Creek Hydro Transmission Line	Constr	2,000,000	Complete earlier phase
7040014	Alaska Village Elec Coop	Old Harbor Hydroelectric	Design	237,500	Complete earlier phase
7040017	Alaska Village Elec Coop	St. Mary's/ Pitka's Point Wind Construction	Constr	275,554	AEA and grantee action
7040049	Alaska Village Elec Coop	Kaltag Solar Construction	Constr	90,000	Grantee action
7040012	Chitina Electric, Inc.	Fivemile Creek Hydroelectric	Design	277,000	Grantee action
7040003	Chugach Electric Assoc	Battle Creek Diversion Project	Rec/Feas	500,000	Legislative approval
7040033	Chugach Electric Assoc	CEA Transmission to Renewable Energy	Rec/Feas	600,000	Complete earlier phase
7040001	City & Borough of Sitka	Japonski Island Boat House Heat Pump	Constr	125,000	AEA action
7040070	City & Borough of Wrangell	Wrangell Electric Vehicle Feasibility Study	Rec/Feas	25,000	AEA action
7040056	City of Chefornak	Chefornak Wind Feasibility Study	Rec/Feas	136,750	Grantee action
7040044	City of Ketchikan	Whitman Lake Project	Constr	700,000	AEA and grantee action
7040029	City of Kotzebue	Kotzebue Paper & Wood Waste to Heat	Rec/Feas	85,000	Grantee action
7040041	City of Tenakee Springs	Indian Springs Hydroelectric	Rec/Feas	203,000	Grantee action
7040055	Copper River School Dist	Kenny Lake Wood Fired Boiler	Constr	565,485	Complete earlier phase
7040034	Independence Power, LLC	Fourth of July Creek Hydroelectric	Rec/Feas	136,500	Grantee action
7040038	Kootznoowoo, Inc	Thayer Lake Hydropower	Rec/Feas	1,060,500	Grantee action
7040009	Lake and Peninsula Bor	Port Heiden Wind Turbine	Design	250,000	Complete earlier phase
7040018	Lime Village Trad Council	Lime Village Photovoltac Retrofit	Rec/Feas	25,000	Complete earlier phase
7040068	Metlakatla Indian Comm	Matlakatla-Ketchikan Intertie	Constr	1,180,000	AEA and grantee action
7040074	Metlakatla Indian Comm	Triangle Lake Hydroelectric Feasibility	Design	500,000	AEA and grantee action
7040011	New Koliganek Village Coun	New Koliganek Wind and Heat Recovery	Rec/Feas	105,050	Grantee action
7040023	North Slope Borough	Atqasuk Transmission Line	Rec/Feas	21,000	Complete earlier phase
7040024	North Slope Borough	Wainwright Wind Turbine Design	Design	298,000	Complete earlier phase
7040026	North Slope Borough	Point Hope Wind Turbine Design	Design	298,000	Complete earlier phase
7040027	North Slope Borough	Point Lay Wind Generation Design	Design	298,000	Complete earlier phase
7040032	Ormat Nevada	Mount Spurr Geothermal	Rec/Feas	1,999,972	Complete earlier phase
7040059	ORPC	Cook Inlet TidGen	Rec/Feas	2,000,000	AEA action
7040015	TDX Power	Bethel Renewable Energy	Rec/Feas	213,690	Grantee action
7040046	UAF Center for Energy & Power	Organic Rankine Cycle Field Testing	Constr	472,787	Complete earlier phase
	TOTAL			**23,084,512**	

Progress on Projects

This section provides a summary of the timing of project completion and the drawdown of allocated grant funding.

Figure 1 summarizes expected progress on completing Round I-IV projects by project development phase (Reconnaissance/Feasibility, Final Design/Permitting, and Construction). By the end of 2011, 58 projects were completed. By the end of 2012, 130 projects are expected to have been completed, and by the end of 2013, 184 projects are expected to have been completed.

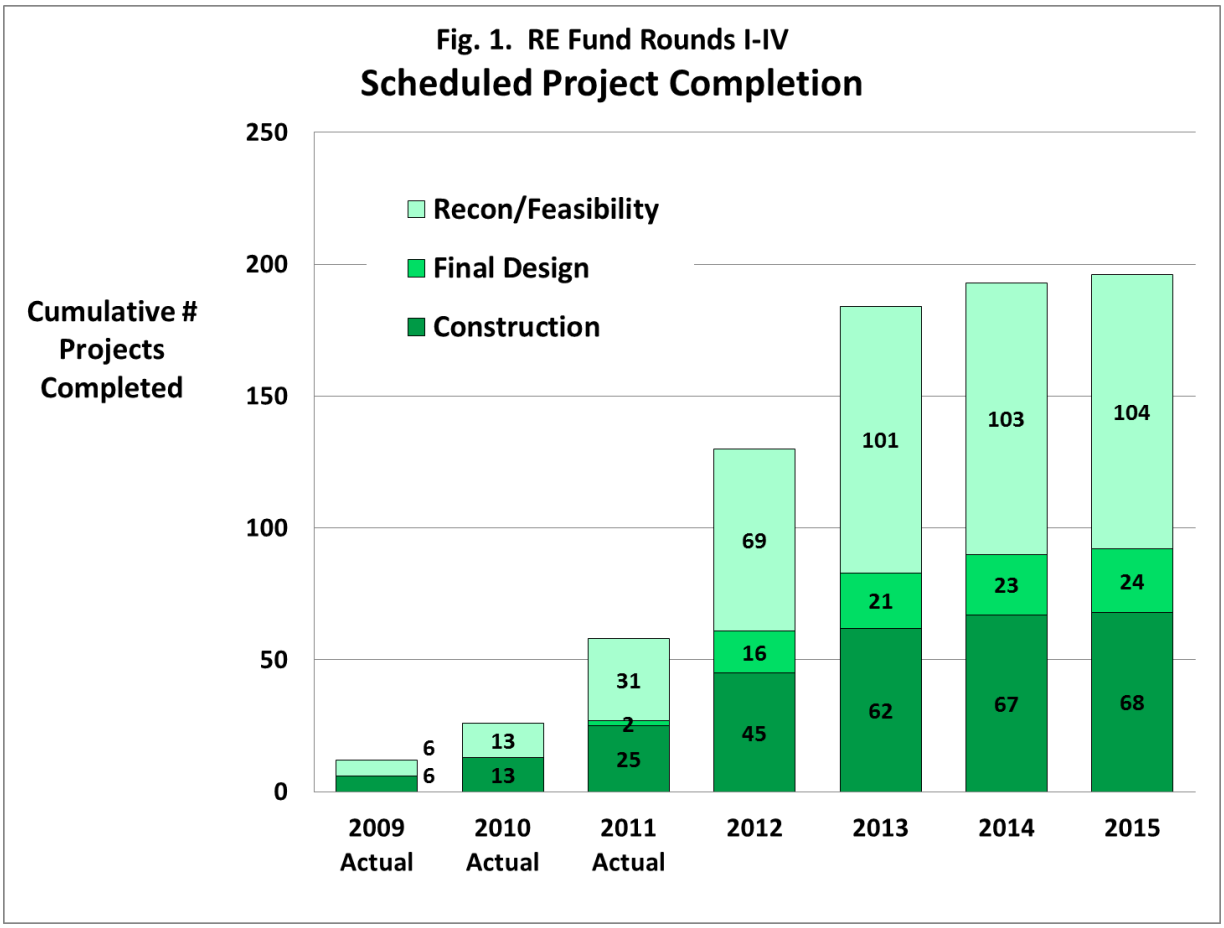


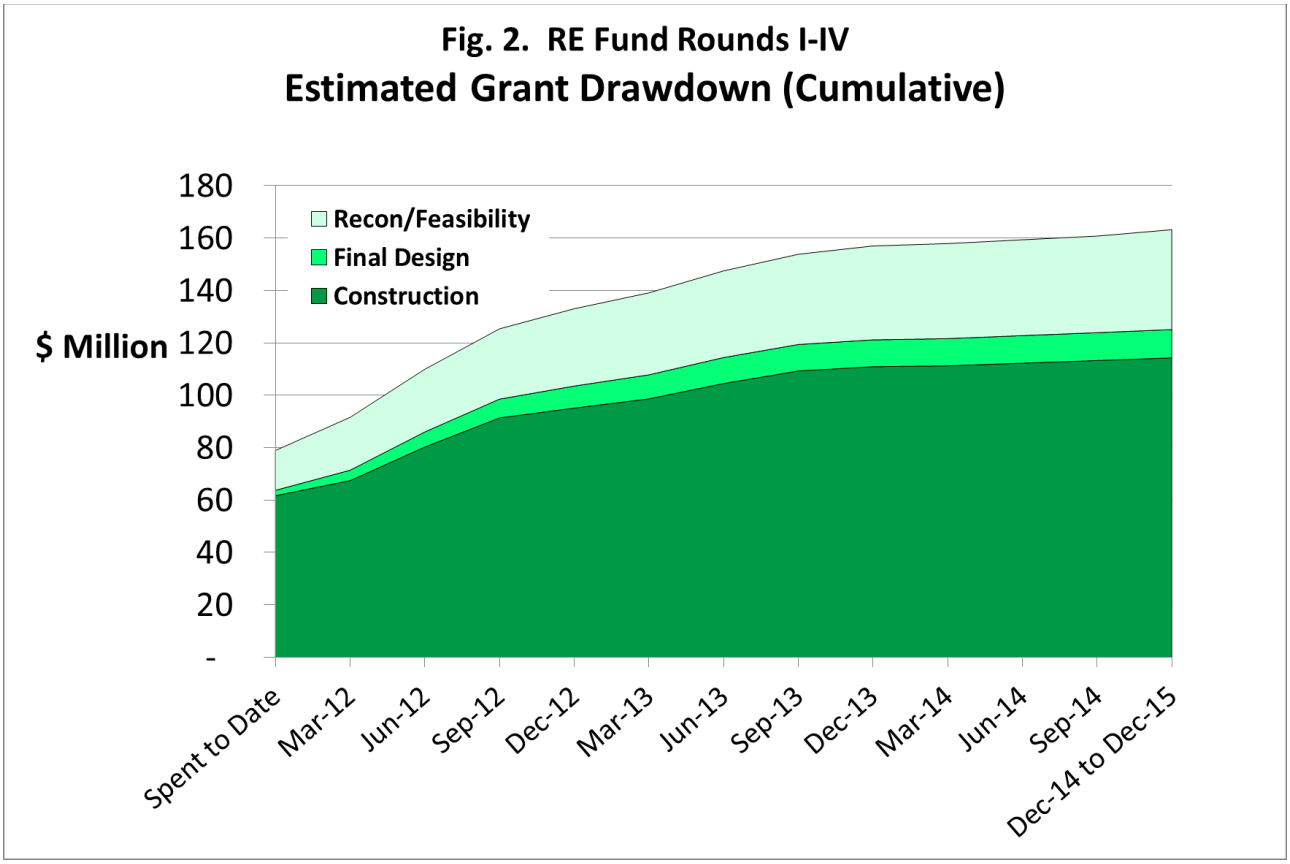
Figure 1 one does not include 5 construction projects for which a completion schedule has not yet been established by the AEA program manager and the grantee (table 3). By February AEA expects to establish a schedule with Ormat Nevada and the UAF Alaska Center for Energy and Power for their projects.

Table 3. Construction projects not yet scheduled for completion as of January 20, 2012.

Grant	Project Name	Applicant
2195377	Buckland, Deering, Noorvik Wind Farms	Northwest Arctic Borough
2195433	Nikiski Wind Farm	Kenai Winds, LLC
RE40652	Mount Spurr Geothermal	Ormat Nevada, Inc.
RE40658	Organic Rankine Cycle Field Testing	UAF Center for Energy & Power
RE40656	Metlakatla - Ketchikan Intertie	Metlakatla Indian Community

Figure 2 provides a cumulative projected drawdown of grant funds by quarter to the end of 2015. By the end of 2012 AEA anticipates disbursing approximately $133 million to grantees for Renewable Energy Fund projects. AEA anticipates disbursing approximately $157 million by the end of 2013.

Including the unscheduled construction projects, 79% of total round I-IV disbursements will be for final design and project construction, while 21% will be for reconnaissance and feasibility assessment.



Performance and Savings

Twenty-one Renewable Energy Fund projects were in operation at the end of 2011. Four projects began operation in 2009, seven projects began operation in 2010, and eleven began operation in 2011. Table 4 summarizes estimated electrical and thermal energy production, fuel displacement, and fuel savings based on information obtained from grantees. In the 2009-11 period projects supported by the Renewable Energy Fund displaced 3.38 million gallons of diesel and naptha with a value of $11.2 million. See the Appendix for more detailed information on projects that have begun operation.

AEA has developed performance reporting templates for grantees to provide energy production, operation and maintenance measures and costs, and other data from projects developed with state funding. Grantees provide performance information as a requirement for state funding. AEA will

continue to work with the University, grantees, and other partners to expand this database, further standardize performance data collection methods, and make data available to the public through a web-based interface.

AEA has also contracted for a third-party assessment of the Renewable Energy Fund grant recommendation program (see below) that will assess program impact versus cost as well as the effectiveness of the process.

Eleven of the projects in operation at the end of 2011 produce power for Power Cost Equalization (PCE) utilities. AEA has begun preliminary assessments of the impact of the projects on PCE customers' power bills, and on the PCE program itself. AEA will expand this assessment as more data becomes available and provide a report on findings during 2012.

Figure 3 provides an estimate of cumulative annual fuel displacement during the 2009-15 period for projects that are currently scheduled. It is based on data collected in 2009-2011, and on material submitted by applicants and evaluated by AEA, UAA Institute of Social and Economic Research, and private economists during proposal review for the years 2012-15. The analysis assumes that projected savings accrue during the year following completion of construction—a conservative assumption since many of the projects are expected to come online earlier in the year of completion. Projects in Southcentral Alaska will displace natural gas; however units are provided in diesel gallon equivalent for simplicity.

By the end of 2013 fuel displacement is expected to be approximately 3.4 million gallons equivalent per year. By the end of 2016 displacement is anticipated to be 11.6 million gallons per year. As noted above, actual savings to the consumer will be assessed through AEA's performance monitoring program.

Program Evaluation

In December 2011 AEA entered into a contract with Vermont Energy Investment Corporation (VEIC) to perform a third-party review of the Renewable Energy Fund grant recommendation program. VEIC's scope of work assesses

1. **Process**. How efficiently and effectively has AEA implemented the program?
2. **Impact versus Cost**. What are the economic benefits of the program, including energy cost savings, jobs, and development of infrastructure for non-energy uses. How do these benefits compare to their costs?

VEIC will produce a final report on the Process element by March 2012 and a final report on Impact versus Cost by June 2012.

Table 4. Performance of Renewable Energy Fund projects in operation during the period 2009-2011.

Grantee	Project Name	Start Date	2009				2010				2011				TOTAL			
			Energy Production		Fuel Displaced		Energy Production		Fuel Displaced		Energy Production		Fuel Displaced		Energy Production		Fuel Displaced	
			Electrical (MWh)	Thermal (MMBtu)	Diesel (Gal) (x 1000)	Value ($) (x 1000)	Electrical (MWh)	Thermal (MMBtu)	Diesel (Gal) (x 1000)	Value ($) (x 1000)	Electrical (MWh)	Thermal (MMBtu)	Diesel (Gal) (x 1000)	Value ($) (x 1000)	Electrical (MWh)	Thermal (MMBtu)	Diesel (Gal) (x 1000)	Value ($) (x 1000)
Alaska Environmental Power	Delta Area Wind Turbines	Jul-11	62	-	3.1	5.0	527	-	26.3	52.1	1,641	-	95.9	256.1	**2,229**	**-**	**125.3**	**313.2**
Alaska Gateway School Dist	Tok School Wood Heating	Nov-10	-	-	-	-	-	1,418	15.0	51.0	-	3,217	24.4	92.0	**-**	**4,635**	**39.4**	**143.0**
Alaska Power & Telephone	North Prince of Wales Island Intertie	Dec-10	-	-	-	-	-	-	-	-	311	-	16.4	67.0	**311**	**-**	**16.4**	**67.0**
Alaska Village Electric Coop	Emmonak/Alakanuk Wind and Intertie	Dec-11	-	-	-	-	-	-	-	-	63	-	4.5	17.7	**63**	**-**	**4.5**	**17.7**
Alaska Village Electric Coop	Mekoryuk Wind	Jun-11	-	-	-	-	-	-	-	-	239	-	13.7	49.5	**239**	**-**	**13.7**	**49.5**
Alaska Village Electric Coop	Quinhagak Wind	May-11	-	-	-	-	-	-	-	-	409	-	28.9	105.6	**409**	**-**	**28.9**	**105.6**
Alaska Village Electric Coop	Toksook Wind	Nov-09	-	-	-	-	-	-	-	-	560	-	37.7	129.1	**560**	**-**	**37.7**	**129.1**
Aleutian Wind Energy	Sand Point Wind	Dec-13	-	-	-	-	-	-	-	-	196	-	14.3	64.9	**196**	**-**	**14.3**	**64.9**
City and Borough of Juneau	Juneau Airport Grd Source Heat Pump	Oct-10	-	-	-	-	-	-	-	-	-	5,117	37.1	130.5	**-**	**5,117**	**37.1**	**130.5**
City & Borough of Wrangell	Wrangell Hydro Based Electric Boilers	Jun-09	-	-	-	-	-	-	-	-	-	6,889	66.0	230.3	**-**	**6,889**	**66.0**	**230.3**
Cordova Electric Coop	Humpback Creek Hydroelectric	Aug-09	-	-	-	-	-	-	-	-	1,563	-	114.9	410.3	**1,563**	**-**	**114.9**	**410.3**
Golden Valley Electric Assoc	McKinley Village Solar Thermal	Jun-12	-	-	-	-	-	61	0.5	1.5	-	134	1.8	7.1	**-**	**195**	**2.3**	**8.6**
Golden Valley Electric Assoc	North Pole Heat Recovery	Mar-10	-	-	-	-	-	997	11.7	23.1	-	5,249	61.5	171.5	**-**	**6,246**	**73.2**	**194.7**
Gulkana Village Council	Gulkana Central Wood Heating	Dec-12	-	-	-	-	-	280	3.0	10.9	-	780	5.9	23.5	**-**	**1,060**	**8.9**	**34.5**
Gustavus Electric Co	Falls Creek Hydroelectric	Aug-09	797	-	54.1	154.1	1,868	-	126.6	379.9	1,933	-	138.1	483.3	**4,599**	**-**	**318.8**	**1,017.3**
Kodiak Electric Assoc	Pillar Mountain Wind	Jul-10	6,164	-	434.1	1,406.5	12,288	-	865.4	2,972.7	12,448	-	870.7	2,873.3	**30,901**	**-**	**2,170.2**	**7,252.5**
McGrath Light & Power	McGrath Heat Recovery	Oct-10	-	-	-	-	-	1,162	12.3	45.6	-	2,896	23.0	156.7	**-**	**4,058**	**35.3**	**202.3**
Native Village of Eyak	Cordova Wood Processing Plant	Dec-11	-	-	-	-	-	720	7.6	28.1	-	1,500	11.4	42.0	**-**	**2,220**	**19.0**	**70.1**
Nome Joint Utility Systems	Nome Banner Peak Wind Intertie	Oct-10	279	-	7.6	58.3	1,111	-	70.2	188.8	955	-	53.9	151.6	**2,344**	**-**	**141.7**	**398.7**
Puvurnaq Power Co	Kongiganak Wind	Jul-10	-	-	-	-	-	-	-	-	88	-	6.6	30.1	**88**	**-**	**6.6**	**30.1**
Unalakleet Valley Electric Co	Unalakleet Wind	Jan-11	-	-	-	-	649	-	47.1	116.3	958	-	58.2	211.2	**1,607**	**-**	**105.3**	**327.5**
TOTAL			**7,302**	**-**	**508.8**	**1,623.8**	**16,443**	**4,638**	**1,185.7**	**3,870.2**	**21,364**	**25,782**	**1,684.9**	**5,703.2**	**45,109**	**30,420**	**3,379.5**	**11,197.3**

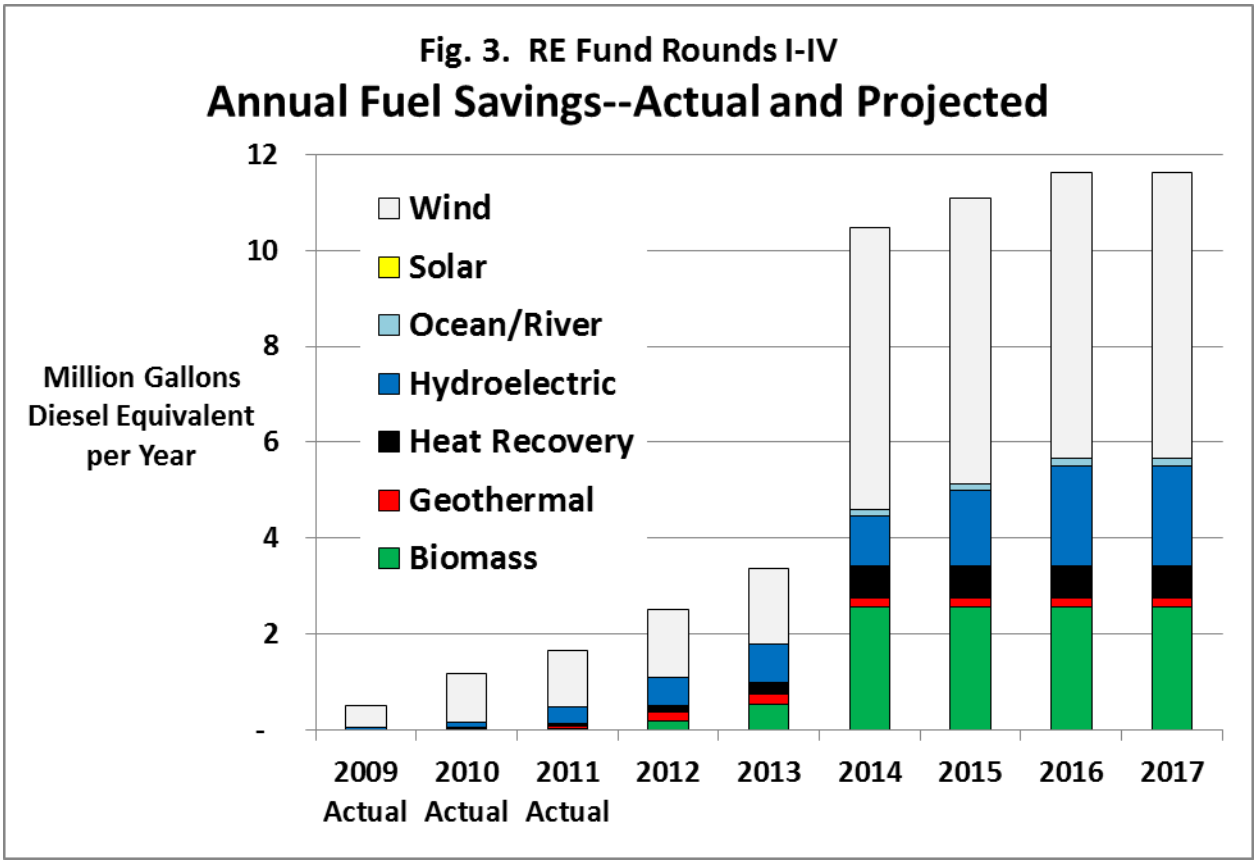


Fig. 3. RE Fund Rounds I-IV
Annual Fuel Savings--Actual and Projected
Million Gallons Diesel Equivalent per Year
12
10
8
6
4
2
-
Wind
Solar
Ocean/River
Hydroelectric
Heat Recovery
Geothermal
Biomass
2009 Actual
2010 Actual
2011 Actual
2012
2013
2014
2015
2016
2017