

Feed-in Tariff Best Practice Avoiding Solar Myopia

- **Renewable Energy**
is More than Solar PV
- **Policies Must be Comprehensive**
and Inclusive

We Can & We Must Do It All

- Wind & Solar
- Biomass & Geothermal
- Renewable Heat

Wörstadt, Rheinland-Pfalz, Germany

Paul Gipe, wind-works.org



Feed-in Tariff Best Practice

Criteria

Program Caps

Project Size Caps

Contract Term

Multiple Technologies

Cost-Based Tariffs

Technology Differentiation

Technology Banding

Resource Differentiation

Best Practice

None or >20%

None or 20 MW

>20 years

Wind, Solar PV, Solar
DHW, Geothermal, CSP

For All Classes

Tariffs for Each Class

By Application & Size

Wind & Solar PV

Feed-in Tariff Best Practice Price Differentiation

- For Different Technologies
 - For Different Applications
 - For Different Sizes
 - For Different Resource Intensities
- For Wind (Germany, France, & China!)
For Solar (France, Oregon)

Paul Gipe, wind-works.org



Feed-in Tariffs Best Practice for North America

- **Differentiated Wind Tariffs**
Long Recommended--Time Now to Act
- **Radical Revision of Solar PV Tariffs**
Breaking the Grip of US Tax Subsidies
on Solar PV Prices
- **Renewable Heat Tariffs**
- **Tariffs for Storage**

Differentiated Tariffs for Wind

- **Distributed Benefits**

Only Accrue From Distributed Generation

Differentiated Tariffs = Distributed Wind

- **Reduces Pressure on Windiest Sites**

Profitability Still Higher at Windy Sites

- **Reduces NIMBYism**

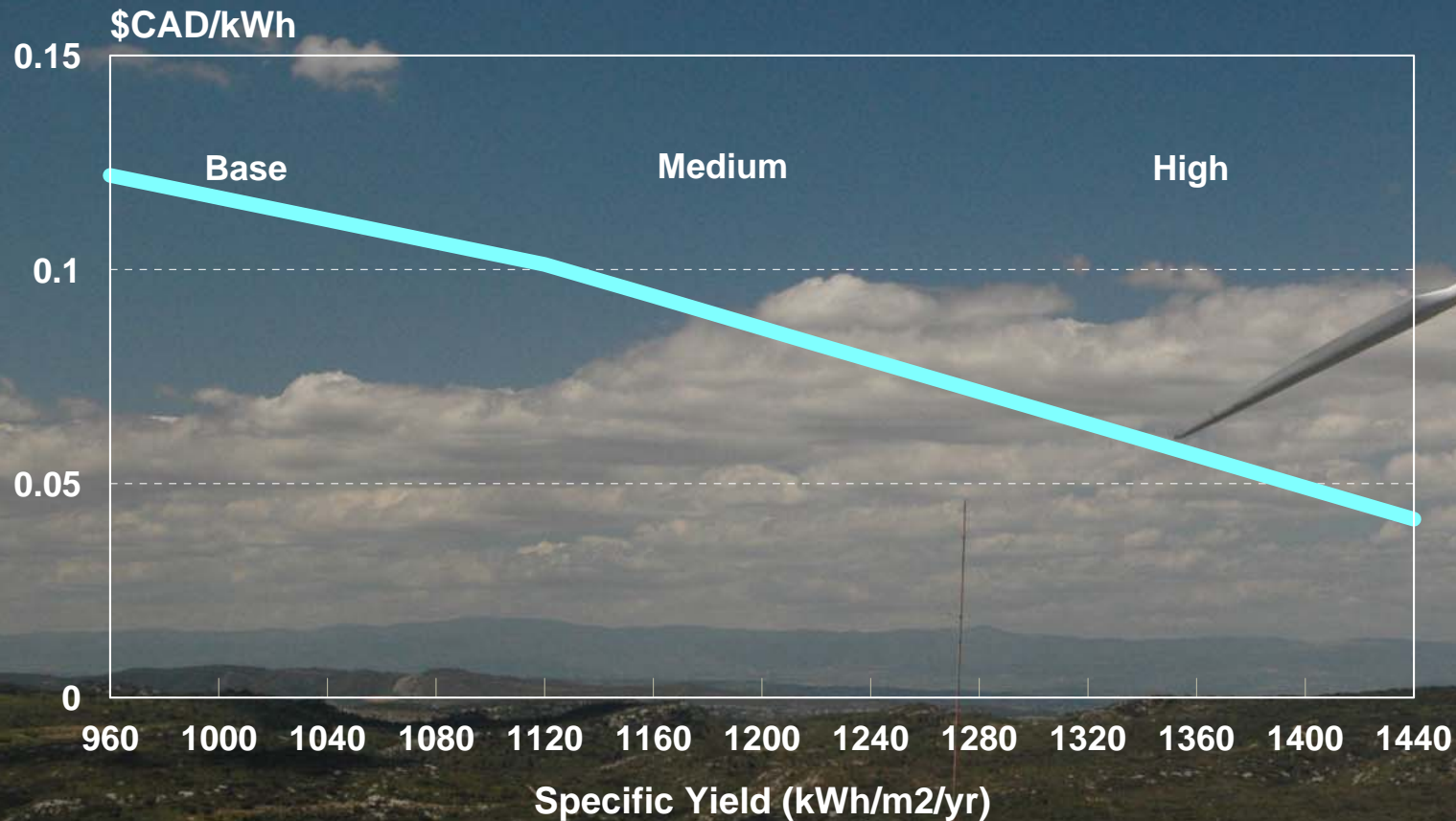
By Enabling Greater Participation

Paul Gipe, wind-works.org

San Geronio Pass, California



French Wind Tariffs by Specific Yield



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Chateau de Lastours, France

Time for US PV Market to Grow Up

- **Norh American Solar PV Prices**

Determined by US Subsidy Programs

Federal ITC & State Subsidies

Among Highest Prices in World

40% Higher than in Germany!

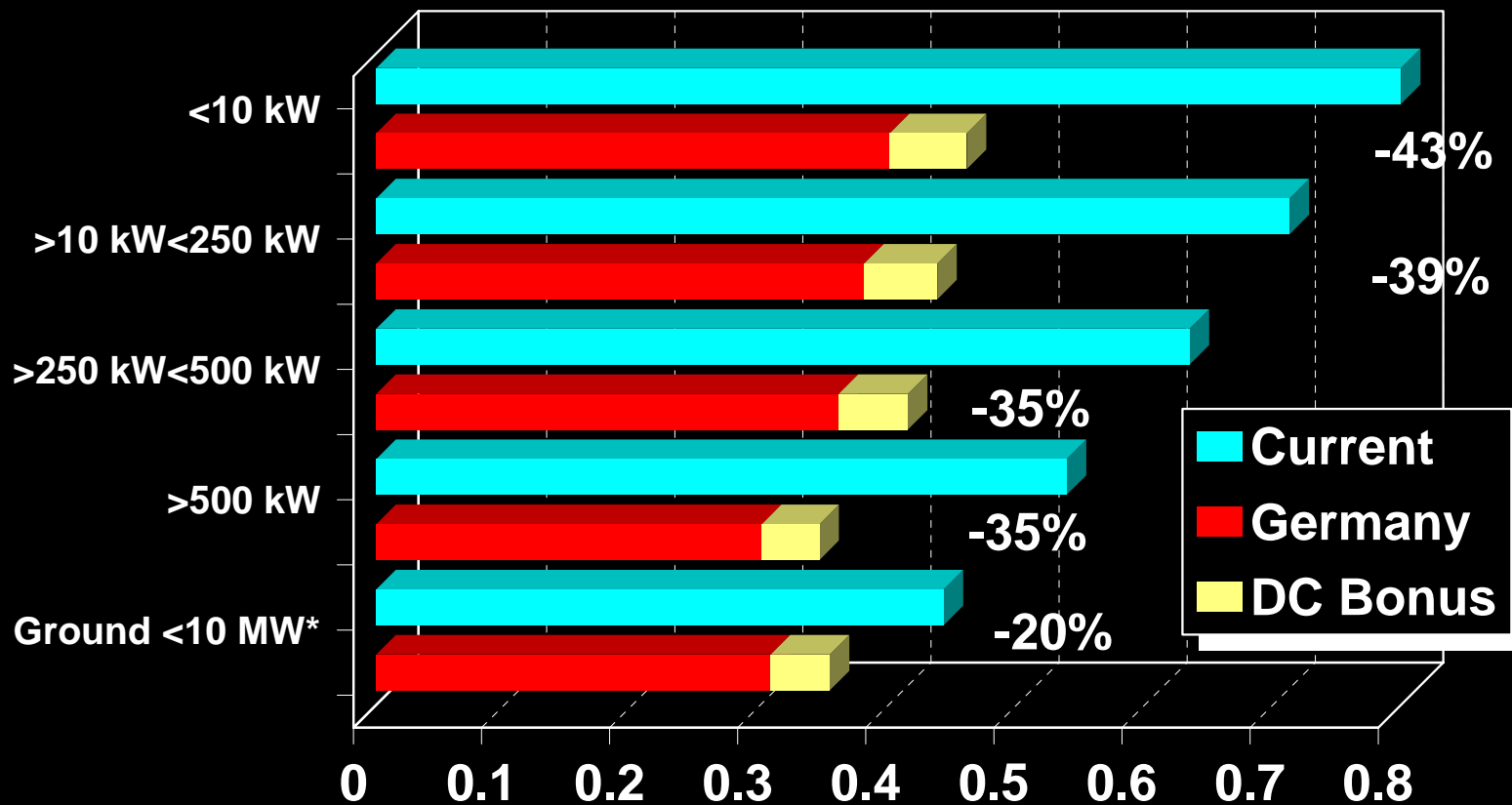
- **Breaking Free**

Reforming Solar PV in North America

Adopt German PV Prices

Adapted to Solar Resource

Ontario Solar PV Tariff Revision Setting the Bar in North America

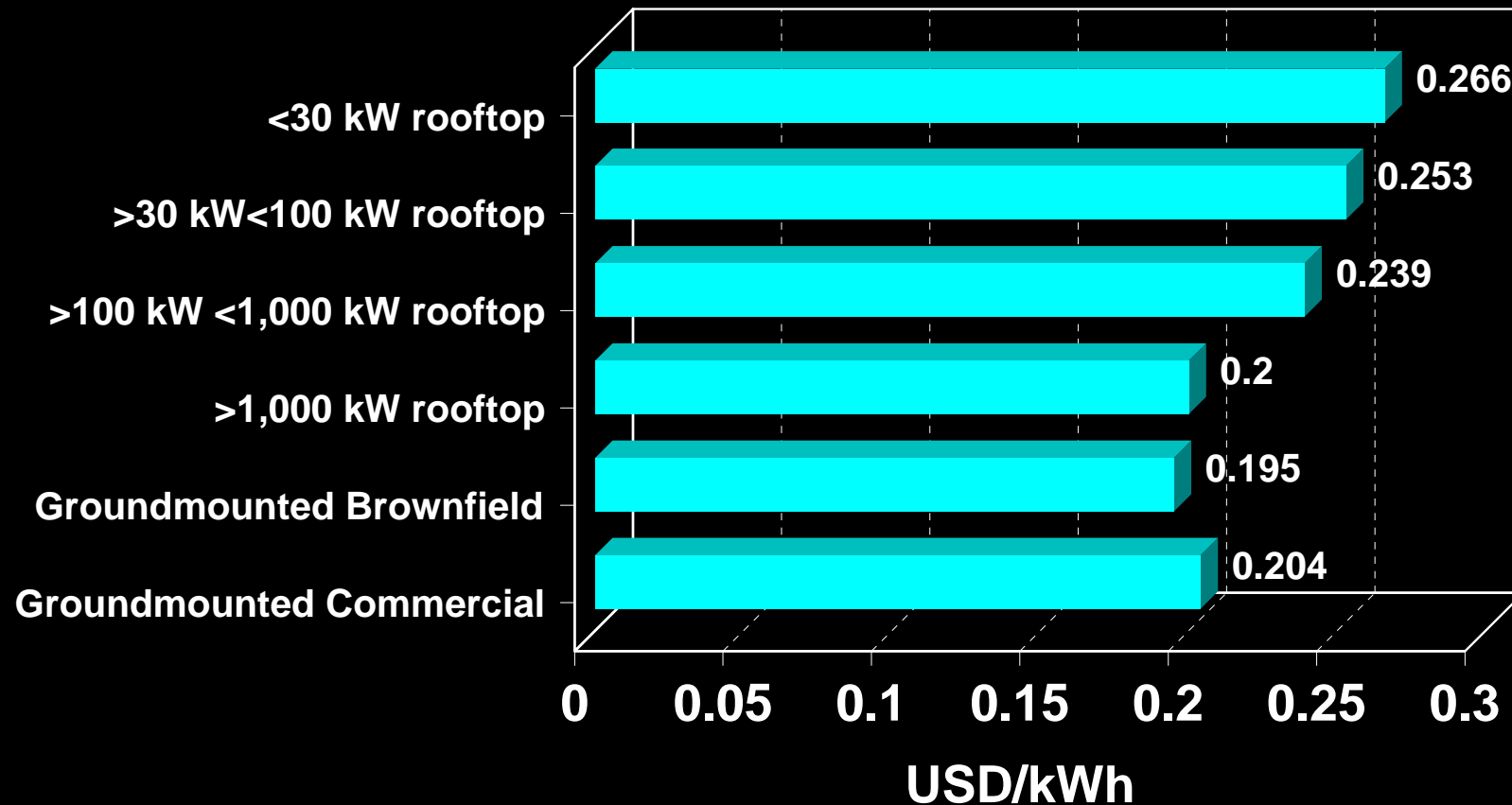


Proposed California Solar PV Tariffs

| | Germany | California |
|---------------------------|---------|------------|
| <30 kW rooftop | \$0.414 | \$0.266 |
| >30 kW<100 kW rooftop | \$0.393 | \$0.253 |
| >100 kW <1,000 kW rooftop | \$0.372 | \$0.239 |
| >1,000 kW rooftop | \$0.310 | \$0.200 |
| Groundmounted Brownfield | \$0.304 | \$0.195 |
| Groundmounted Commercial | \$0.318 | \$0.204 |

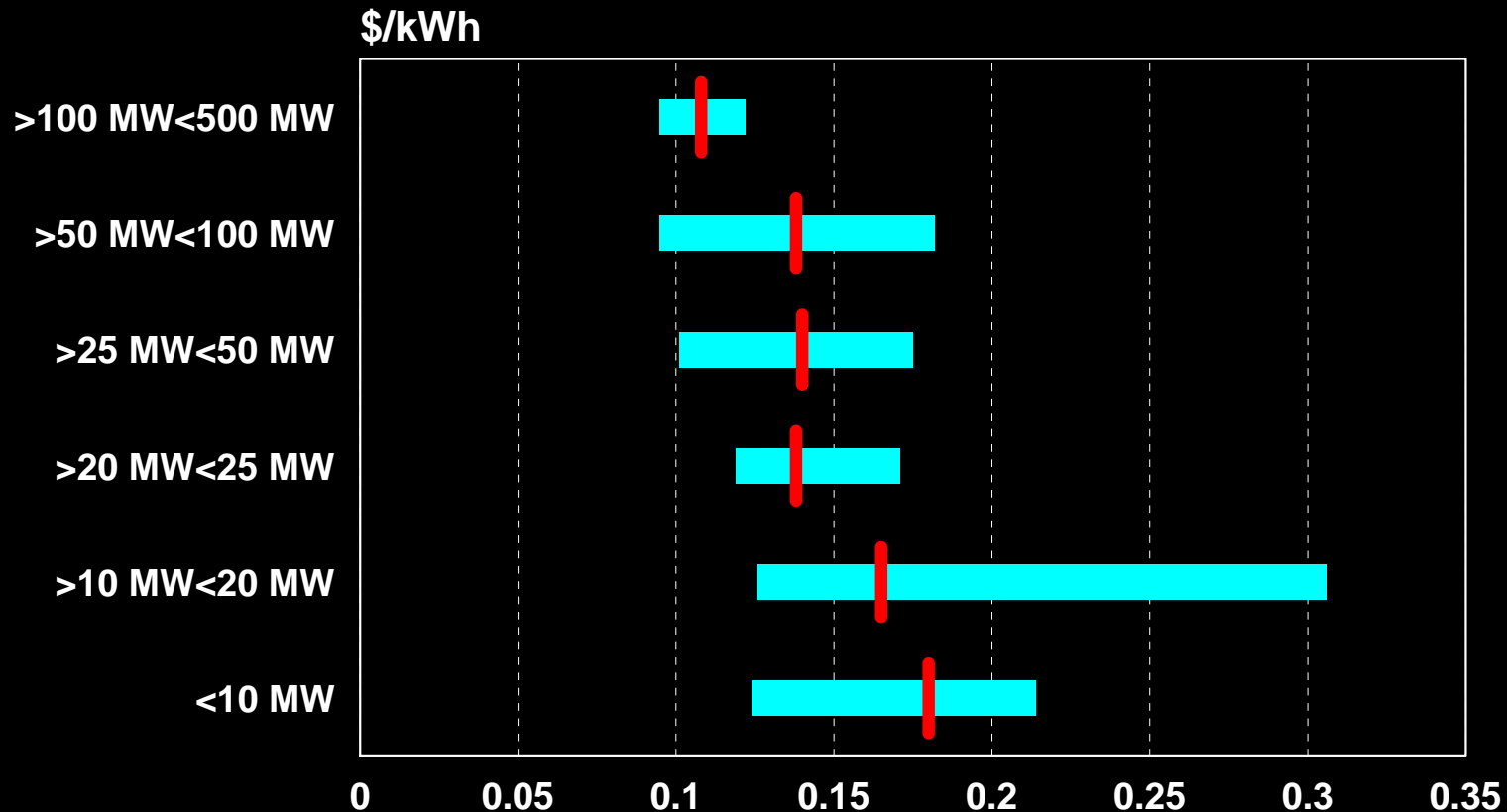
California: Equivalent tariff adjusted for average insolation.

Proposed California Solar PV Tariffs



California: Equivalent tariff adjusted for average insolation.

California Geothermal Prices Needed IPP with No Subsidies



Cheaper & More Reliable than Nuclear

Source: Black & Veatch RETI

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Feed-in Tariffs for Renewable Heat

- **Germany, France, Spain, Switzerland**
with CHP
- **Ontario, Slovenia**
without CHP
- **Great Britain**
Scheduled July, 2011

Vorupør Kraftvarmeværk, Denmark

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British Solar Thermal (DHW) Tariffs

| | Years | €/kWh | CAD/kWh | USD/kWh |
|---------|-------|-------|---------|---------|
| <20 kW | 20 | 0.211 | 0.288 | 0.288 |
| <100 kW | 20 | 0.199 | 0.272 | 0.272 |

Proposed for July 2011.

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Feed-in Tariff Best Practice

Peak Performance Bonus

- Pay “Firm Power” Bonus
 - Biomass, Biogas, Landfill Gas, Hydro
- Extend to Wind & Solar
 - To Encourage Innovation in Storage
 - Make Firm Power From Variable Sources



Feed-in Tariff Best Practice

- **Open to All for All**

**Homeowners, Farmers, Business & Industry,
Communities, Native Americans**

Regardless of Tax Status

Tariffs with & without Tax Credits

Feed-in Tariff Best Practice Enables Local Ownership

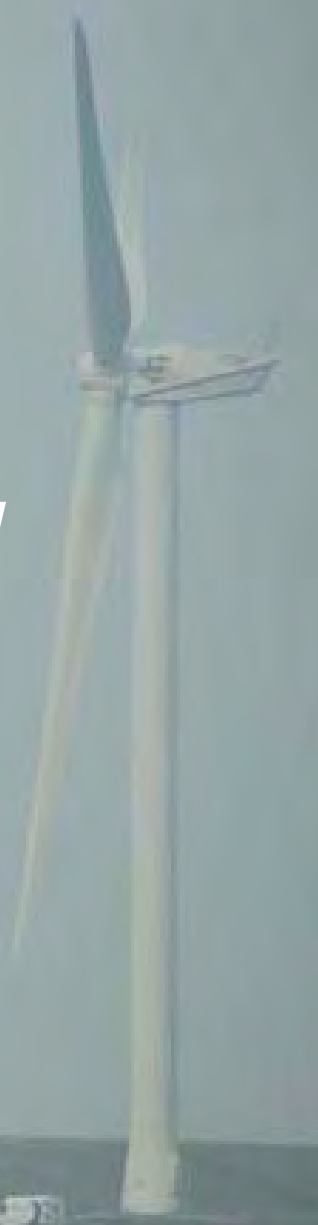
- **German Renewables**

 - Farmers & Individuals Own 51%

 - 22,000 MW of Wind, Solar, & Biogas

- **Total Wind in USA only 35,000 MW**

 - Total PV only 2,200 MW



Time for North Americans to Take the Road to the Future



Freiburg, Germany

Paul Gipe, wind-works.org

**“Nothing is as powerful as an idea
whose time has come.”**

-- Victor Hugo

*Loose translation of “On résiste à l'invasion des armées; on ne résiste pas à l'invasion des idées.

Paul Gipe, wind-works.org



Renewable Energy

The Revolution Has Begun!

www.wind-works.org

Manawatu Gorge, New Zealand

