

# Renewable Energy System Permit Fees in Oregon

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July 20, 2006  
*On behalf of*



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# 1. Executive Summary

This report summarizes the results of a survey of Oregon municipal and county building department fees charged for solar photovoltaic (PV) and solar hot water systems (solar thermal). The survey was conducted by Energy Trust in the spring and summer of 2006 and the information that this report was based on is subject to change. This study is based on a similar study published by the Global Warming and Energy Committee of the Sierra Club, Loma Prieta Chapter.<sup>1</sup> The original study, published September 30, 2005, compared the dollar amount 42 cities in San Mateo, Santa Clara, and San Benito counties (California) charged for a standardized residential PV system. The Sierra Club study found large variations in permitting fees charged for the same PV system within the three county area.

The purpose of the Energy Trust study was to gather data about fees being charged by building departments in Oregon for three standardized renewable energy systems (two residential and one commercial). Building departments from Oregon's 23 largest cities and four counties were contacted between May 18, 2006 and June 20, 2006. As of June 20, 2006, 11 surveys have been completely or partially completed (8 municipal and 3 county building departments).<sup>2</sup> The departments from which data was obtained collectively represent 51% of Oregon's population.<sup>3</sup>

The building departments were asked to estimate total permitting fees for the following solar PV and solar thermal systems:

- **Residential PV**  
What is the total cost for a permit to install a *3 kW Solar Photovoltaic system* on a composite shingle roof of a single story residence in your jurisdiction? The typical system cost is \$26,000 and will be professionally installed by a licensed contractor to meet all code requirements. The system will cover 300 sq ft with a roof load of 3 lbs per sq ft.
  
- **Residential solar thermal**  
What is the total cost for a permit to install a *solar water heating system* on a composite shingle roof of a single story residence in your jurisdiction? The typical system costs \$6,000 and will be professionally installed by licensed contractor to meet all code requirements. It will be 65 sq ft and mounted flush to the roof with a load of 30 lbs. per sq ft. The system will include a 12V DC pump.
  
- **Commercial PV**  
What is the total cost to install a 10 kW solar electric system on a composite shingle roof of a single story facility in your jurisdiction? The system cost is \$73,000 and will be professionally installed to meet all code requirements. The system will cover 900 sq ft. and be will be mounted flush to the roof with a load of 3 lbs per sq ft.

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<sup>1</sup> The original study can be found at the Loma Prieta Chapter website:  
[http://lomaprieta.sierraclub.org/global\\_warming/pv\\_permit\\_study.pdf](http://lomaprieta.sierraclub.org/global_warming/pv_permit_study.pdf).

<sup>2</sup> Several municipal building departments did not issue all of their own permits and recommended contacting county building departments.

<sup>3</sup> Source: US Census Bureau.

## 1.1 Key Findings

### Fee assessment methods

Three assessment methods were identified in the course of conducting the study:

- Flat-fee
- Electrical/plumbing only (no structural permit required)
- Valuation based fee

### Average residential PV permit costs by fee assessment method

Flat-fee.....	\$85
Electrical only.....	\$63
Valuation based.....	\$461

### Average residential solar thermal permit costs by fee assessment method

Flat-fee.....	\$85
Plumbing only.....	\$65
Valuation based.....	\$303

### Average commercial PV permit costs by fee assessment method

Flat-fee.....	\$102
Electrical only.....	\$95
Valuation based.....	\$1,114

Jurisdictions assessing permit fees based on the valuation of the system were substantially costlier than those charging flat-fees or for electrical/plumbing permits only.

## 1.2 Observations

### Assessing valuation-based fees (structural permits) results in much higher permitting costs.

High permitting costs could potentially drive away potential purchasers of these renewable energy systems who are sitting on the fence with regard to a decision to go forward with a renewable energy project. Financial disincentives for small scale renewable energy systems could result in less generation to be counted toward Oregon's current renewable energy generation goal of 25% by 2025.

One solar contractor mused that if they were to install plywood panels of the same weight on the roof using the same mounting hardware the structural inspection process would be no different than if PV panels were installed, yet the permit cost difference would be substantial. Additionally, annual fluctuations in the cost of PV panels (currently increasing due to shortages in materials used to manufacture PV panels) result in fluctuations in valuation based permitting methods, further increasing the cost to the end user.

### Inconsistent permitting requirements across jurisdictions

Jurisdictions were found to employ different permit fee assessment methods resulting in different documentation requirements as well as widely varying permitting fees. Inconsistency makes it difficult to plan and bid projects across jurisdictions.

- **Changes in fee structure requires legislative action**

Jurisdictions are allowed to charge whatever they feel to be 'reasonable' for permitting fees to allow them to recoup inspection and administrative costs. Due to the observed variation in permitting fees and assessment methods, there does not seem to be a current consensus on 'reasonable' permitting fees. There is an appeals process both at the department and state level for 'inordinately' high permitting fees. These appeals only apply to one particular project and could lead to project delays which could potentially result in project termination. Individual departments

are given the autonomy to set their own fee guidelines but statewide code changes require legislative action.

## 2. Introduction

Oregon Governor Ted Kulongoski recently proposed his “renewable portfolio standard” which includes a goal to supply 25% of Oregon’s energy needs through renewable energy sources by 2025.<sup>4</sup> This goal is intended to place Oregon at the forefront for utilizing renewable energy sources. In addition, the initiative will help insulate the Oregon economy from escalating energy costs while creating new jobs and reducing greenhouse gas emissions.

This study sought to identify whether the permitting process presents any barriers, financial or procedural, to the installation of renewable energy systems.

### 2.1 Background

This report summarizes the results of a survey on fees charged by Oregon building department for solar photovoltaic and solar hot water systems as well as community small wind projects. All departments were asked for the total permitting costs for a series of systems that would commonly be installed. The survey was conducted by Energy Trust in the spring and summer of 2006 and the information that this report was based on is subject to change.

The study is based on a study published by the Global Warming and Energy Committee of the Sierra Club, Loma Prieta Chapter. The original study, published September 30, 2005, compared what 42 cities in San Mateo, Santa Clara, and San Benito counties (California) charged for a standard Residential photovoltaic (PV) system. Their study question was:

*“What is the total cost for a permit to install a 3kW solar electric system on a composite shingle roof of a single story residence in your jurisdiction (assuming the system cost is \$27,000 before the California Energy Commission rebate and \$18,600 after the rebate)?”*

The purpose of the Oregon study was to gather data about fees being charged by building departments for three standardized renewable energy systems (two residential and one commercial). Building departments for Oregon’s 23 largest cities were contacted between May 18, 2006 and June 20, 2006. If a city building department did not issue all its own permits, the county department was then contacted instead. As of June 20, 2006, 11 surveys have been completely or partially completed (8 municipal and 3 county building departments).

Non-responses occurred for a number of reasons. Some building department officials were too busy to get to the survey. Some departments were unable to determine how they assess permit fees for the renewable energy systems. Several contacts resulted in recommendations to contact multiple building department employees in order to obtain the fee data.

The following is a list of municipal and county building departments whom data was sought from with asterisks indicating departments who provided fee data:

Portland	Medford*	Oregon City	Woodburn
Salem	Bend*	McMinnville	Ashland
Eugene	Springfield*	Grants Pass	Milwaukie
Gresham	Corvallis	Tualatin	Roseburg
Beaverton*	Tigard*	West Linn	Lake Oswego*
Hillsboro*	Albany*	Keizer	Marion County*
Clackamas County*	Washington County*		

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<sup>4</sup> ‘Governor says Oregon must control its own energy destiny’ May 10, 2006  
[http://www.oregon.gov/Gov/p2006/press\\_051006.shtml](http://www.oregon.gov/Gov/p2006/press_051006.shtml).

## 2.3 Evaluation Approach

### 2.3.1 Objectives

- Gather data on permitting fees for solar photovoltaic and solar thermal for both residential and commercial applications.
- Collect information about how municipal and county building departments assess fees (i.e. flat, total valuation, or labor valuation).

### 2.3.2 Methodology

The original survey was fielded via phone on May 18, 2006 to several departments (the original survey can be found in Appendix B.section I.). It quickly became evident that the amount of resources required to accurately complete the original survey resulted in many departments failing to respond. It was decided to narrow the scope of the study to only encompass the permitting costs for the various systems.

A typical contact with a building department was as follows:

- Researchers asked to speak with the building official
- The official was presented with the study questions and told that the intent of the study was to get an idea of fee variation in Oregon and that the results would be published.
- The building official would then answer the questions or direct to another department employee who would be best able to answer the questions.
- In the cases where the building official did not answer the questions themselves, the other employees (typically inspectors) were told about the intent of the study and how it would be published.
- Follow-up calls intended to verify fees were made.

In some cases building officials could not be reached or were too busy to return phone calls. In these instances, permitting technicians were contacted and presented with the relevant information to calculate permit fees. In some cases, repeated contacts yielded no data.

### 3. Findings

#### 3.1 Permit Fees: Comparison by City/County

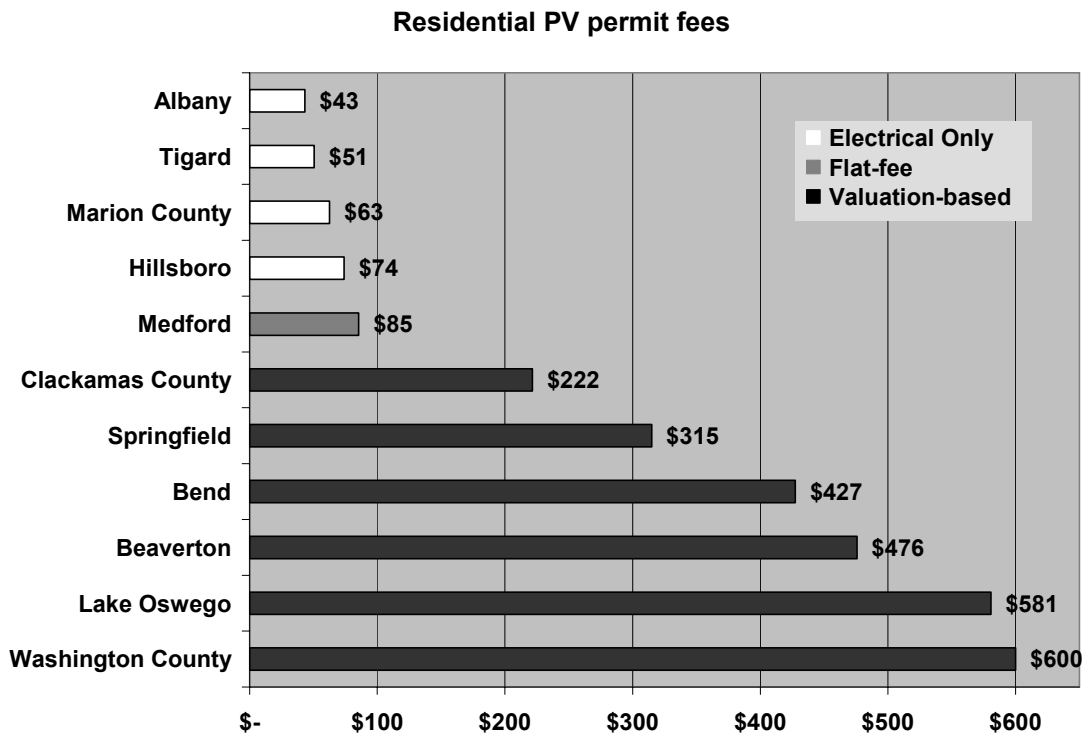
##### 3.1.1 Residential PV permit fees

Study question:

What is the total cost for a permit to install a 3 kW Solar Photovoltaic system on a composite shingle roof of a single story residence in your jurisdiction? The system cost is \$26,000 and will be professionally installed by a licensed contractor to meet all code requirements. The system will cover 300 sq ft with a roof load of 3 lbs per sq ft.

Albany, Tigard, Marion County, and Hillsboro only required an electrical permit to be issued for the Residential PV permit fee. Medford actually had a renewable system specific flat-fee based on the kVA (measure of electrical potential) size of a system.

Jurisdictions that issue valuation-based permits (structural permits based on the total cost of the project) were considerably more expensive. Clackamas County (\$222) charged the least of this group with Washington County charging the most (\$600).

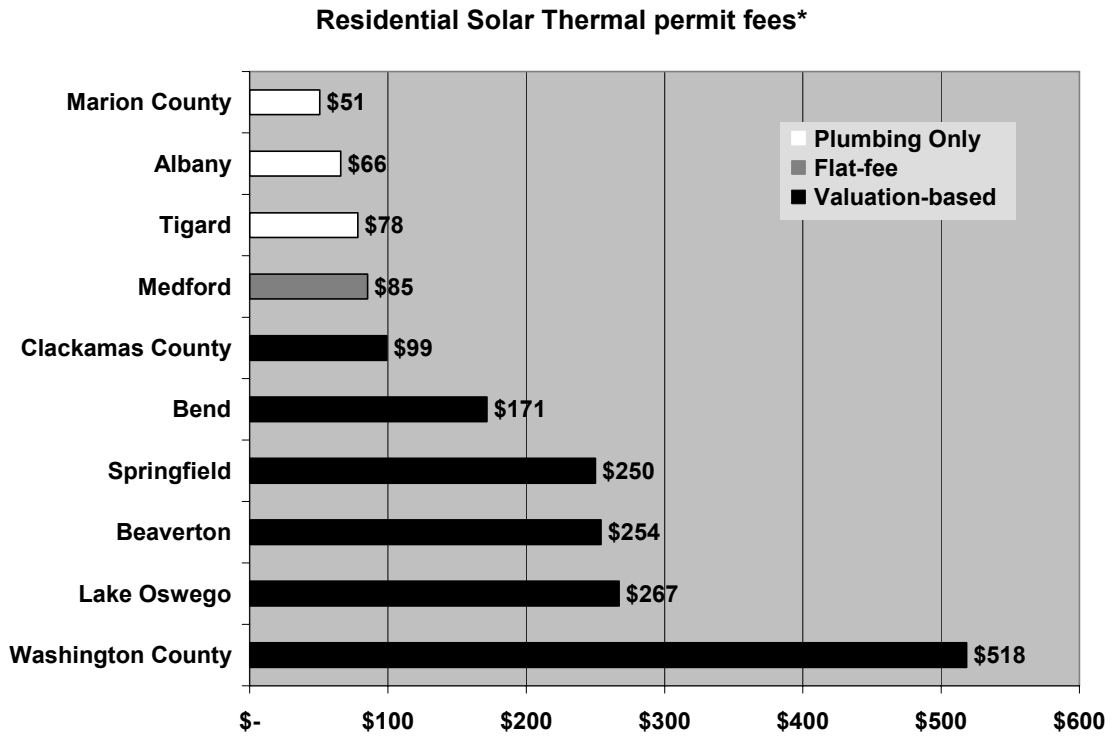


### 3.1.2 Residential solar thermal permit fees

Study question:

What is the total cost for a permit to install a *solar water heating system* on a composite shingle roof of a single story residence in your jurisdiction? The system costs \$6,000 and will be professionally installed by licensed contractor to meet all code requirements. It will be 65 sq ft and mounted flush to the roof with a load of 30 lbs. per sq ft. The system will include a 12V DC pump.

As with the residential PV systems, similar trends were apparent among total permitting fees for residential solar thermal systems. Marion County, Albany, and Tigard only required plumbing permits and no structural permits. Medford had its own renewable energy specific flat-fee that included solar thermal systems. The remainder of jurisdictions assessed fees based on total valuation of the project.



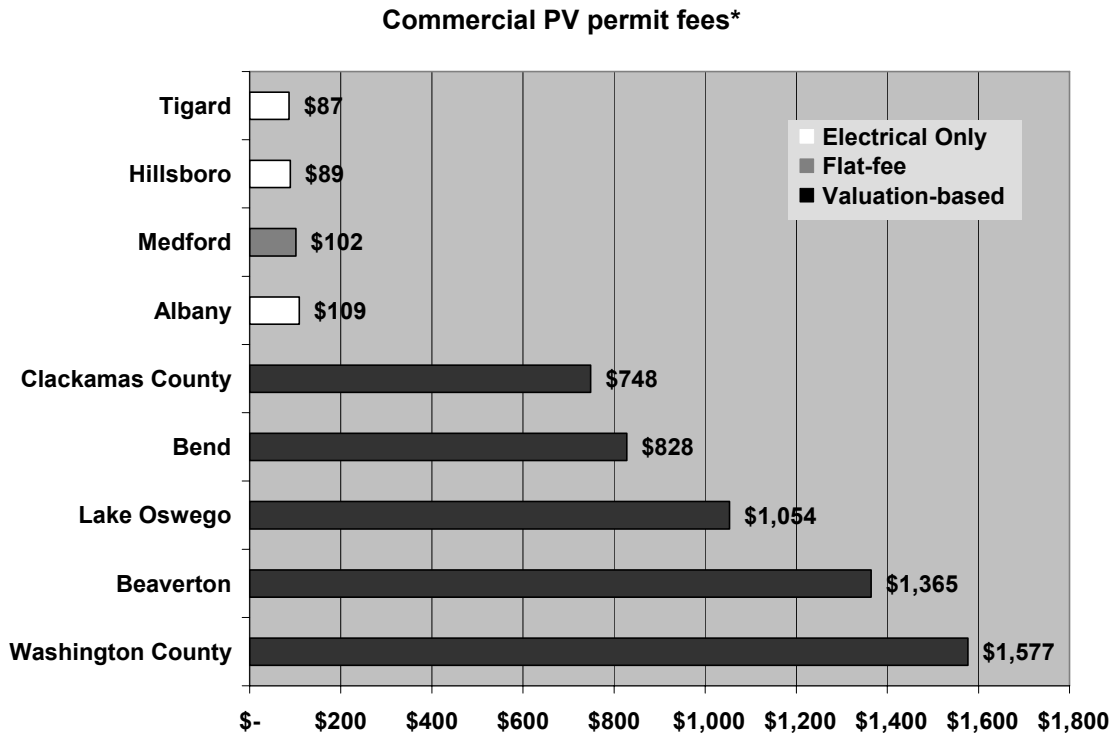


### 3.1.3 Commercial PV permit fees

Study question:

What is the total cost to install a 10 kW solar electric system on a composite shingle roof of a single story facility in your jurisdiction? The system cost is \$73,000 and will be professionally installed to meet all code requirements. The system will cover 900 sq ft. and be will be mounted flush to the roof with a load of 3 lbs per sq ft.

The difference in fees between the jurisdictions who only issue electrical permits or use flat-fees (Medford) and those who issue valuation based structural fees increases dramatically for the commercial PV system. While the additional electrical modification required for a larger PV system is minimal, the valuation of the system increases dramatically as a result of the increased number of PV panels installed.

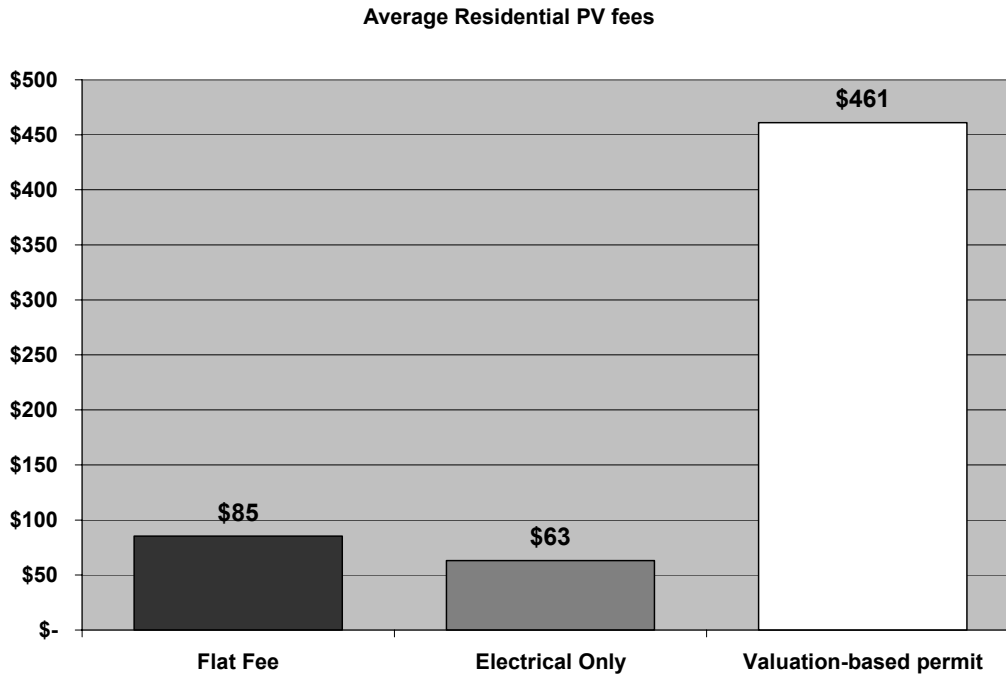


\*Springfield and Marion County did not provide estimates

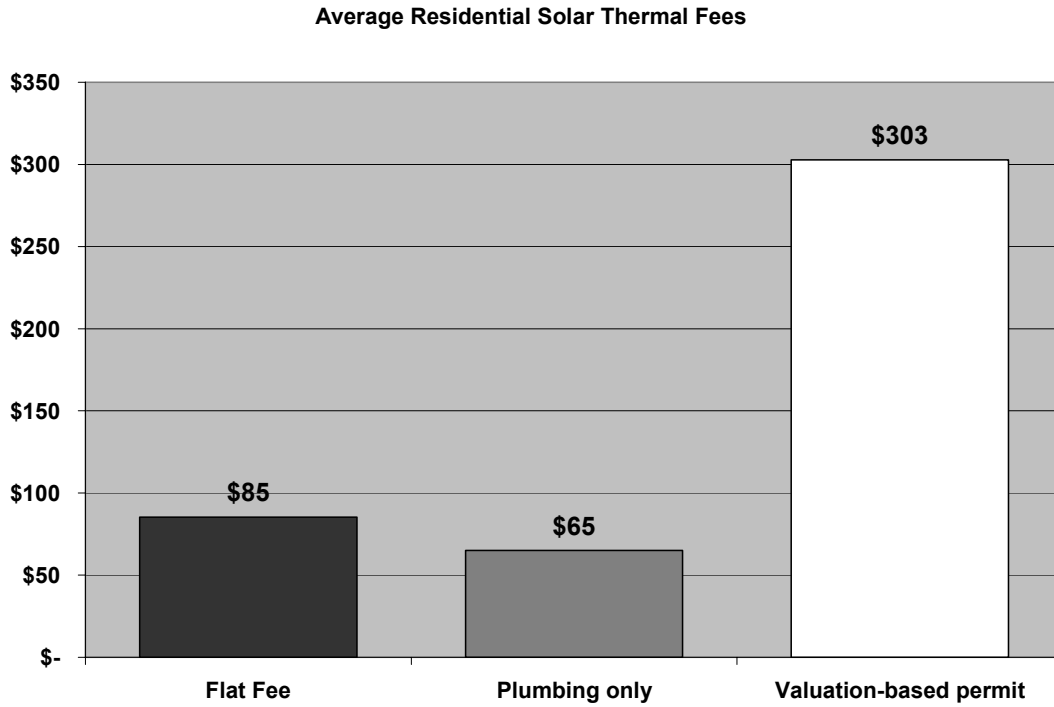
## 3.2 Permit Fee Assessment Methods

### 3.2.1 Residential PV average permit fees

A notable disparity exists between those jurisdictions that charge based on the valuation of the project and those that do not require a structural permit or have a flat-fee system in place (Medford).

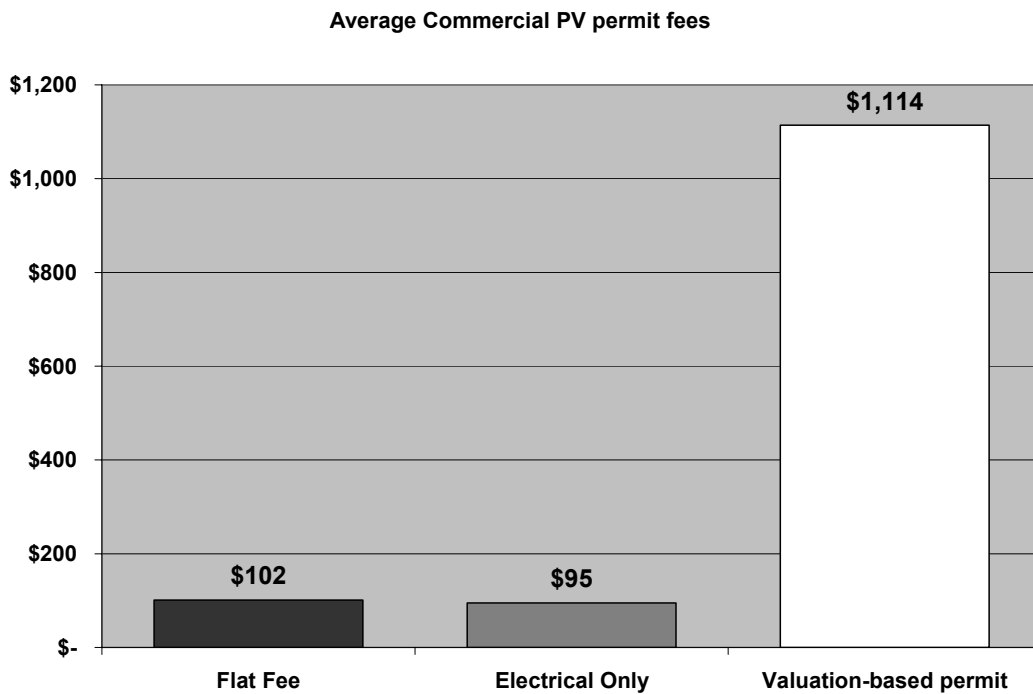


### 3.2.2 Residential solar thermal average fees



### 3.2.3 Commercial PV average permit fees

The disparity in costs associated with permitting fees is exacerbated for commercial systems due to the large increase in PV panels installed. While the additional electrical requirements are minimal, total system valuation increases dramatically.



## 4. Findings & Potential Market Impact

### **Assessing valuation-based fees (structural permits) results in much higher permitting costs.**

High permitting costs could potentially drive away potential purchasers of these renewable energy systems who are sitting on the fence with regard to a decision to go forward with a renewable energy project. Financial disincentives for small scale renewable energy systems could result in less generation to be counted toward Oregon's current renewable energy generation goal of 25% by 2025.

One solar contractor mused that if they were to install plywood panels of the same weight on the roof using the same mounting hardware the structural inspection process would be no different than if PV panels were installed, yet the permit cost difference would be substantial. Additionally, annual fluctuations in the cost of PV panels (currently increasing due to shortages in materials used to manufacture PV panels) result in fluctuations in valuation based permitting methods, further increasing the cost to the end user.

### **Inconsistent permitting requirements across jurisdictions**

Jurisdictions were found to employ different permit fee assessment methods resulting in different documentation requirements as well as widely varying permitting fees. Inconsistency makes it difficult to plan and bid projects across jurisdictions.

- **Changes in fee structure requires legislative action**

Jurisdictions are allowed to charge whatever they feel to be 'reasonable' for permitting fees to allow them to recoup inspection and administrative costs. Due to the observed variation in permitting fees and assessment methods, there does not seem to be a current consensus on 'reasonable' permitting fees. There is an appeals process both at the department and state level for 'inordinately' high permitting fees. These appeals only apply to one particular project and could lead to project delays which could potentially result in project termination. Individual departments are given the autonomy to set their own fee guidelines but statewide code changes require legislative action.

## 5. Appendixes

### Appendix A. System Specifications

#### I. Residential Solar Photovoltaic

<b>Contractor</b>	A licensed solar installer does the installation and a licensed electrician is subcontracted to handle the AC end.
<b>Mounting</b>	System is mounted parallel to the roof slope, raised off the surface 6" to allow rain, snow and debris to pass beneath. Mounting hardware is industry standard, and all roof penetrations are sealed and weatherized.
<b>Roof</b>	The roof is 5 years old with one layer of composite shingles and can support the weight of the array. It is single story home.
<b>System Size</b>	The systems is rated at 3 kW (300 watts AC), covers 300 sq ft and produces a roof load of 3 lbs per sq ft.
<b>Cost</b>	This system costs \$26,000

#### II. Residential Solar Hot Water

<b>Contractor</b>	A licensed solar installer does the installation and a licensed plumber is subcontracted to handle the potable water
<b>Mounting</b>	System is flush mounted and flashed to the roof. Mounting hardware is industry standard, and all roof penetrations are sealed and weatherized.
<b>Roof</b>	The roof is 5 years old with one layer of composite shingles and can support the weight of the array. It is single story home.
<b>System Size</b>	The s is a glycol, 2 collector system rated to save 2300 kWh a year, covers 50 sq ft and produces a roof load of 4 lbs per sq ft.
<b>Cost</b>	This system costs \$6,000

### III. Commercial Solar Photovoltaic

<b>Contractor</b>	A licensed solar installer does the installation and a licensed electrician is subcontracted to handle the AC end
<b>Mounting</b>	System is mounted parallel to the roof slope, raised off the surface 6" to allow rain, snow and debris to pass beneath. Mounting hardware is industry standard, and all roof penetrations are sealed and weatherized.
<b>Roof</b>	The roof is 5 years old with one layer of composite shingles and can support the weight of the array. It is single story facility.
<b>System Size</b>	The systems is rated at 10.2 kW (10,200 watts AC), covers 900 sq ft and produces a roof load of 3 lbs per sq ft.
<b>Cost</b>	This system costs \$73,000

## Appendix B. Survey Questions

### I. Original Questionnaire

#### Energy Trust Building Permit Questionnaire

The Energy Trust of Oregon is a non-profit funded by Oregon rate-payers and funds energy efficiency and renewable energy projects throughout the state of Oregon. Currently the Energy Trust is engaged in projects across several regions that are affected by the permitting process.

We are interested in finding out what, if any, special permitting requirements there are for:

- Residential and commercial Photovoltaic (PV) systems
- Residential solar thermal water heating systems
- Energy Star qualifying homes

The questions are quite simple and should take about 20 minutes to answer.

Do you have the time now? yes\_\_\_\_ no\_\_\_\_.

Reschedule to\_\_\_\_\_

If you would like, I can fax or email you the questions and schematics of the systems I have questions about.

#### Contact Information

Department: City\_\_\_\_\_ County\_\_\_\_\_

Permit department official name:\_\_\_\_\_

Title:\_\_\_\_\_

Contact Number:\_\_\_\_\_

Fax Number:\_\_\_\_\_

#### Residential Solar PV (Photovoltaic)

1. What type of permitting system is in place for residential solar PV (i.e. flat fee or a valuation fee based on size of system)? \_\_\_\_\_

2. How many permits total were issued for Residential solar PV last year (2005)?  
\_\_\_\_\_
3. What is the total cost for a permit to install a *3 kW Solar Photovoltaic system* on a composite shingle roof of a single story residence in your jurisdiction? The typical system cost is \$26,000 and will be professionally installed by a licensed contractor to meet all code requirements. The system will cover 300 sq ft with a roof load of 3 lbs per sq ft (additional specifications can be found on attached spec sheet). \$\_\_\_\_\_.
4. What is the average length of time it takes to issue a building permit for a Residential solar PV system in your jurisdiction? \_\_\_\_\_.
5. What additional documentation is required in the permitting process for a Residential solar PV system? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

***Residential Solar Hot Water***

6. What type of permitting system is in place for residential solar hot water (i.e. flat fee or a valuation fee based on size of system)? \_\_\_\_\_
7. How many permits total were issued for Residential solar hot water last year (2005)?  
\_\_\_\_\_
8. What is the total cost for a permit to install a *solar water heating system* on a composite shingle roof of a single story residence in your jurisdiction? The typical system costs \$6,000 and will be professionally installed by licensed contractor to meet all code requirements. It will be 65 sq ft and mounted flush to the roof with a load of 30 lbs. per sq ft. The system will include a 12V DC pump. \$\_\_\_\_\_.
9. What is the average length of time it takes to issue a building permit for a Residential solar hot water system in your jurisdiction? \_\_\_\_\_.
10. What additional documentation is required in the permitting process for a Residential solar hot water system? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

***Commercial Solar PV***

11. What type of permitting system is in place for commercial solar PV (i.e. flat fee or a valuation fee based on size of system)? \_\_\_\_\_
12. How many permits total were issued for Commercial solar PV last year (2005)?  
\_\_\_\_\_
13. What is the total cost to install a 10 kW solar electric system on a composite shingle roof of a single story facility in your jurisdiction? The system cost is \$73,000 and will be professionally installed to meet all code requirements. The system will cover 900 sq ft. and be will be mounted flush to the roof with a load of 3 lbs per sq ft. \$\_\_\_\_\_.





system will cover 300 sq ft with a roof load of 3 lbs per sq ft (additional specifications can be found on attached spec sheet). \$\_\_\_\_\_.

### ***Residential Solar Hot Water***

2. What is the total cost for a permit to install a *solar water heating system* on a composite shingle roof of a single story residence in your jurisdiction? The system will cost \$6,000 and will be professionally installed by licensed contractor to meet all code requirements. It will be 65 sq ft and mounted flush to the roof with a load of 30 lbs. per sq ft. The system will include a 12V DC pump. \$\_\_\_\_\_.

### ***Commercial Solar PV***

3. What is the total cost to install a 10 kW solar electric system on a composite shingle roof of a single story facility in your jurisdiction? The system cost is \$73,000 and will be professionally installed to meet all code requirements. The system will cover 900 sq ft. and be will be mounted flush to the roof with a load of 3 lbs per sq ft. \$\_\_\_\_\_.
4. Would you like the results of the survey sent to your department? Yes\_\_\_\_\_ No\_\_\_\_\_.

Thank you for your time answering this questionnaire.