

# IEc

## **Financial and Economic Impact of the Oregon Business Energy Tax Credit**

**An Analysis of Representative Projects  
Certified During the Period 2002 to 2009**

Prepared for the Oregon  
Department of Energy

17 May 2011

# Questions to be addressed

Primary (HB2180): Would some projects have gone forward without the BETC?

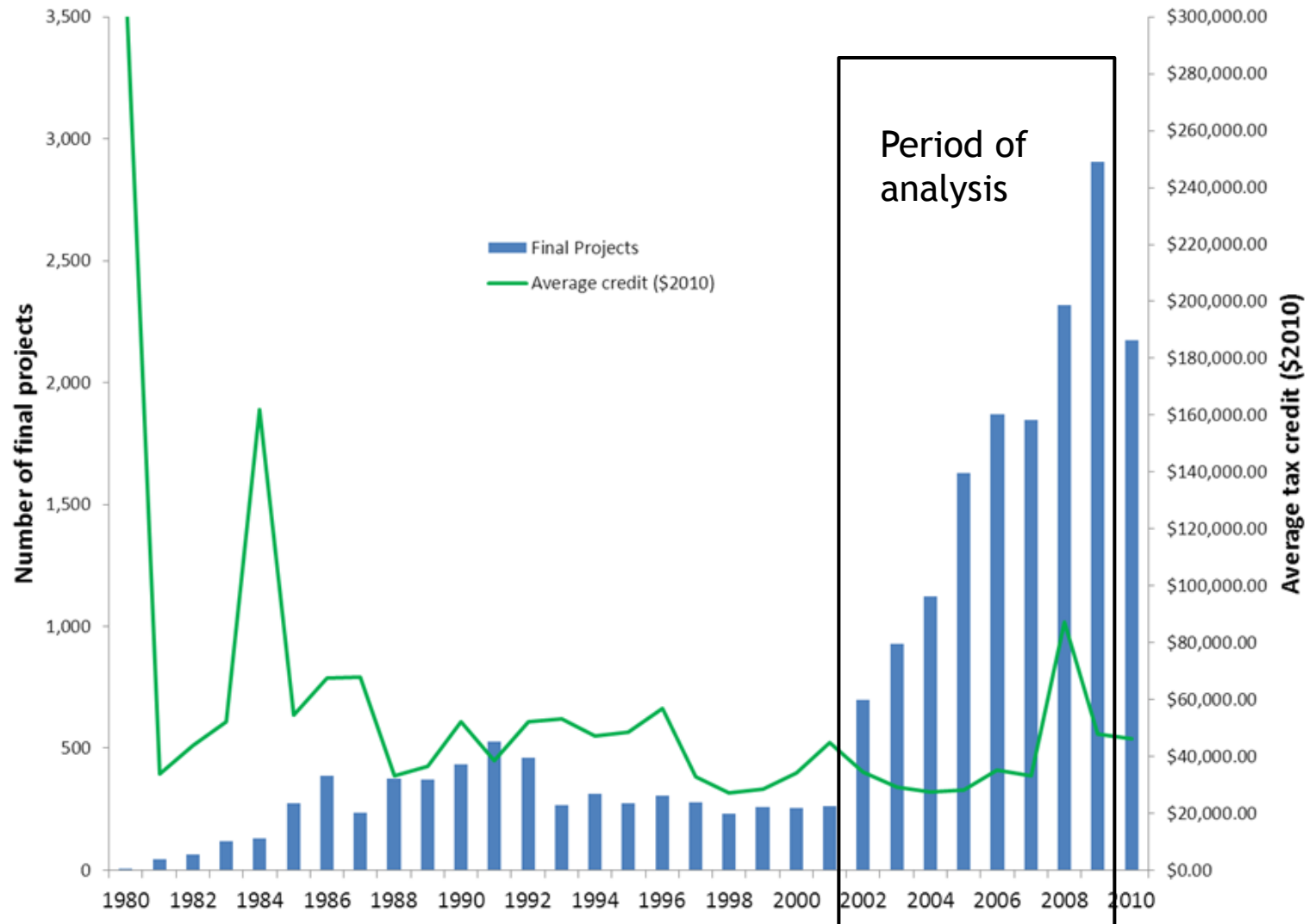
Secondary (ODOE): What is the economic impact of projects that received a BETC?

Additional: How much of the economic impact is attributable to the BETC?

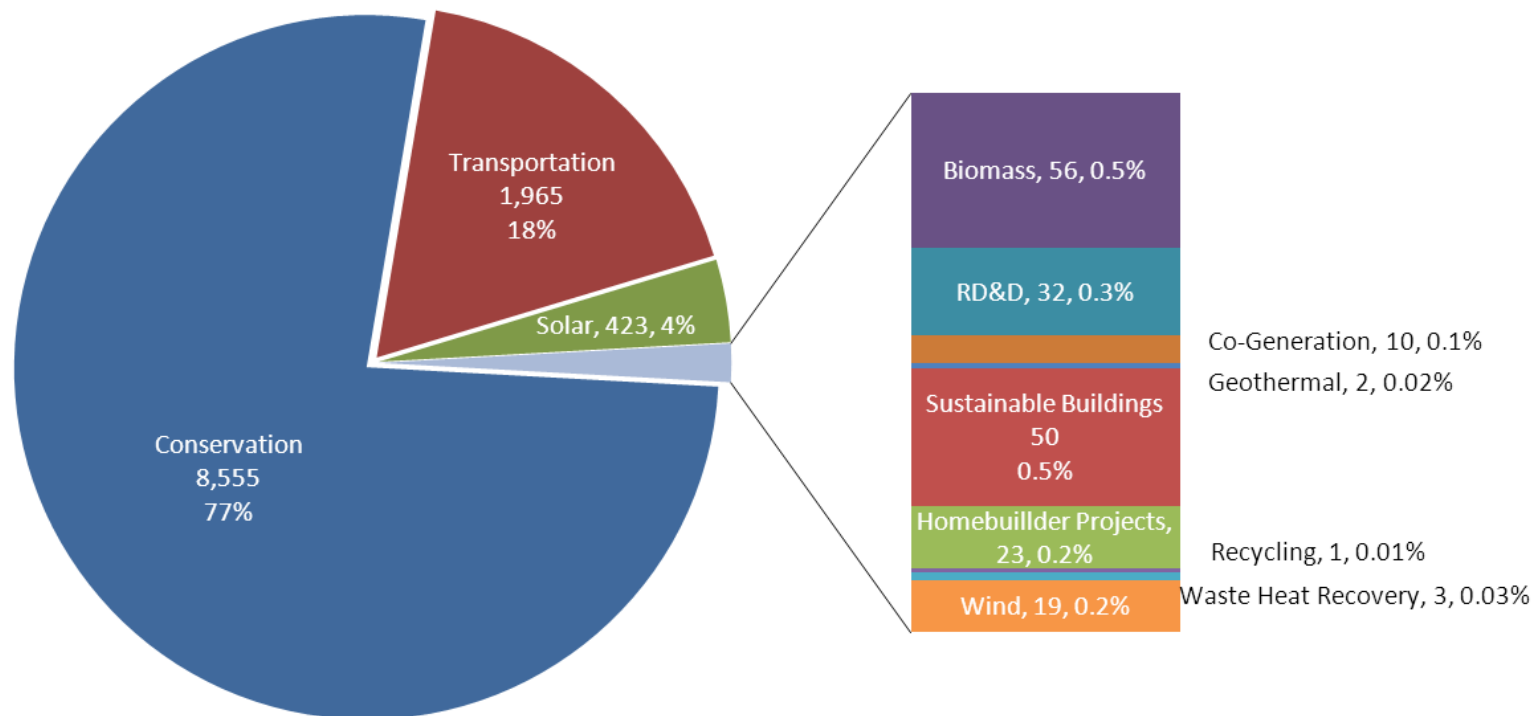
# Questions the study does not address

- How many projects received a tax credit even though they likely did not need the credit in order to move forward?
- How many jobs has the BETC program created?
- What has been Oregon's total return on its investment of tax credit dollars?

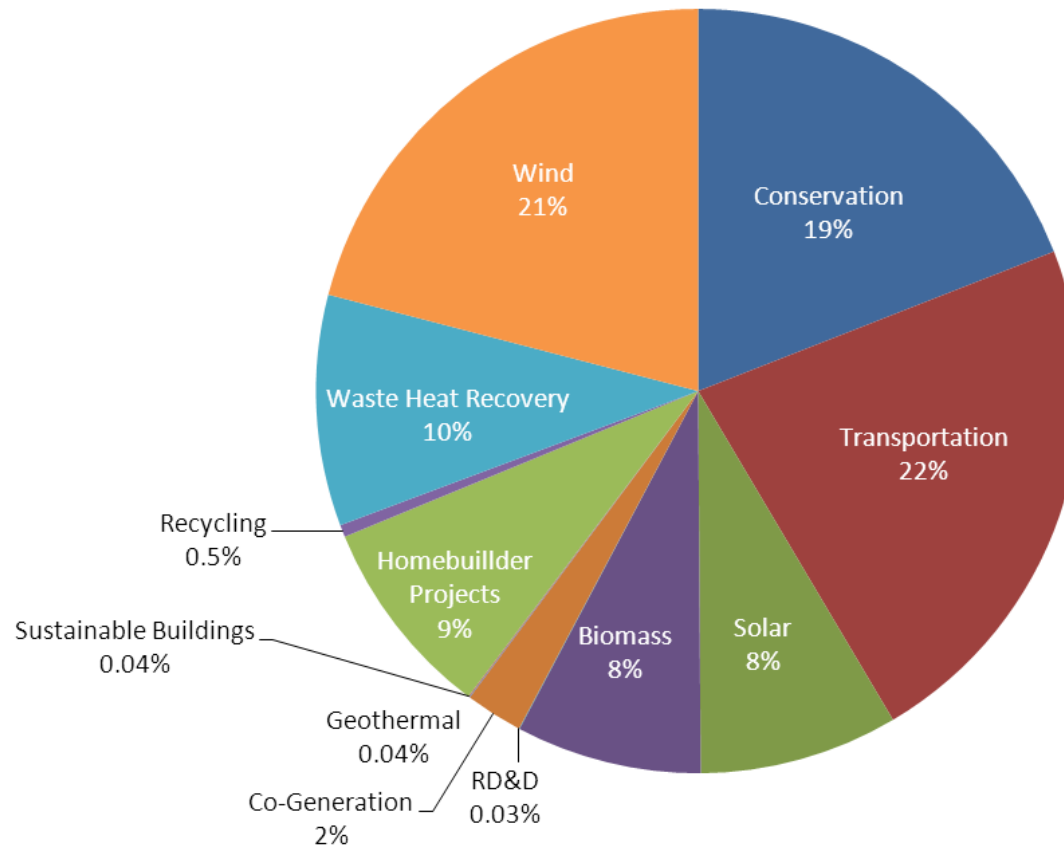
# Projects and average credit by program year



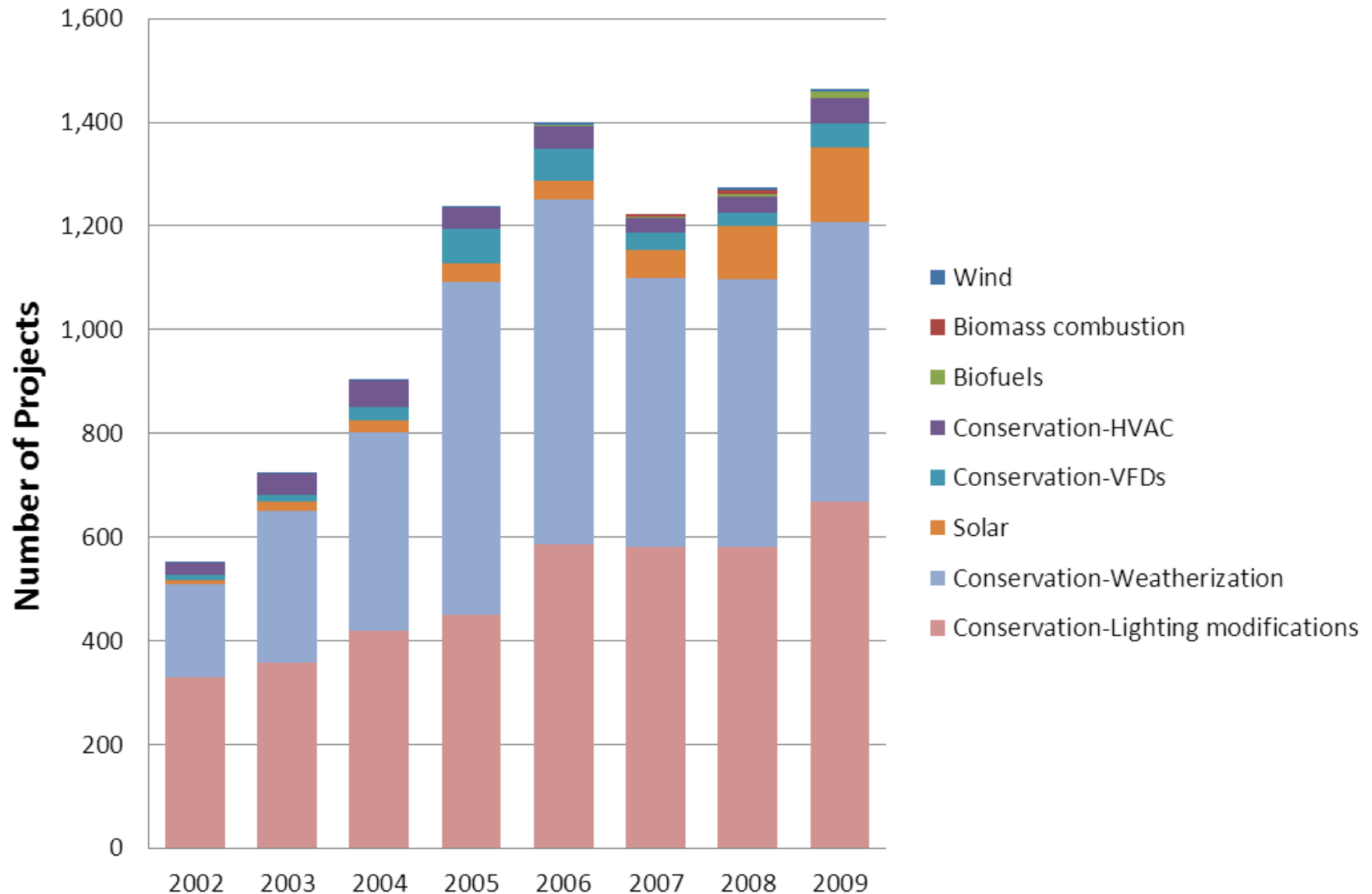
# Distribution of projects by type (2002-2009)



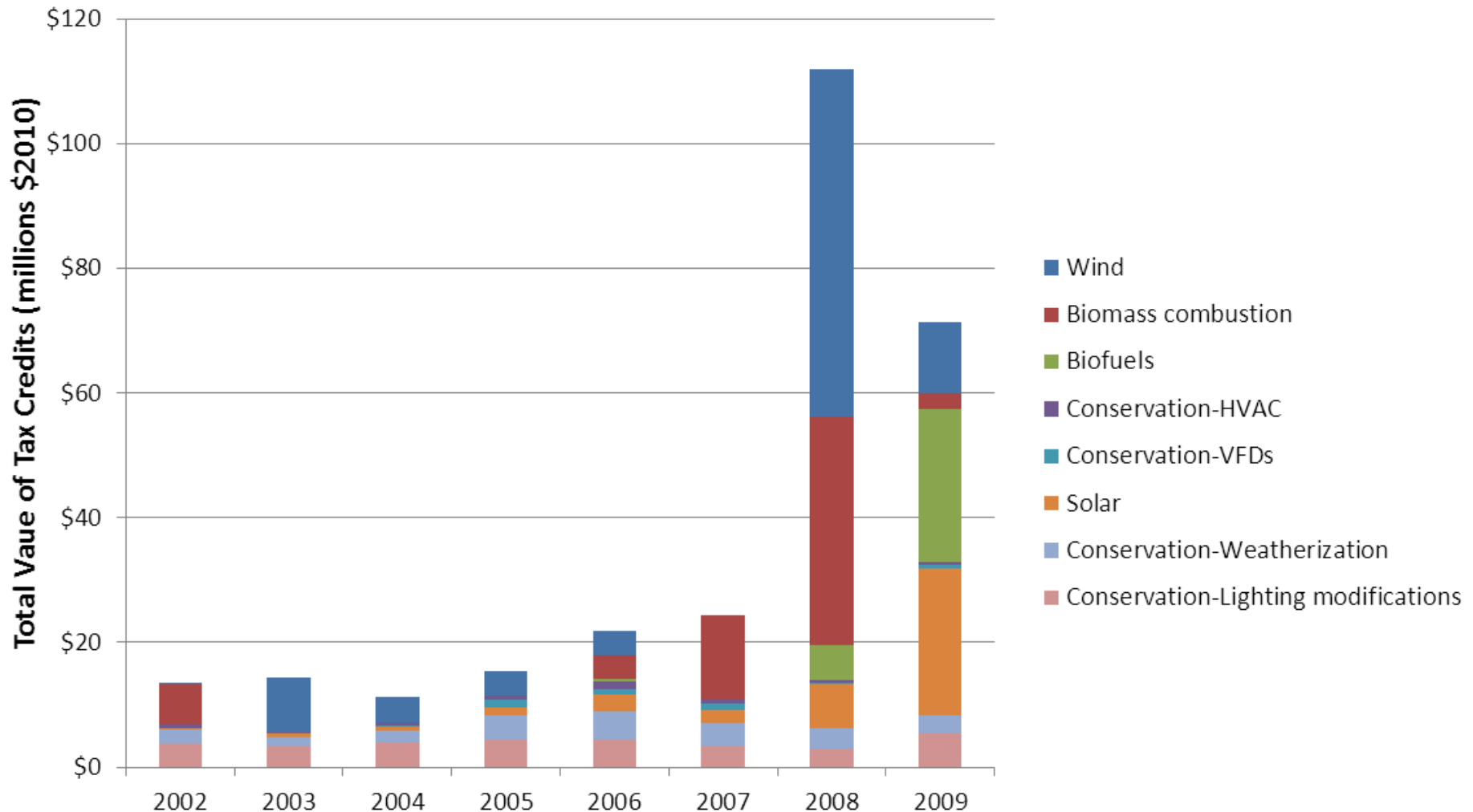
# Distribution of tax credits by type, 2002-2009



# Certified projects in study categories, 2002-2009

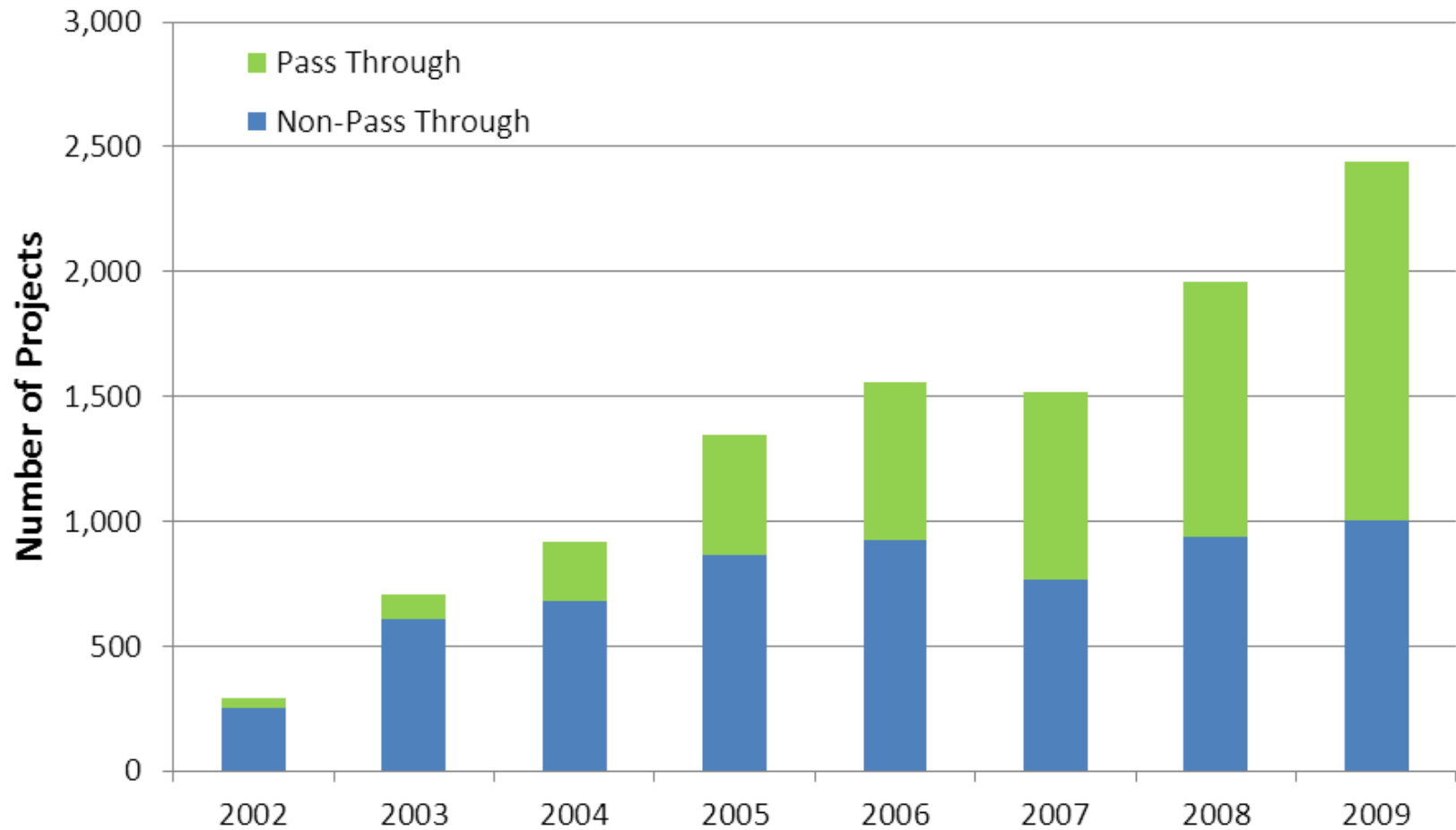


# Total credit value in study categories, 2002-2009





# Use of the pass-through option, 2002-2009



# Project Selection for Financial Analysis

BETC Database  
All Final Projects  
2002-2009  
**n = 13,319**

----- ODOE Project Type Filter

↓  
Subset of BETC Database  
Provided to IEc  
**n = 11,170**

----- IEc Project Type Filter

Wind Energy  
**n = 19**

Biomass:  
Combustion  
**n = 16**

Biomass:  
Biofuels  
**n = 20**

Solar  
Photovoltaics  
**n = 423**

Conservation:  
Weatherization  
**n = 3,735**

Conservation:  
Lighting Mod  
**n = 3,974**

2+ Turbines  
**n = 15**

1 Turbine  
**n = 4**

Location	Size	Timing
East	< 21kW	pre-2007
	> 21kW	2007 -
	< 21kW	pre-2007
	> 21kW	2007 -
West	< 21kW	pre-2007
	> 21kW	2007 -
	< 21kW	pre-2007
	> 21kW	2007 -

Energy Saved (MM BTU)
< 10
10 – 22
23 – 53
> 53

Energy Saved (MM BTU)
< 34
34 – 76
77 – 197
> 197

Applicant Files to Be Reviewed

ALL

2

ALL

ALL

16

8

8

Applicant Files to Be Analyzed

4

1

2

2

3

2

2

# Financial analysis methodology

- Re-creation of project *pro forma* based on information in applicant file.
- Determination of a project's *internal rate of return* (IRR) with and without the BETC.
- Comparison of IRR with and without BETC to target IRR range (literature-based, by category).
- Supplemental analysis of IRR sensitivity, with and without BETC, to changes in key variables.

# Financial analysis summary

- The BETC's impact (i.e., the degree to which it moves the IRR toward the target range) varies across project types and scales and changes over time as technologies mature.
- Impact appears to increase with (1) increasing BETC value relative to project cost and (2) size of gap between pre-BETC and target IRRs.

- Our sample suggests the following spectrum:



- Certain characteristics of biomass projects make them harder to categorize.

# Economic impact methodology

- Primary analytic tool: Impact analysis for PLANning (IMPLAN) model; Job and Economic Development Impact (JEDI) model applied to larger wind energy projects.
- Screening-level analysis that estimates employment demand (in worker-years), labor income, and net “dollars into the economy” associated with representative projects.
- For categories with a large number of projects (solar PV, conservation), we produce an estimate of aggregate impact.
- Installation/construction phase impacts distinguished from operations/maintenance phase impacts.

# Economic impact summary

PROJECT CATEGORY		TOTAL NUMBER OF PROJECTS IN OUR FINAL DATASET	ESTIMATED PROPORTION OF PROJECTS THAT ARE BETC- DEPENDENT	TOTAL BETC DOLLARS GRANTED TO PROJECTS IN OUR FINAL DATASET (\$2010)	ESTIMATED REGIONAL IMPACTS OF SINGLE PROJECT	ESTIMATED REGIONAL IMPACTS OF BETC PROJECTS IN OUR FINAL DATASET		BETC-DEPENDENT ECONOMIC IMPACTS RELATIVE TO SCALE OF BETC INVESTMENT
						BETC-DEPENDENT	ALL	
Wind	Small	8	Most	\$0.1 million	Small	Small	Small	Positive
	Community	1	N/A	\$6.8 million	Large	N/A	N/A	Positive
	Utility	11	Few	\$87.3 million	Large	Small	Large	Limited
Lighting Modifications		3,973	>15 percent	\$34.7 million	Small	Small	Large	Positive
Weatherization		3,651	>10 percent	\$26.8 million	Small	Small	Large	Positive
HVAC		311	>11 percent	\$11.8 million	Medium	Small	Large	Positive
VFD		280	>15 percent	\$7.8 million	Medium	Small	Medium	Positive
Biomass combustion		16	Unknown	\$60.3 million	Large	Not calculated	Not calculated	Likely positive
Biofuels		23	Unknown	\$33.2 million	Large	Not calculated	Not calculated	Likely positive
Solar PV		423	> 50 percent	\$35.1 million	Small	Small	Small	Limited/Breakeven

Single Project Impact: Small = <\$100,000; Medium = <\$1 million; Large = >\$1 million

All Project Impact: Small = <\$50 million; Medium = <\$100 million; Large = >\$100 million

# Please note . . .

- Our representative projects do not constitute a statistically significant sample of the universe of BETC projects; therefore, our conclusions are necessarily general in nature.
- Our results and conclusions are very sensitive to the selection of target IRR ranges for each category; therefore, we were careful in selecting what we believe are the most reliable values currently documented in the literature, recognizing that IRRs can change over time.
- Our “snapshot” of project-induced economic impacts does not attempt to capture the full range of benefits that these projects likely generate.

# Recommendations

- Recognize the varying degrees of significance that the BETC has across projects of different type and scale, and tailor eligibility criteria accordingly.
- Build feedback mechanisms into program administration to enable ongoing consideration, and refinement, of the tax credit's scope and scale for individual technologies.
- In order to accomplish these “continuous tailoring” objectives, expand pre- and post-certification reporting requirements.



# Questions for further inquiry

- Does the BETC combined with the pass-through option provide particular benefit to public sector projects?
- Is dependence on the BETC closely correlated with the scale of renewable energy projects?
- What is the economic impact attributable to in-state manufacturing that supports BETC program activity?