

Residential

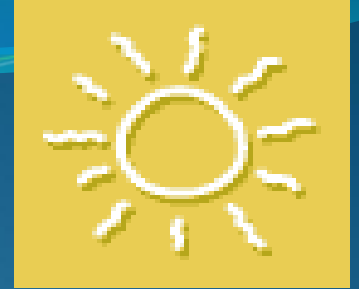
Model of Reality

Maui County Energy Expo 2009

September 10, 2009

Warren S. Shibuya

Residential Model of Reality



**“Why not getting electricity
from our Sun?”**



**Why depend on a dwindling, scarce energy
resource shipped 2,500 miles, has high and
volatile prices and resource is hazardous to
our atmosphere and our health?**



Residential Model of Reality

Photovoltaic (PV) system: converts sunlight energy into electric power.

- **Works daylight, good power 9:30-3:00PM**
 - South facing, flat or Sun tracker mounted
- **Reliable, long working-life (18-20 yrs)**
 - Repayment over longer time (mortgage)
 - Does not depreciate like your car
- **Contributes renewable power to grid**
 - Power credited at prevailing utility rate
 - Increases potential life qualities

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Why I generate renewable power?

- **Retiree, ‘straight-lined’ annuity**
 - **Eliminated rising home electricity expenses!**
- **Conserving lacked significant savings for “Quality of Life” initiatives:**
 - **Conserving w/ Energy Star and CFLs costs**
 - **PHEV, A/C, PC systems, “limited” memory**
- **Integrate hydrogen system, future sustaining**

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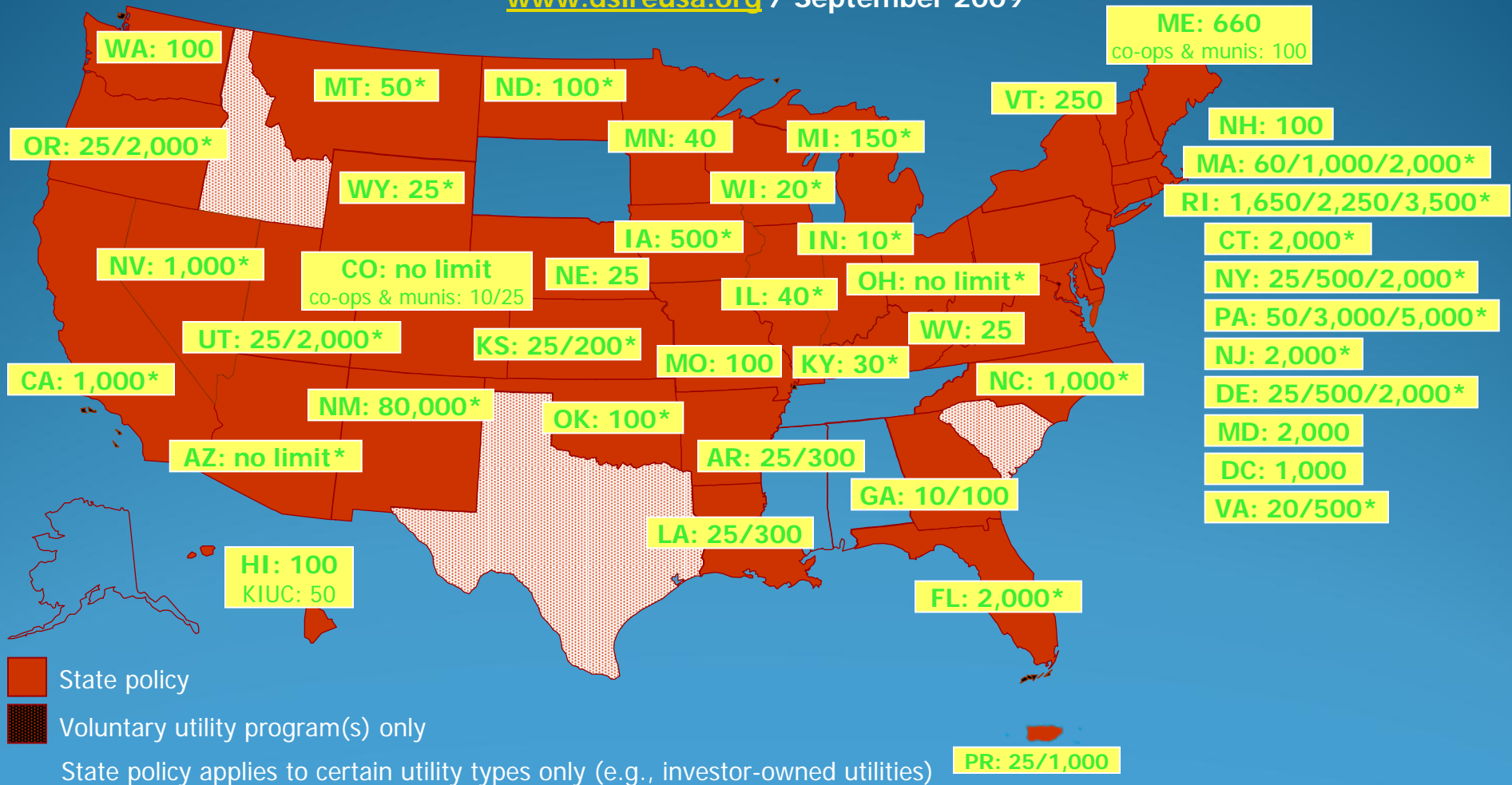
- **Net Energy Metering (NEM) Agreement with MECO**
- **Homeowner or business produces and contributes renewable power into MECO grid**
- **During 12 month period:**
 - **Power consumed higher than contributed, you pay MECO net cost for electricity**
 - **Power consumed less than contributed, MECO credits your account, credit carried forward**
 - **After 12th month, MECO 'zeros' account**

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42 States Adopt Net Energy Metering

HRS §269-101 NEM, §235-12.5 Credits

www.dsireusa.org / September 2009





Residential Priorities



- **Energy Efficiency Conservation (EEC)**
 - Frugal uses of energies for life qualities
 - **Reduces** your need and expense for power
- **You Produce Renewable Power**
 - **Convert** energy, improve your life qualities
 - **You produce** renewable power:
 - Reduces your home's demand for grid-power and expenses for recharging your PHEVs
 - **You contributing renewable power to grid** reduces your electricity (fossil fuel) costs and “carbon-footprint” (your energy legacy)

Residential Really!

**“Win-Win”
for us and
MECO
between
2004-2009**



- **Converted >31,000,000 watt/hrs power**
- **MECO avoided exhausting >53,000 lbs CO²**
- **This home paid MECO \$18.23 last month**



Residential Model of Reality Finance PV System

- **High initial PV system cost, many variables**
- **Long-term home improving investment**
 - <http://www.statesadvancingsolar.org/state-solar-program-spotlight/california-solar-initiative-csi>
- **Financing alternatives:**
 - **Low-cost secured loan**
 - **Home equity loan**
 - **Increase home mortgage**
 - **Proposed Maui County Renewable Retrofit Assistance Program, modeled after Berkeley FIRST program**
- **Tax Credits:** 30% Federal (\$2,000 cap) and 35% State (\$5,000 cap) [\$7,000 credit]



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Photovoltaic System **Cost-Benefit analysis** :

- Assumes constant energy costs [forecast actual MECO produced power costs during PV system life]
- Intangible cost-mitigating = \$_____ value [cost of going 'green' and doing "Pono"]
- Current electricity value is **credited**, when excess renewable electricity is shared with other MECO grid customers [What is value of electricity you produced?]
 - PV productions contribute to MECO reducing production of grid power, saved fuel use and delayed building new MECO plant, delayed development costs.
 - PV increases renewable power on grid, credits MECO meeting State year-end renewable power sold goals. [Value of avoided PUC non-compliance penalties?]
 - **Renewable power partnering benefits many!**

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Summary Thoughts



- **Employ efficient power uses, practice Energy Efficiency Conservation (EEC)**
- **Produce Your Renewable Power**, expand your opportunities of increasing *qualities of life*
- **Encourage deploying renewable power systems**
 - Work with MECO integrating renewable systems from various sources and island locations
 - Reward renewable system owners for extra power savings and accrued credits: (Add **Integrity** into process of sharing costs-benefits!)
 - **PV power lowers grid-electricity costs**
 - MECO invests to increase grid's renewable infrastructure for handling more renewable power!



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Mahalo nui loa!

Warren S. Shibuya