Democratize the Grid

www.OregonRenewables.com

OREP

oregonrenewables.com

Advancing the transition to locally-owned, locally-generated clean, renewable energy.

Oregonians for Renewable Energy Progress

- Educational Outreach
  - Students
  - Teachers
  - Public
  - Industry
- Policy
  - Permitting
  - Rulemaking
  - Legislative (<10%)

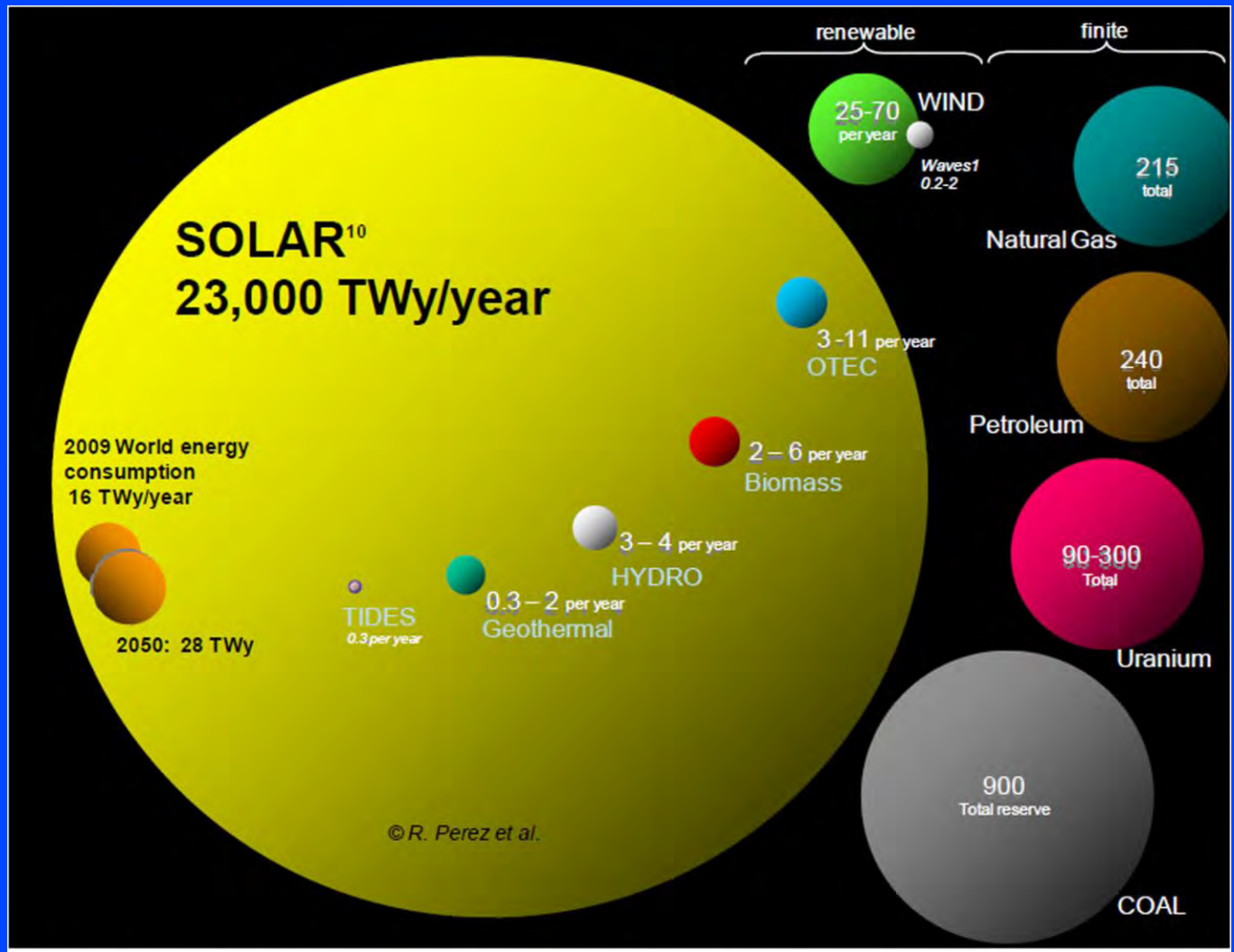


Figure 1: Comparing finite and renewable planetary energy reserves (Terawatt-years). Total recoverable reserves are shown for the finite resources. Yearly potential is shown for the renewables (source: Perez & Perez, A fundamental look at energy reserves for the planet. The IEA SHC Solar Update, Volume 50, pp. 2-3, April 2009)

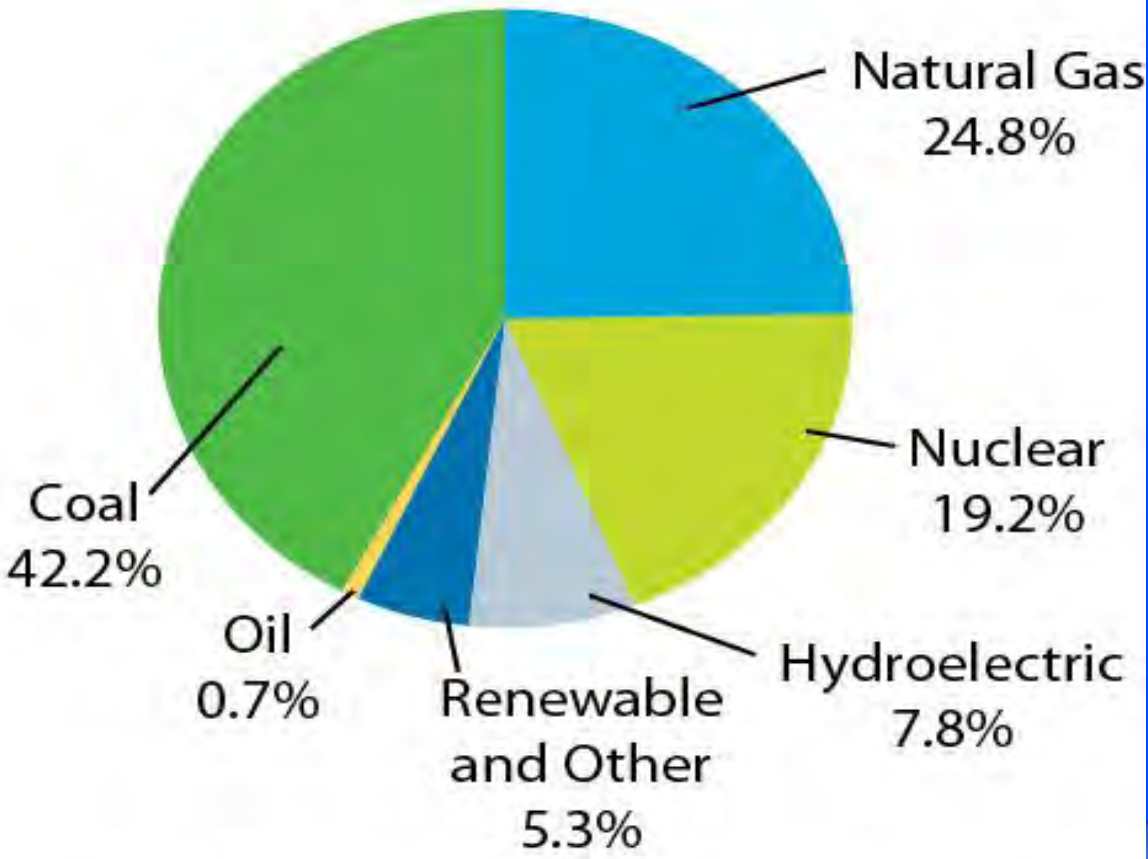
We, the people, have choices to make:

For finite resources on right, the **entire remaining fuel stock** is shown.

For renewable resources on left, the **ANNUAL** available fuel resource is shown.

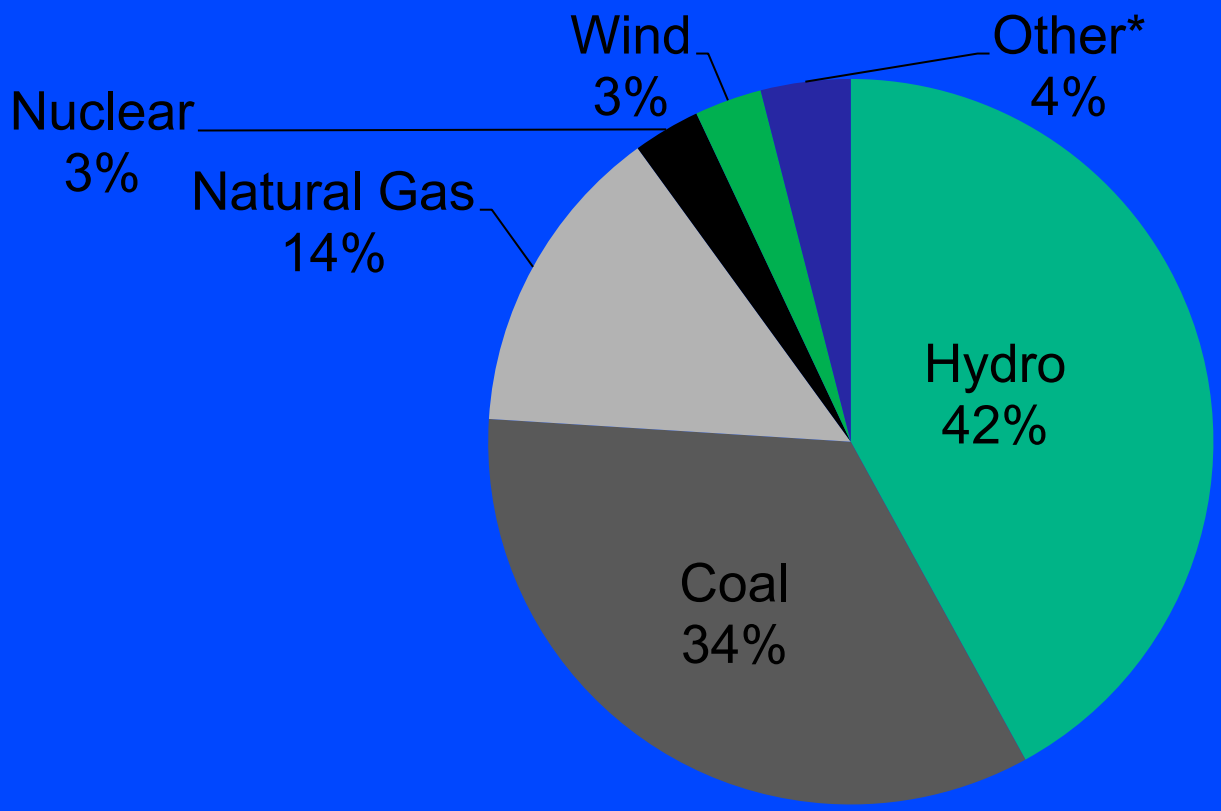
Where should Oregon invest?

U.S. Electricity Generation Fuel Shares 2011



Source: U.S. Energy Information Administration

Oregon's Energy Mix, 2011 *(Investor-Owned Utilities)*



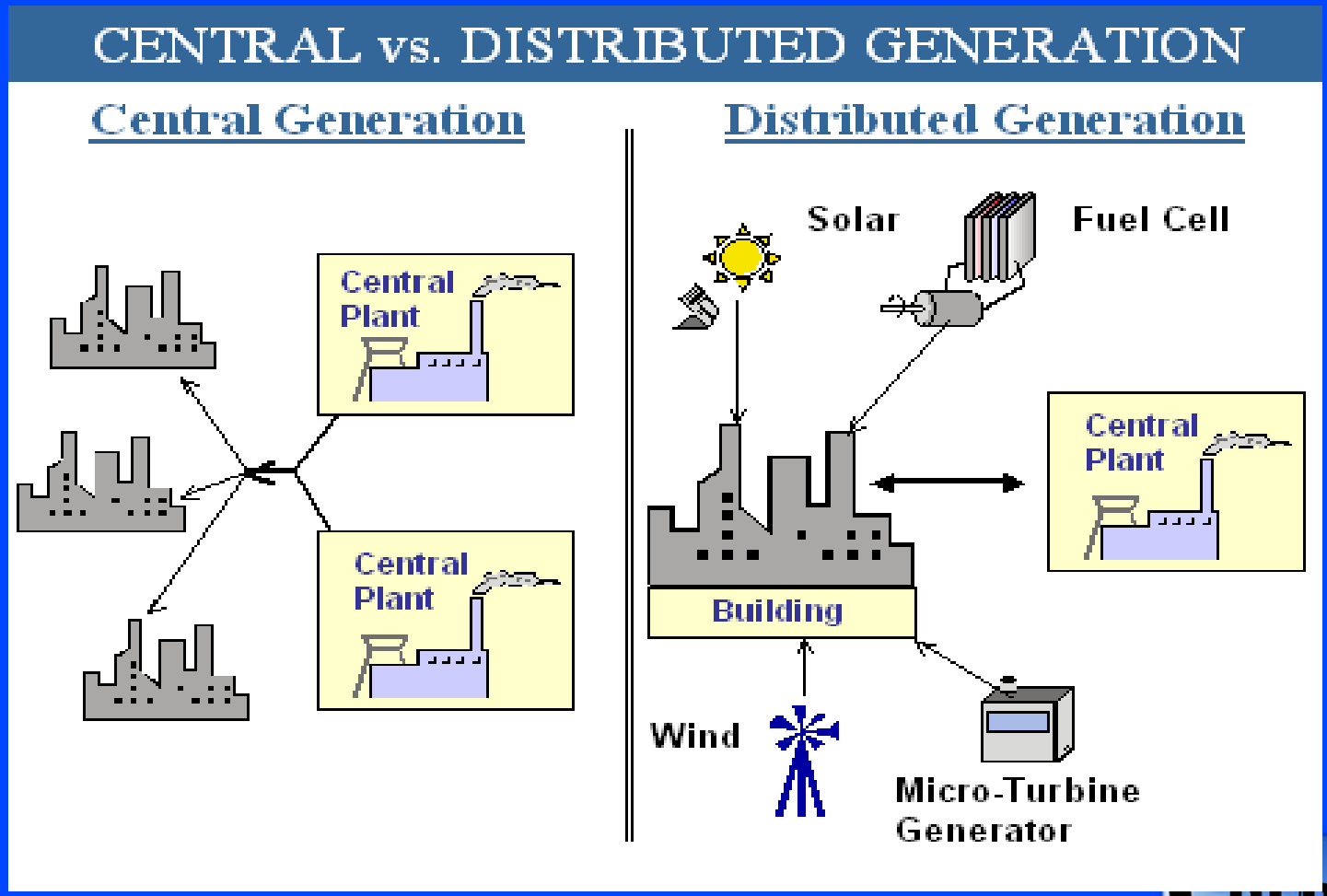
*Other:
- Cogeneration 1 %
- Biomass 0.5 %
- Waste 0.3 %
- Petroleum 0.2 %
- Geothermal 0.1 %

Where's Solar??

**Credit: www.oregon.gov/ENERGY/Oregons_Electric_Power_Mix.shtml

How do we utilize these renewable fuels?

Distributed Generation



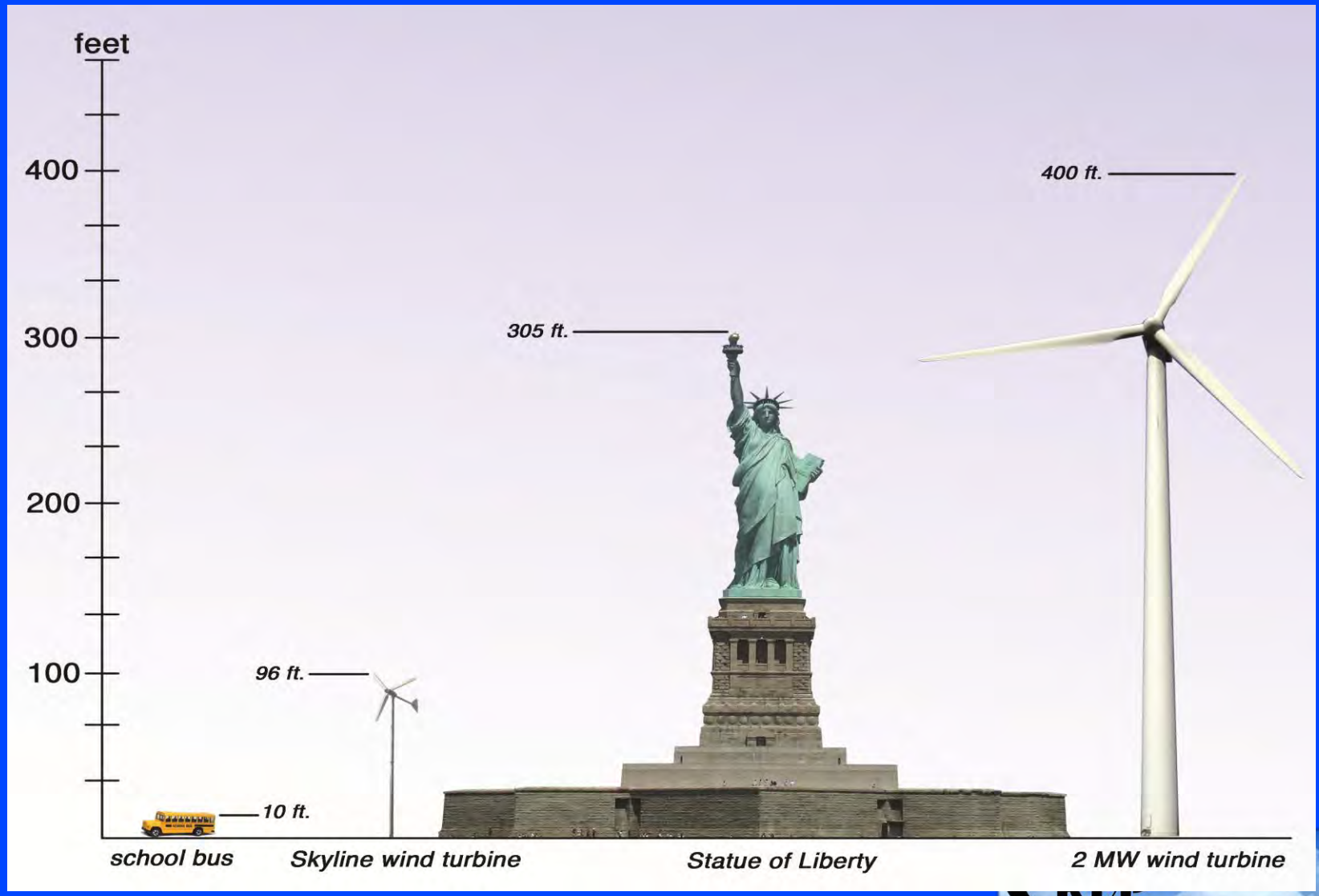
Distributed Generation

Distributed statewide
- Good for grid reliability

Local energy
- Reduces transmission
- Uses what is available

Energy in YOUR community
- Benefits should stay in YOUR community

Oregonians for
Renewable Energy Policy



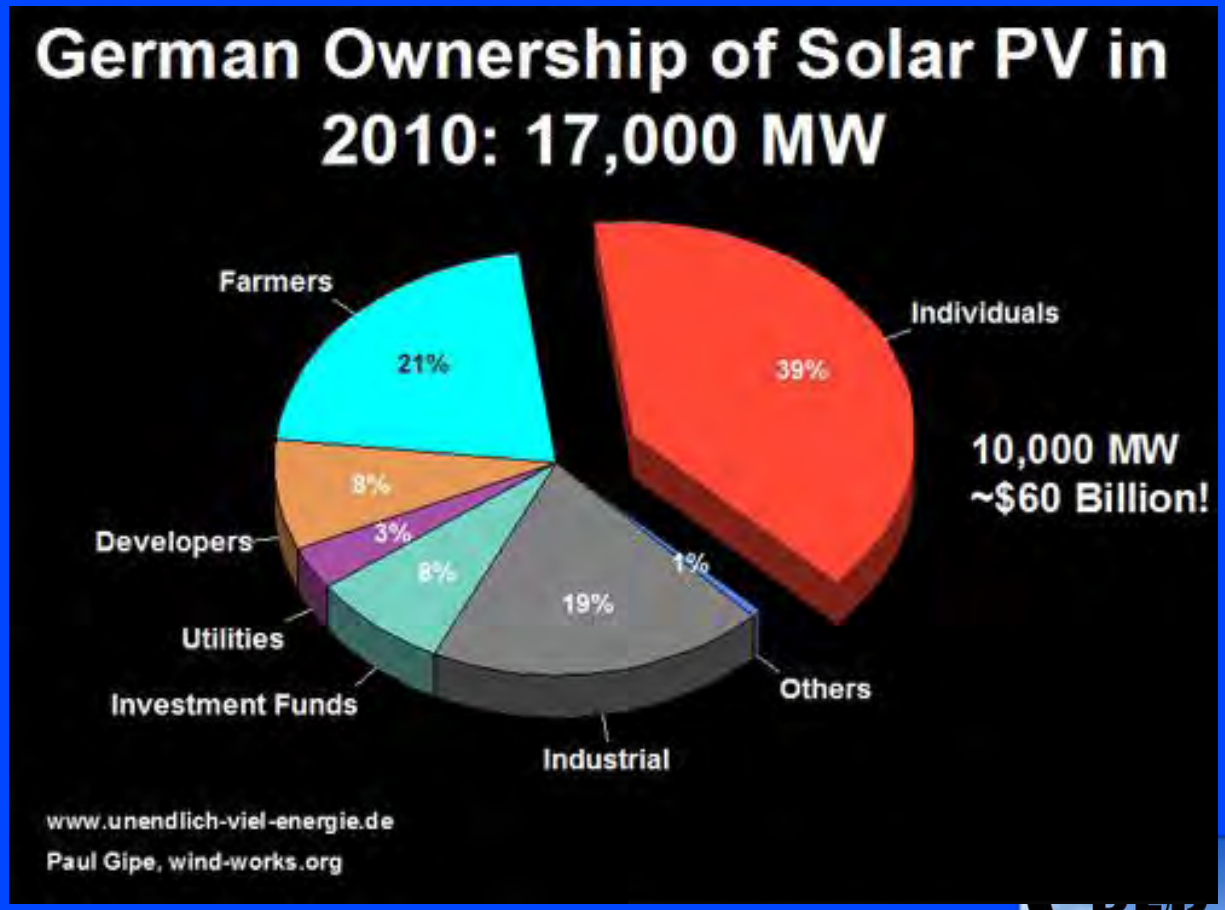
KidWind Project |
www.kidwind.org

Small Wind

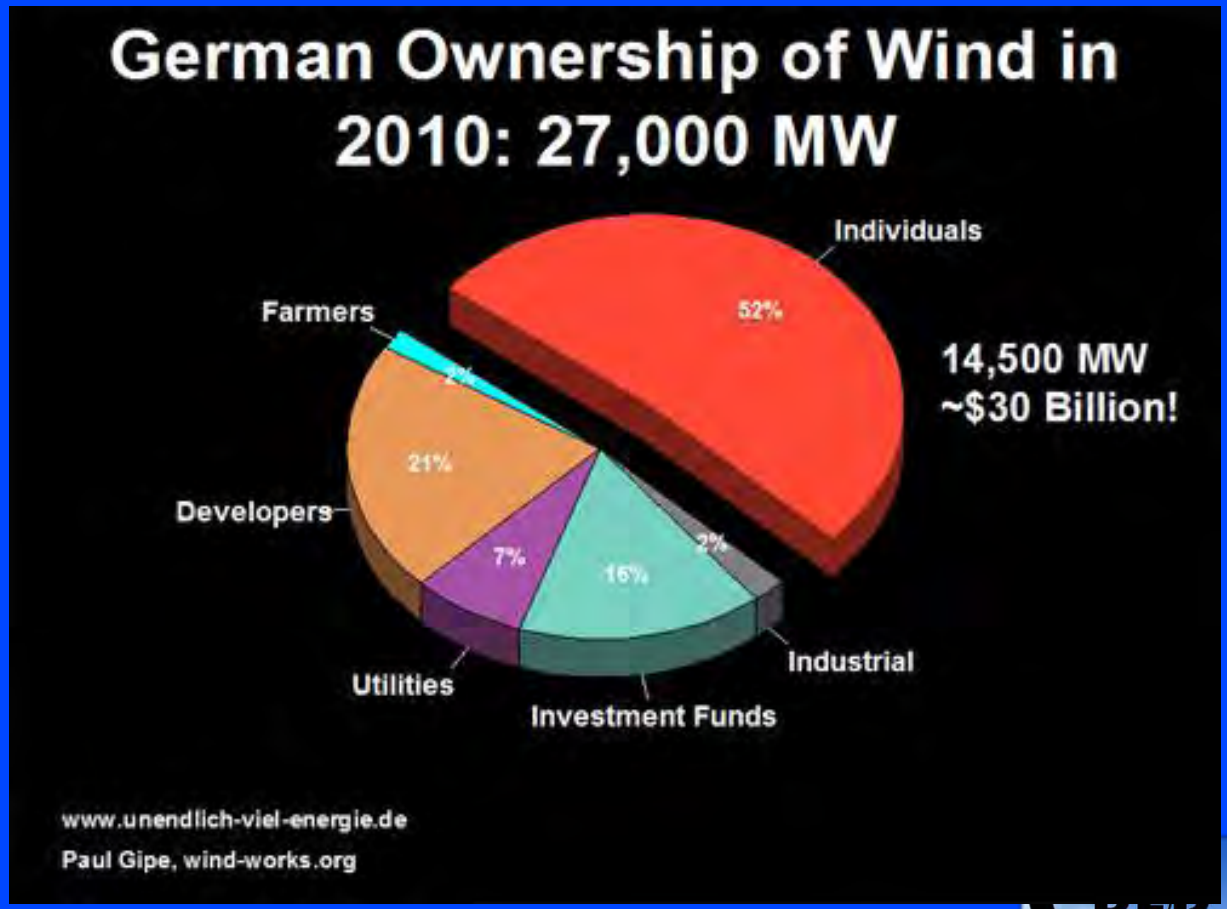
Industrial Wind

Community Wind

Locally Generated…
Locally Owned


German Ownership of Solar PV in 2010: 17,000 MW
Farmers
21%
Individuals
39%
10,000 MW
~$60 Billion!
8%
Developers
3%
8%
1%
19%
Utilities
Investment Funds
Others
Industrial
www.unendlich-viel-energie.de
Paul Gipe, wind-works.org


REP
Oregonians for
Renewable Energy Policy


German Ownership of Wind in 2010: 27,000 MW
Individuals
52%
Farmers
2%
21%
Developers
7%
16%
2%
Industrial
Utilities
Investment Funds
14,500 MW
~$30 Billion!
www.unendlich-viel-energie.de
Paul Gipe, wind-works.org


REP
Oregonians for
Renewable Energy Policy

German Ownership of Renewables in 2010: 53,000 MW

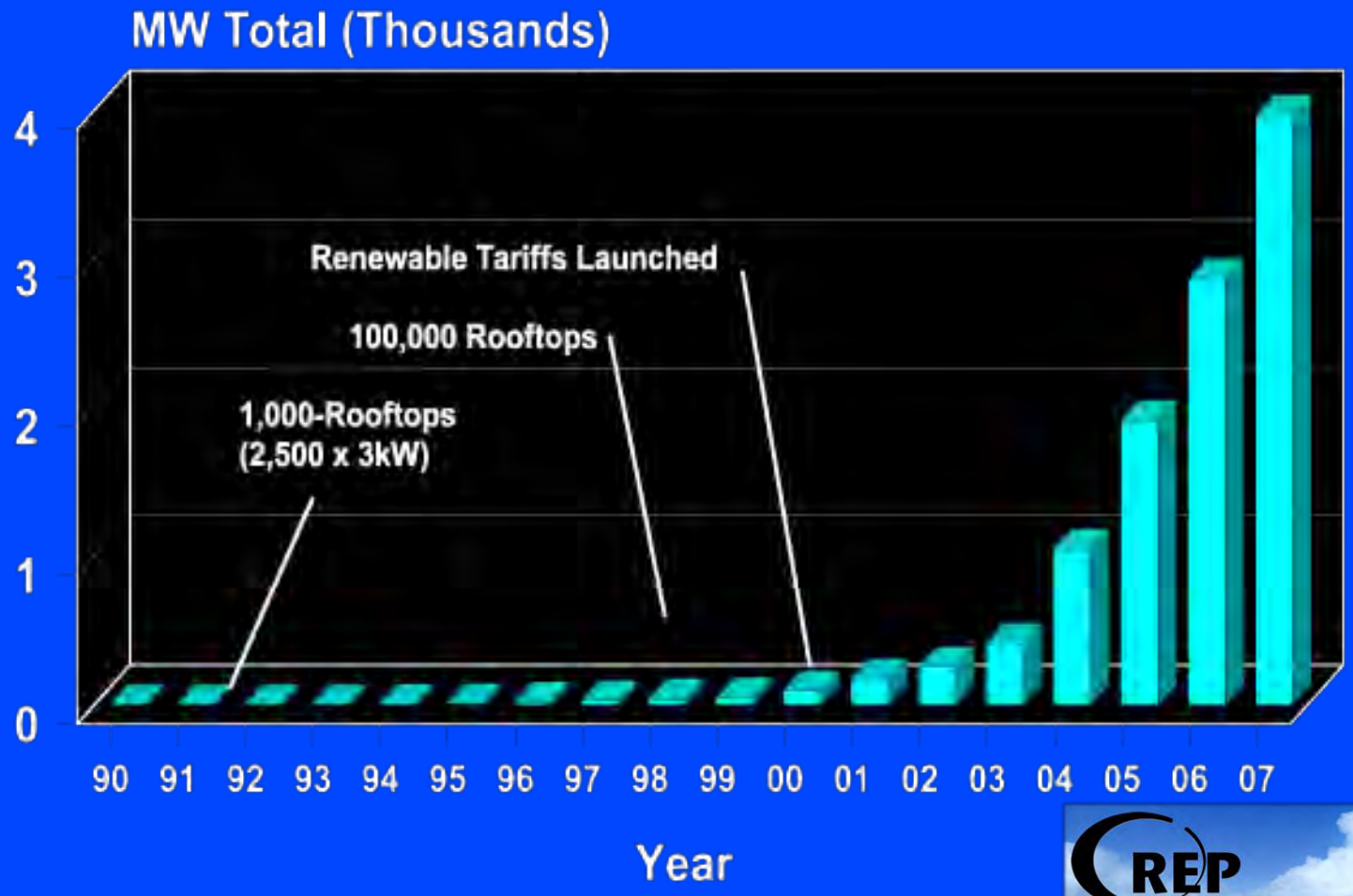
www.unendlich-viel-energie.de

Paul Gipe, wind-works.org

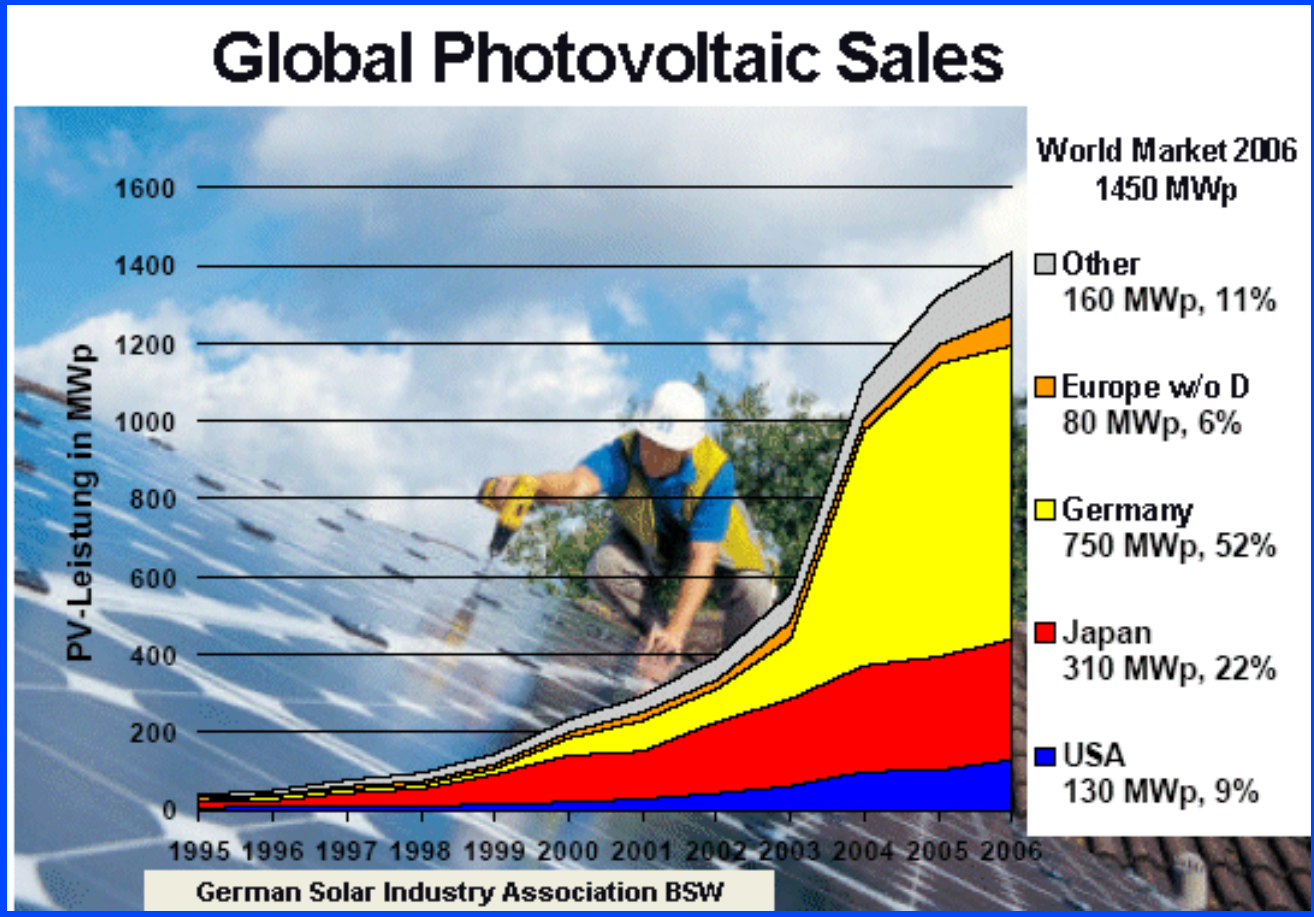
- A CLEAN Law (Feed in Tariff) requires an electric utility to:

1. Connect a customer to the grid
2. Buy ALL the RE produced by the customer
3. Pay a fixed price (per kWh) that covers costs and give a reasonable ROI
4. Provide a contract for a specific length of time

Renewable Tariffs and Solar Photovoltaics in Germany



Feed-in Tariffs Have Made Germany the World Leader in Solar



54% of all solar power capacity worldwide is now located in Germany

2010 installed solar update:

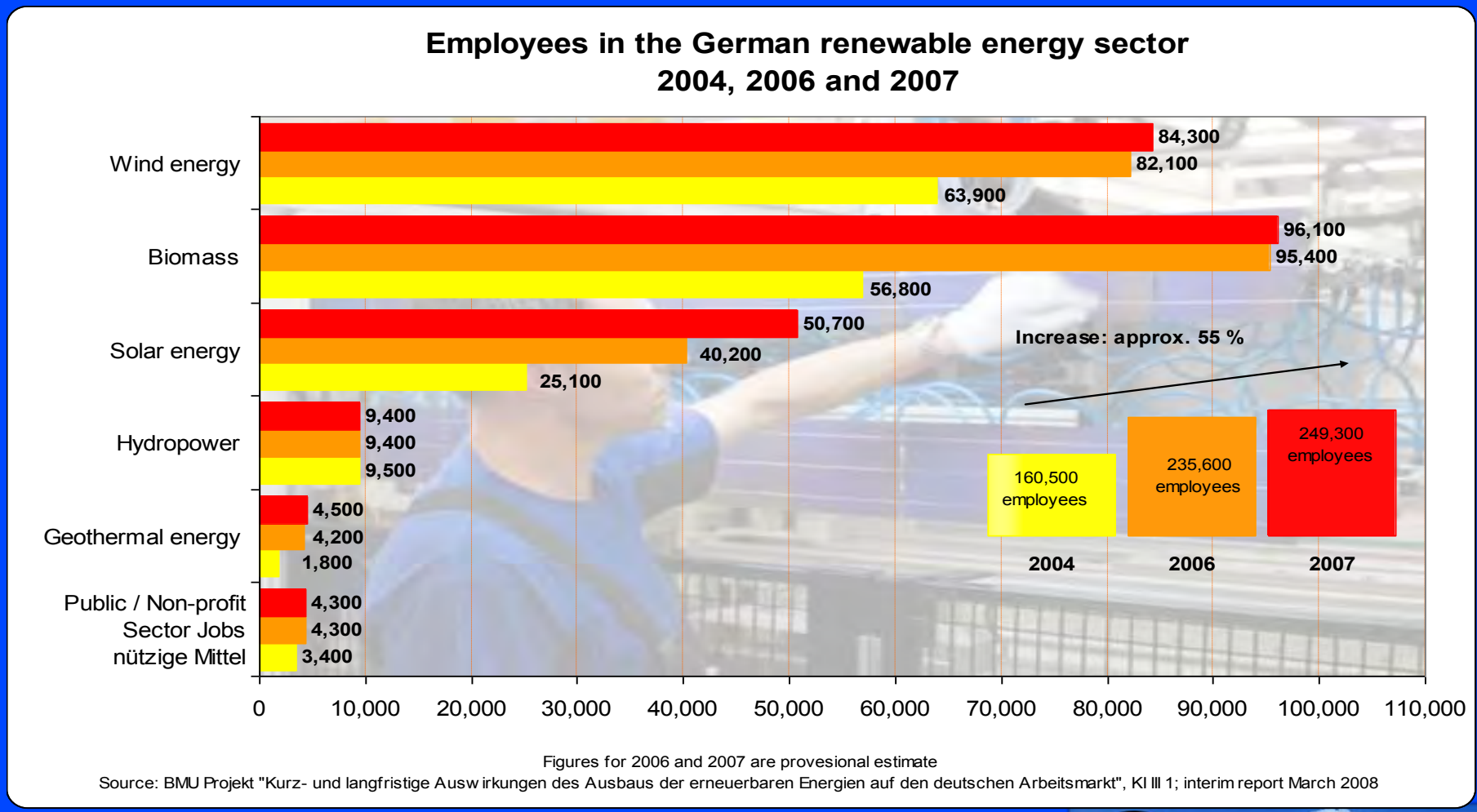
Germany = 17GW
U.S.A. = 2.1 GW

Germany's Solar is Mostly Small and Local

Source: BSW Solar

Oregonians for Renewable Energy Payments

Growth in German RE Jobs



World Future Council
2010 update : 370,000 employees in RE

Source: BMU 2008

Ontario Feed-In Tariff
First Year Results

- 22,000 projects
- 5,000 MW of Renewable Energy
- 43,000 jobs
- $9B in private capital investment
- Close all coal plants by 2014

Feed-In Tariff Prices for Renewable Energy Projects in Ontario; August 13, 2010

Renewable Fuel	Size tranches	Contract Price ¢/kWh	*Contract Price US¢*	Escalation Percentage		Maximum Aboriginal Price Adder (¢/kWh)	Maximum Community Price Adder (¢/kWh)
Biomass						0.6	0.4
	≤ 10 MW	13.8	*14.5*	20%			
	> 10 MW	13.0	*13.7*	20%			
Biogas						0.6	0.4
On-Farm	≤ 100 kW	19.5	*20.5*	20%			
On-Farm	> 100 kW ≤ 250kW	18.5	*19.4*	20%			
Biogas	≤ 500 kW	16.0	*16.8*	20%			
Biogas	> 500kW ≤ 10 MW	14.7	*15.4*	20%			
Biogas	> 10 MW	10.4	*10.9*	20%			
Waterpower						0.9	0.6
	≤ 10 MW	13.1	*13.8*	20%			
	> 10 MW ≤ 50 MW	12.2	*12.8*	20%			
Landfill gas						0.6	0.4
	≤ 10 MW	11.1	*11.7*	20%			
	> 10 MW	10.3	*10.8*	20%			
Solar PV						1.5	1.0
Rooftop	≤ 10 kW	80.2	*84.2*	0%		NA	NA
Rooftop	> 10 ≤ 250 kW	71.3	*74.9*	0%		NA	NA
Rooftop	> 250 ≤ 500 kW	63.5	*66.7*	0%		NA	NA
Rooftop	> 500 kW	53.9	*56.6*	0%		NA	NA
Ground Mounted	≤ 10 kW	64.2	*67.4*	0%			
Ground Mounted	> 10 kW ≤ 10 MW	44.3	*46.5*	0%			
Wind						1.5	1.0
Onshore	Any Size	13.5	*10.8*	20%			
Offshore	Any Size	19.0	*10.8*	20%			

What is happening in Oregon now?

Solar Pilot Program (Est. 2009)

It was a good start:

1. Set rates for 4 different geographic zones
2. Three classes: <10kW; 10-100kW; >100-500kW
3. Contract length: 15 years
4. Program opens April 1 and October 1 each year
5. First release sold out in **8 MINUTES!!!**

What is happening in Oregon now?

Solar Pilot Program (Est. 2009)

…..A start….but:

1. Capacity: Limited, 25 MW over 4.5 years
   (0.15% of Oregon's Energy Mix)
2. Net-metering on steroids (where's the cost-effectiveness?)
3. Only IOUs (PGE, Pacific Power, Idaho Power)
4. Only Solar

A True FIT in Oregon?

We pass a law that requires your electric utility to offer you a renewable energy contract to:

- Connect you to the grid
- Buy all the renewable energy you produce
- Pay a predetermined, fixed price for a specific length of time
- The price must cover your costs and provide a reasonable profit

What Can You Do?

A. Tell friends, neighbors, and elected officials about the solution – CLEAN Contract (aka Feed-in Tariff)

B. Sign up with OREP to stay informed

C. Ask your organization to become a OREP Partner

D. What else?

OREP in 2013

- Extend the Solar Pilot Program
  - 10% extension
  - Meant for medium scale projects
    - Project financials work out for small and large projects
- Study the True Solar Resource Value
  - Consider transmission savings
  - Peak-time generation
  - Utility requirements

OREP in 2014

- Renewable Energy Coops
  - Mimic grocery coop bill
  - Just like agricultural, fishing, and non-profit coops
  - Avoids many controversial topics
  - Simple ownership model
  - Removing one more barrier to local energy projects

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Oregonians for Renewable Energy Progress

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