

“What Is A ‘Green Tag’ Anyway?”

(Post-Forum Version with Supplemental Materials
re. Green Tags Ownership and Other Legal Issues)



Source: GE Wind Energy

Presentation for:
The CSC Solar Forum
San Francisco, California
May 5, 2004

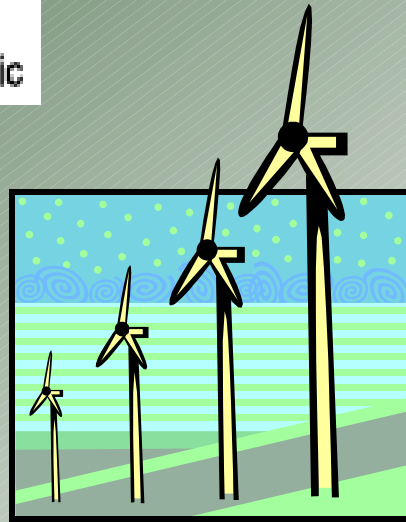
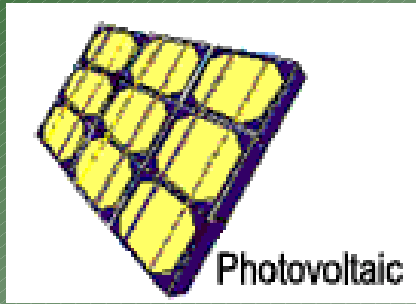
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The Bonneville Environmental Foundation

- Is an Independent Non-Profit, Established in 1998
- Pioneered the “Green Tags” Concept in 2000
- Works with Utilities, Suppliers, Environmental Groups to:
 - Identify, review and endorse low-impact renewables
 - Market green power and Green Tags
 - Ensure the integrity of green power products
- Reinvests Its Net Revenues in:
 - New renewable energy projects
 - and
 - Watershed restoration projects

What Qualifies as Green Power



- Solar
- Wind
- Geothermal
- Biomass
- Hydro (some)

Some of BEF's Customers

Corporate

Bear Creek (Harry & David)
CH2M HILL
David Evans & Assoc.
Interface Fabrics
Luzenac America
Tektronix
White Wave (Silk Soy)
Xantrex Technologies

Utility

Portland General Electric
Puget Sound Energy
Tacoma Power

Gov/Academic/NGO

AWEA
U.S. EPA
The Energy Foundation
NRDC
Oregon State University
Trout Unlimited

among many others . . .

GreenTagsUSA.org





BEF's Green Tags Supply

Large Regional Wind Farms

- Condon Wind Project (OR)
- Foote Creek Wind Project (WY)
- Klondike Wind Project (OR)
- Stateline Wind Project (OR/WA)

Small Regional Solar Projects (BEF Funded)

- Brewery Blocks Solar Project (OR)
- Hanford/White Bluffs Solar Project (WA)
- Solar Ashland Project (OR)
- NW Solar Coop (OR, WA, soon ID & MT)

Green Power vs. Green Tags

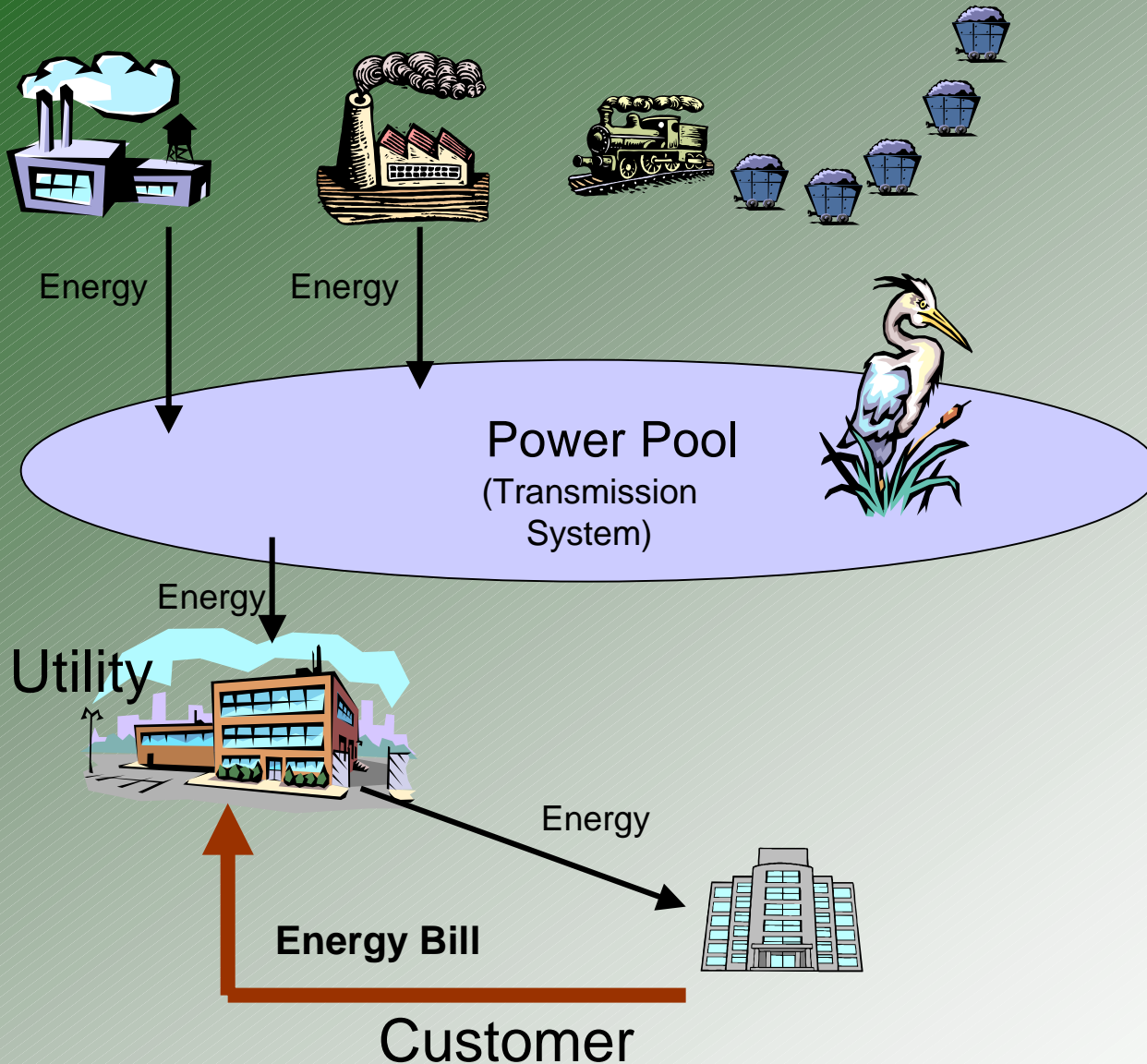
- Green Power *bundles* the energy and the environmental attributes (e.g. the displaced emissions) of renewable energy
- Green Tags* *strip off* the environmental attributes from the energy, allowing each to be marketed and sold separately
- In *neither* case are the electrons flowing into your house any different from those going next door
- In *both* cases the result is the same -- a cleaner mix of power in the region:
 - *more renewables in the pool*
 - *less fossil fuel burned*
 - *lower emissions*

In other words:

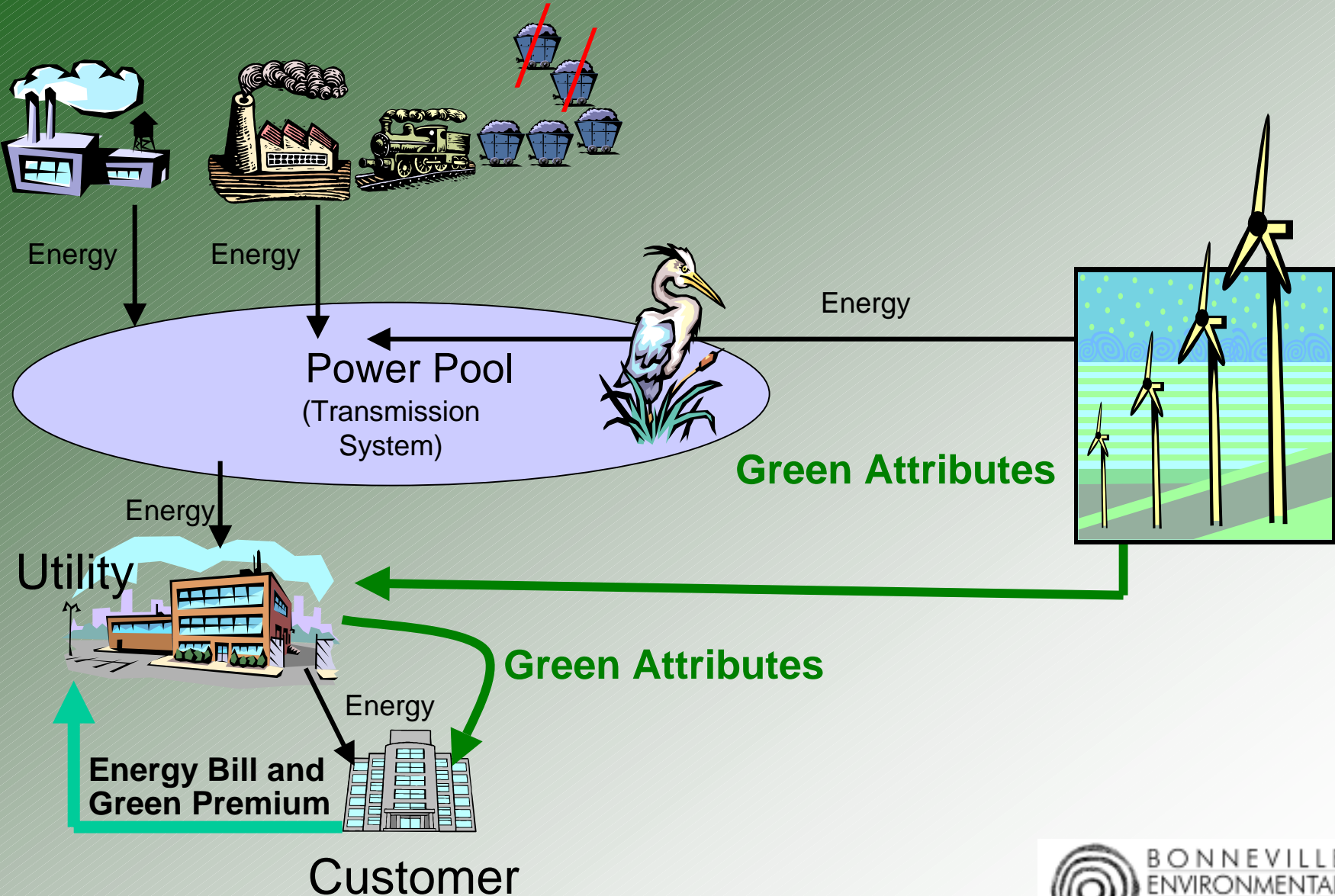
A cleaner environment and a more sustainable energy future!

*a.k.a Renewable Energy Credits (RECs) or Tradable Renewable Credits (TRCs)

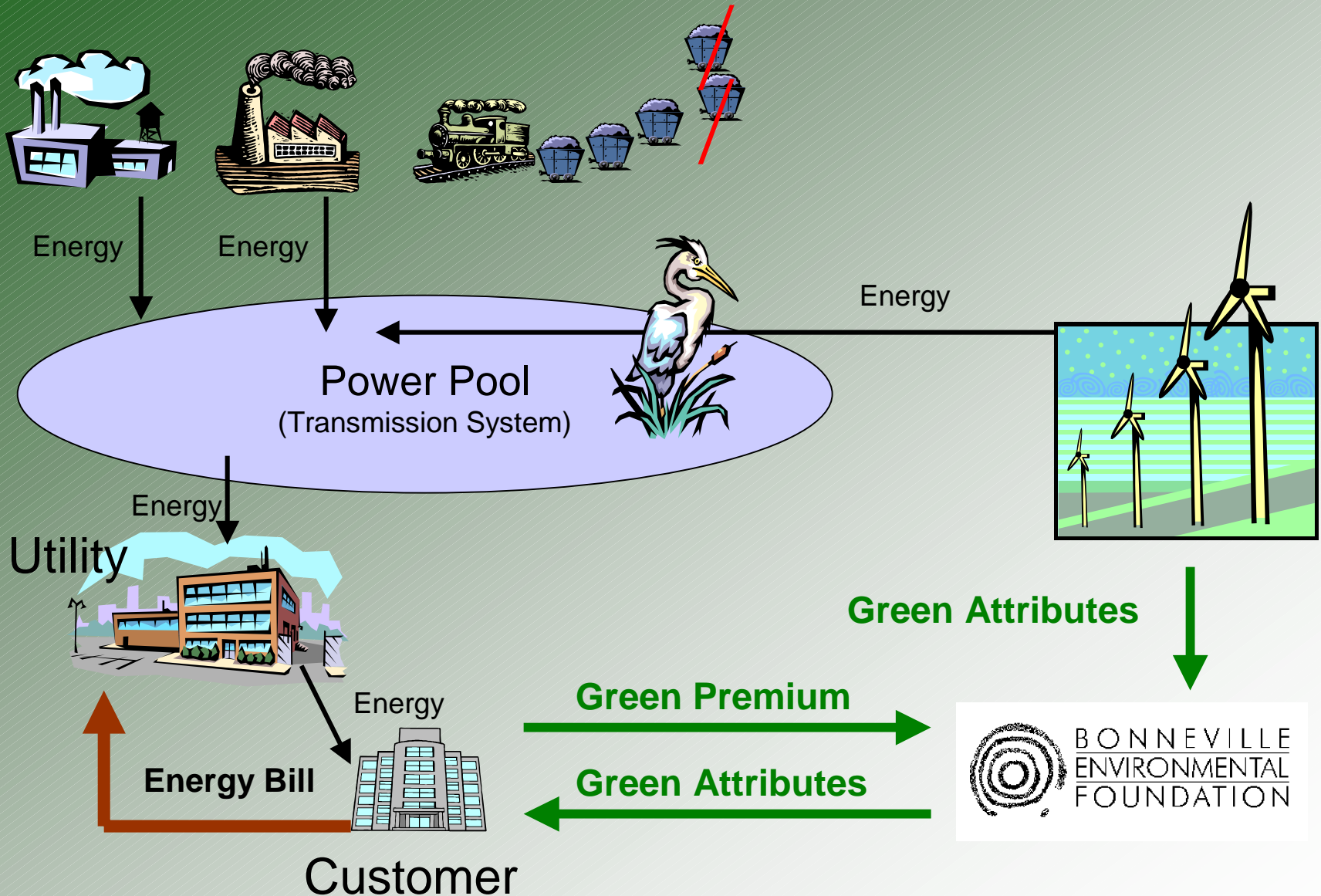
Traditional Power Transaction



Green Power Displaces "Brown" Power



Green Tags Displace "Brown" Power



Green Tags Are *Market Enabling*

- They *reduce transaction costs* by avoiding need for “contract paths” for environmental attributes
- They *allow clearer price signals* by segregating environmental attributes from associated energy
- They *expand the pool of sellers* by permitting non-utility entrants into the green power market as sellers
- They *expand the pool of buyers* by enabling sales in regions with little or no existing renewable development
- They *promote efficiency* by allowing large (regional or national) customers to aggregate their purchase of green power

Green Tags Are *Market Enabling* (cont.)

- Example 1: The local electricity utility offers no green power product.
- Example 2: The local utility offers a green power product, but its customers are unhappy with the price, the mix of resources, or other components of the offering.
- Example 3: A multi-facility company or agency prefers a single transaction to multiple transactions with multiple utilities.
- Example 4: A customer wants to green her entire “carbon footprint,” not only her usage of electricity but water heating, space heating, auto travel, air travel, etc.

In each case, the customer may prefer a Green Tag purchase.

Green Tags Are *Well Validated*

- National Association of Attorneys General developed “Environmental Marketing Guidelines for Electricity” (Dec. 1999) and explicitly addressed legal issues associated with tag-based green power marketing, including authentication and verification
- Center for Resource Solutions (CRS) designed and implemented a widely-used certification program for tag-based sales
- Power purchase agreements and state renewable procurement laws now virtually always explicitly address contractual rights to renewable attributes

Legal Ownership of Green Tags

- Conflicts have arisen regarding ownership of Green Tags for standard power purchase agreements (QF contracts) for renewable facilities
- Some utilities have sought to claim Green Tags, without having separately bargained for them.
- Recent FERC ruling (105 FERC ¶ 61,004) clearly concludes that under PURPA, renewable facility owners retain rights to Green Tags unless explicitly bargained for, stating:

“the Commission’s avoided cost regulations did not contemplate the existence of RECs and that the avoided cost rates for capacity and energy sold under contracts entered into pursuant to PURPA do not convey the RECs, in the absence of an express contractual provision.”

- Although the ruling leaves open possibility of implicit conveyance under State law --

“While a state may decide that a sale of power at wholesale automatically transfers ownership of the state-created RECs, that requirement must find its authority in state law, not PURPA.”

- It is clear under Constitutional law principles that Green Tags belong to the facility owner unless and until a sale (or other transfer) is specifically bargained for, with some *quid pro quo* to the owner.

More on Legal Ownership . . .

- There are a few principles that should shape analysis of this issue by utilities, consumer advocates, and other policymakers
- The *basic presumption* is that the Green Tags belong to the system owner unless and until ownership is transferred voluntarily and knowingly.
- It is *legal* (whether it is good public policy or not is a different question) for governments to condition the grant of some special benefit -- such as the receipt of rebate funds, or the availability of net metering -- on the transfer of the Green Tags, subject to the following limitations:
 - The Green Tags cannot be taken *retroactively* in cases where a special benefit (e.g. rebate funds or net metering) was granted but was *not at the time conditioned* on the transfer of the Green Tags.
 - The Green Tags cannot be taken *proactively* in the absence of some *quid pro quo* that goes beyond meeting a prior existing legal obligation. Thus, a utility cannot say “we will only interconnect your system if you give up your Green Tags,” if the utility already is required to interconnect the system under federal or state law, and such law is not expressly conditioned on the transfer of the Green Tags.
 - Any prior existing Green Tags transactions will have to be grandfathered, if there is a change in policy that conditions the granting of a benefit on the transfer of the Green Tags where there was no such condition before. This grandfathering presumably would have to include existing contracts for the *future* delivery of Green Tags.

Policy Implications of Tag Ownership

- State public benefit funds are being used to subsidize renewable projects. *Should state funders require transfer of Green Tags as quid pro quo for funding?*
- Some say “Yes,” arguing that states should have something specific to show for their commitment of public funds.
- The better argument is “No,” because allowing project developers to retain (and sell) the Green Tags supports the development of a market for the Tags that reflects the environmental values of renewable generation.

Even in the short run, allowing owners to retain the Green Tags means that less public funding is needed for renewable projects, and/or that a fixed amount of funding can be spread among more projects.

Over time, the development of a market for Tags provides a mechanism for reducing dependence on state funding. As subsidies are reduced, the price for the Green Tags will reflect the incremental market value of environmentally-preferred renewable resources.

What's In It for Solar Power?

Solar Tags command a substantial premium in the market!

- Their relative scarcity makes them a valuable commodity, both in regulatory (e.g. RPS) markets and in voluntary (e.g. green power) markets. Example: Contract prices ranging from 2 - 20 cents/kWh.

BUT

- Their higher cost makes them harder to resell in significant quantities.
- The volatility of the Green Tag market means that long-term contracts are scarce.

BEF's Approach to the CA Market

- BEF and other credible companies are treading carefully in California because of unresolved legal and regulatory issues.
- BEF is interested in exploring opportunities involving two-way, buy-sell agreements that involve buying the Solar Tags but also reselling a broader mix of Green Tags.

Better regulatory guidance regarding ownership of distributed Tags and implementation of RPS will provide much-needed clarity and help to establish the market.

And Now,
for Something Completely Different . . .

Performance-Based Incentives: The Principle

- PBI's make better public policy sense, by directly matching the reward to the goal (e.g. the production of electricity from emerging renewable technologies).
- CEC studies have identified PV system siting and/or installation problems under the existing rebate program structure.
- So shifting to a PBI is good public policy *and* is politically expedient!

BUT

- There are legitimate concerns about the consumer market's potential response to a PBI.

Concerns With Shifting to a PBI

- The existing rebate program has been phenomenally successful in creating a vibrant, growing market for PV power in California.
- Shifting to a PBI means that customers are giving up an “instant” rebate of up to 50% of system cost for a less-tangible incentive that is paid over time.
- There is virtually no available market research analyzing the effect of shifting to a PBI on consumer purchasing behavior.
- A poorly-designed, poorly-implemented PBI could have disastrous effect on the PV market in California.

A PBI pilot program can be designed to test and assess the consumer market's response to a PBI.

Key Elements for a PBI Pilot

- The PBI Pilot should be run *in parallel* with the existing rebate program, and designed to draw some customers from the existing rebate to the PBI.
- The PBI Pilot should include a *complete shift* to performance-based rewards to assess consumer response to such a shift.
- To encourage participation, the net present value (NPV) of the stream of PBI payments should *exceed* the value of the existing rebate payment.
- To encourage participation, administration and implementation of the program should be *simple and transparent*.

If these criteria are met, the program should provide valuable information regarding consumer response to a PBI, potentially paving the way for a complete shift to a PBI over time.

PBI Design: Incentive Payments

Incentives should be tied directly to system performance

- Payment should be made per measured kilowatt-hour of production.
- Alternative approach using performance “tiers” encourages mediocrity, promotes gaming, and partially defeats the purpose of a PBI.
- Incentive payment can be higher than comparable capacity payments while sustaining market growth -- the state gets more ‘bang for its buck’ and the funding goes further.

PBI Design: Stream of Payments

Incentives should be paid over a period of years

- Encourages focus on long-term reliability and performance.
- Ties incentives to warranty requirements (e.g. five years).
- Helps address performance differences attributable to inter-annual variations in sunlight and other weather conditions.
- Payments can be front-loaded, adjusted for inflation, or leveled.

PBI Design: Administration and Enforcement

Use self-reporting of metered output, backed by random audit

- Self-reporting substantially reduces administrative costs!
- PV system performance is highly predictable, so potential for abuse and/or fraud is minimal and manageable.
- Auditing ten percent of systems, with substantial penalties, is likely to deter abuse.
- Assuming 3,000 systems per year, a 10% audit rate equals 300 systems, an average of 1.2 systems per business day.

PBI Design: Model Allows Flexibility

- Inputs include:
 - Current rebate level (\$/W)
 - Rebate level equivalent (\$/W) to be used in calculating PBI
 - Rebate portion (if any) to combine with PBI (\$/W)
 - Number of years for PBI payment stream (years)
 - Net discount rate (%)
 - System size (kW)
 - Expected capacity factor (%)
- Outputs include:
 - Annual expected production (kWh)
 - Expected production per kW of capacity (kWh/kW)
 - CBI portion of incentive (\$)
 - PBI portion of incentive (\$/kWh)
 - PBI total payments (\$)
 - Net Present Value (NPV) of incentive payments (\$)

PBI Design: Baseline Assumptions

- Initial Assumptions for Model:
 - Current rebate level of \$3.20/W
 - PBI equivalent of \$4/W
 - “Pure” PBI (e.g. no \$/W rebate)
 - Five-year stream of payments
 - Net discount rate of 4%
 - No front-loading of payments
 - 4 kW system size
 - 16% capacity factor
- Alternative Scenarios:
 - Use “hybrid” rebate and PBI
 - Front load PBI payments
 - Change stream of payments
 - Change PBI equivalent

PBI Design: Baseline Conclusions

- To match a \$4.00/W rebate incentive, the required PBI payment is:
 - Between \$0.57 - \$0.67 per kWh nominal over five years
 - \$0.64 per kWh levelized over five years
- To match a \$3.60/W rebate incentive, the required PBI payment is:
 - Between \$0.51 - \$0.60 per kWh nominal over five years
 - \$0.58 per kWh levelized over five years
- To match a \$3.20/W rebate incentive, the required PBI payment is:
 - Between \$0.46 - \$0.53 per kWh nominal over five years
 - \$0.51 per kWh levelized over five years
- Alternative Scenarios can be evaluated easily

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