Solar for Every Home

Doug LaGrone
Kyocera Solar, Inc.

Energy Crisis

THE NEW VALUE FRONTIER
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World Energy Stock

THE NEW VALUE FRONTIER
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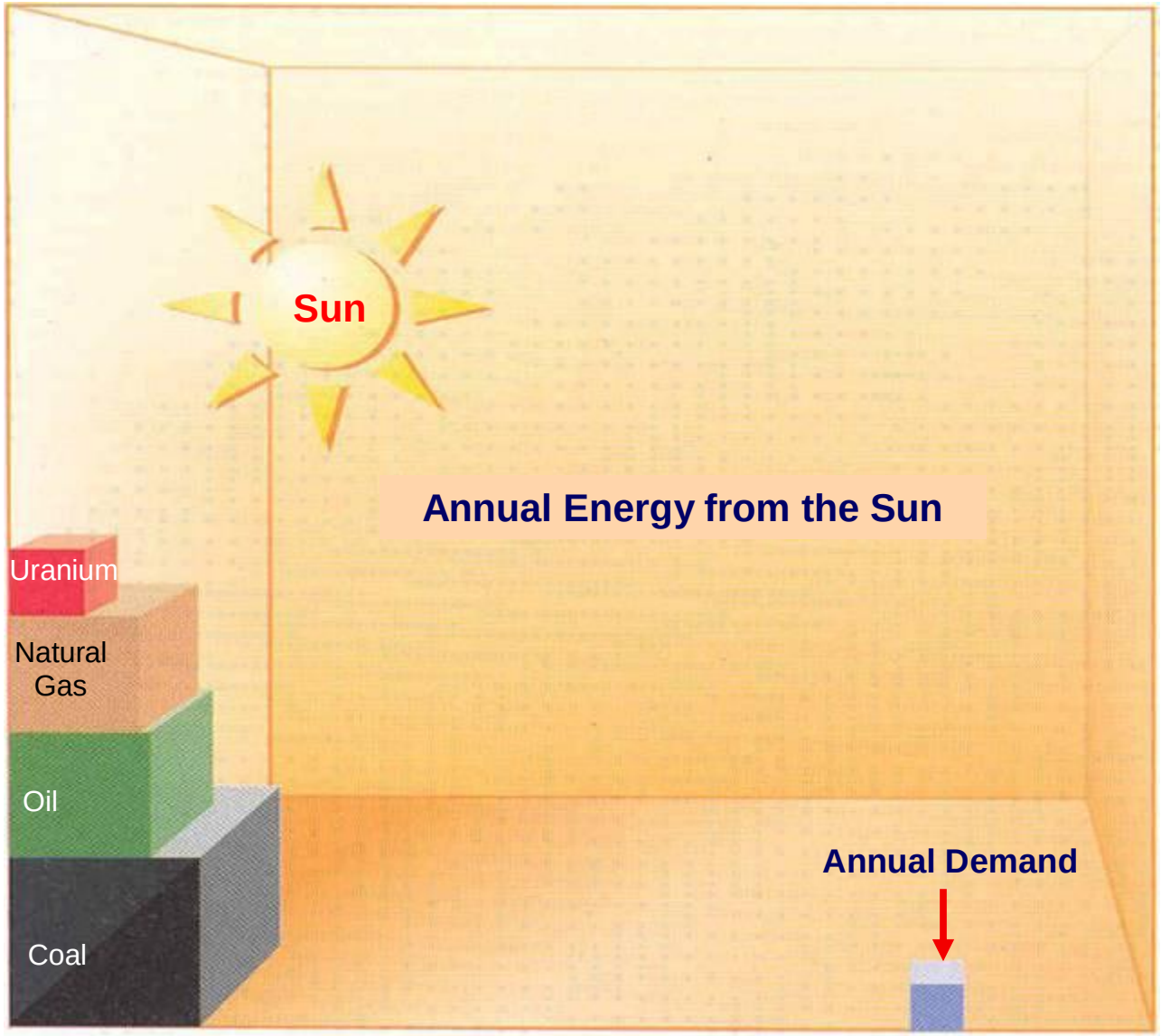
Equivalent Stock of Energy Source



Uranium

Natural Gas

Oil

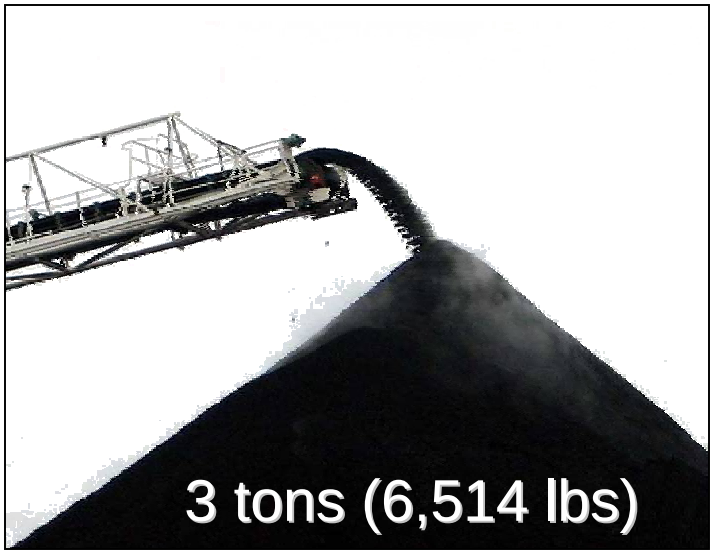
Coal

Annual Demand

ENVIRONMENTAL BENEFITS

25 Year Life Cycle Energy Output

Coal



6,514 kWh

1 kWh requires 1 lb coal
& 1 gal water

Source: Arizona State University

=

1 PV Module (200 Watts)

6,514 kWh*

* kWh output calculated based upon San Francisco, CA using PVSYST software and applying 3.5% derating factor for the first year and 0.5% derating factor per year thereafter.

Reduces dependence on fossil fuel energy sources

Traffic Applications

Oil & Gas Applications

Telecomm Applications

Global Market - Trend

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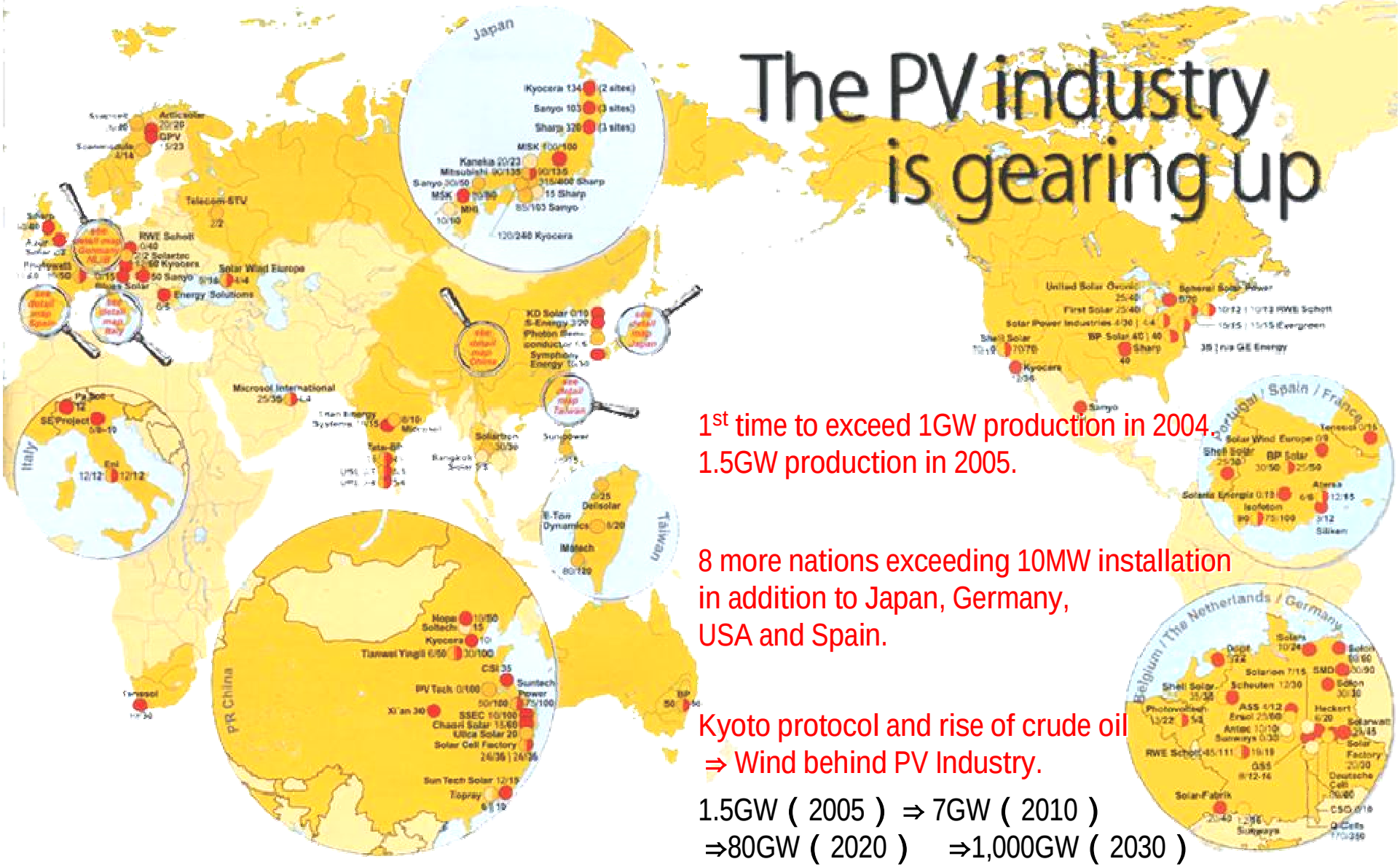

1st time to exceed 1GW production in 2004.
1.5GW production in 2005.

8 more nations exceeding 10MW installation in addition to Japan, Germany, USA and Spain.

Kyoto protocol and rise of crude oil
⇒ Wind behind PV Industry.

1.5GW (2005) ⇒ 7GW (2010)
⇒80GW (2020) ⇒1,000GW (2030)

Source: Sun & Wind Energy 2005

Global Market – Production(Single year)

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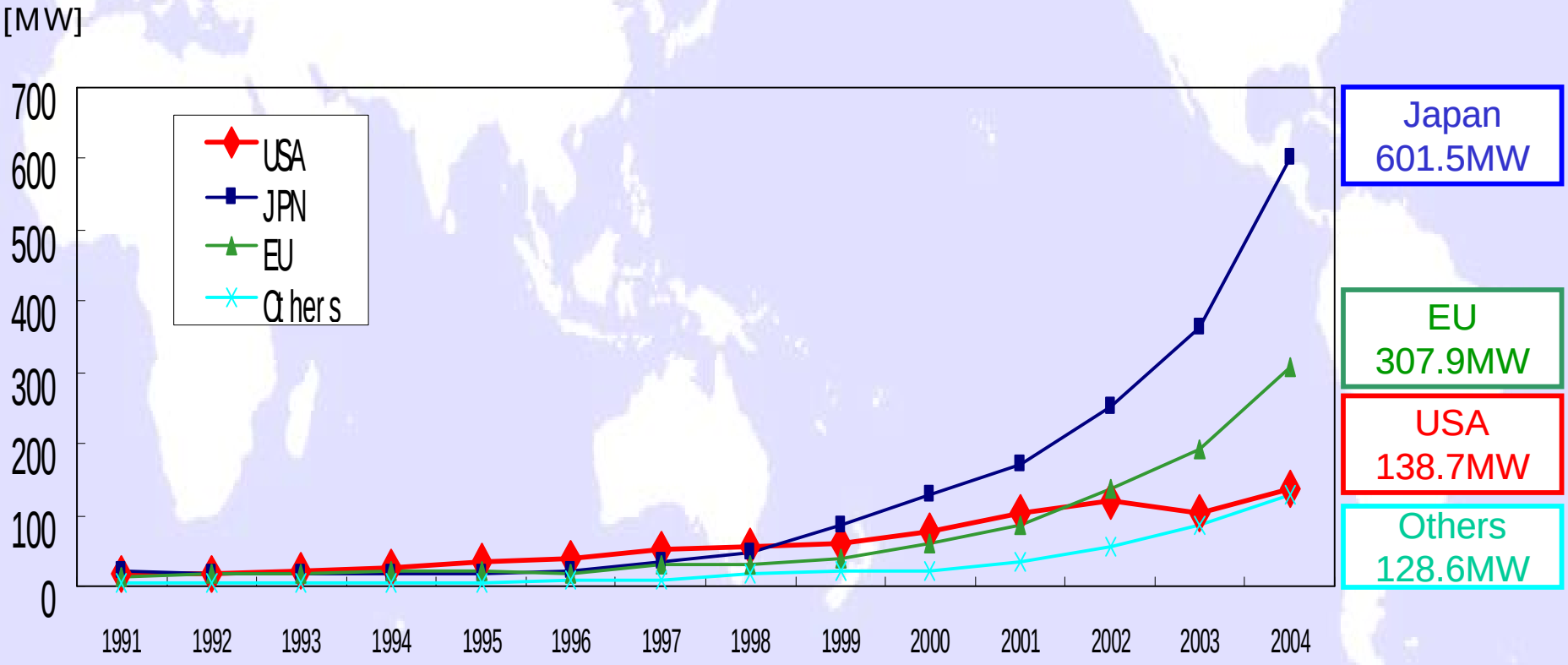
[MW]

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
USA	17.10	18.10	22.44	25.64	34.75	38.85	51.00	53.70	60.80	74.97	100.32	120.60	103.02	138.70
JPN	19.90	18.80	16.70	16.50	16.40	21.20	35.00	49.00	84.50	128.60	171.22	251.07	363.91	601.50
EU	13.40	16.40	16.55	21.70	20.10	18.80	30.40	31.80	40.00	60.66	86.38	135.05	193.35	307.90
Others	5.00	4.60	4.40	5.60	6.35	9.75	9.40	18.70	20.50	23.42	32.62	55.05	83.80	128.60
Total	55.40	57.90	60.09	69.44	77.60	88.60	125.80	153.20	205.80	287.65	390.54	561.77	744.08	1,176.70



Ref : J P E A

Global Market – Accumulated Installation

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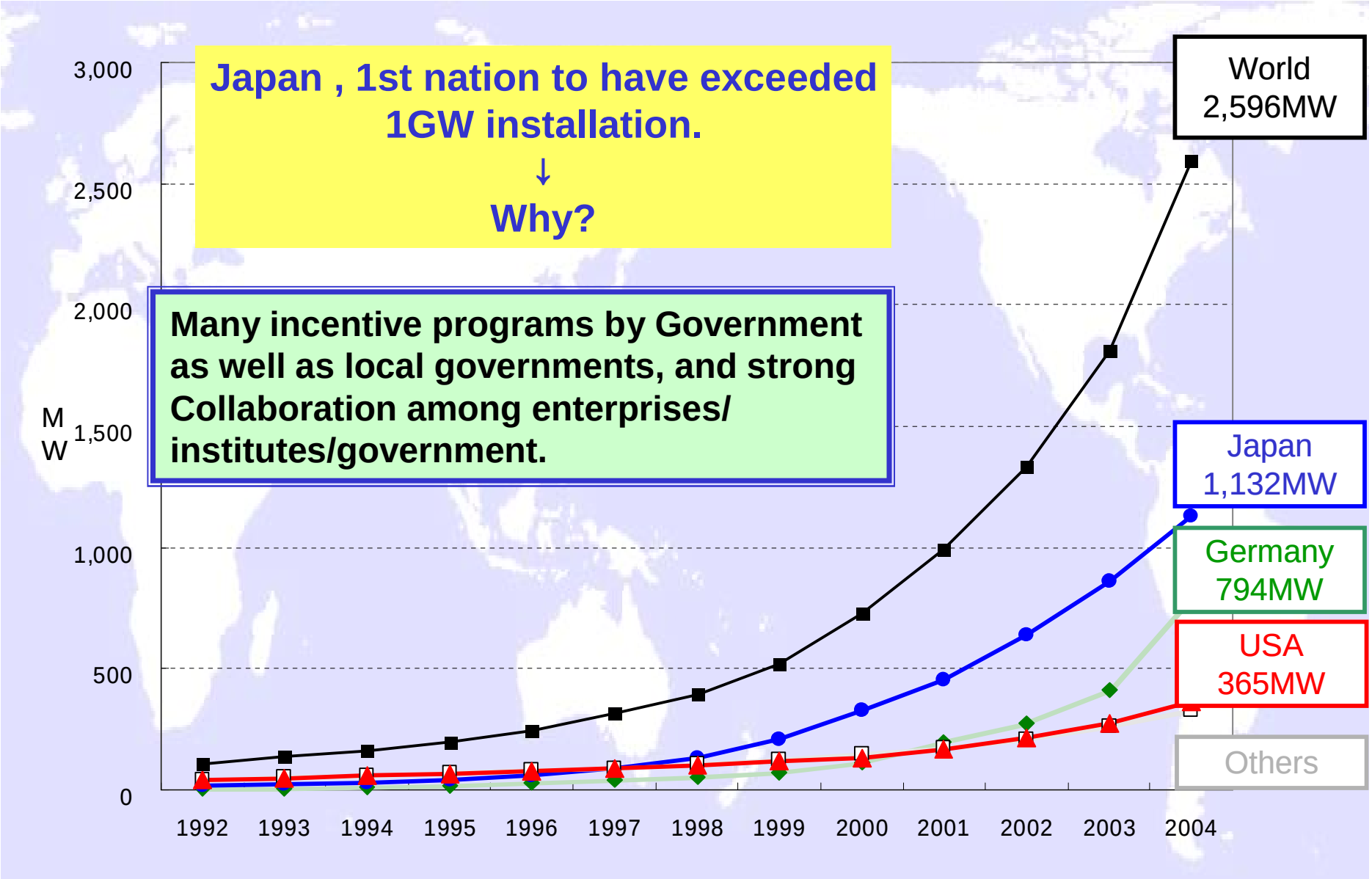

Data : IEA PVPS
Ref : Trends in Photovoltaic Applications (TASK 1 Report IEA/PVPS Aug/2005)

Large Installations

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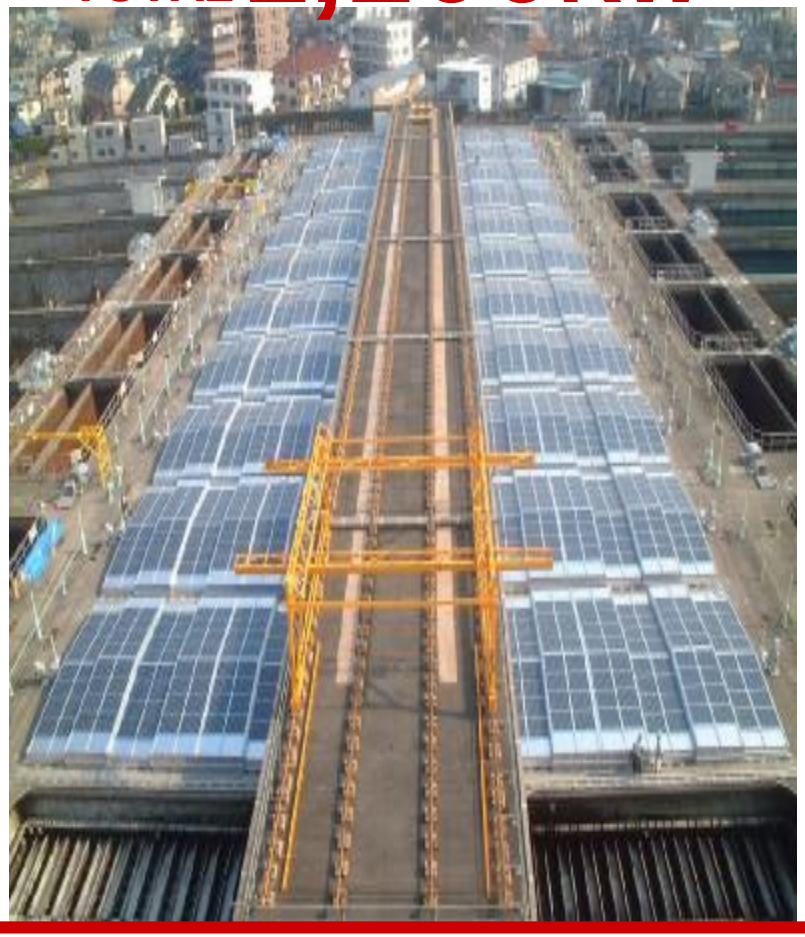
日本最大

Tokyo Asaka Water Filter Plant

TOTAL 1,200KW



Shimazu Corp

TOTAL 420KW

CASE STUDIES

THE NEW VALUE FRONTIER
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Project Type	***Commercial***
Country	***Kyoto/Japan***
Application	***Grid-Connect***
PV size	***214 kW***
Year	***1998***

World's Largest PV System for a High-Rise Building – 214kW

CASE STUDIES

THE NEW VALUE FRONTIER
KYOCERA

Project Type	***Commercial***
Country	***San Diego, CA/USA***
Application	***Grid-Connect***
PV size	***280.6 kW***
PV Annual Ouput	***420,870 kWh***
Year	***2005***

CASE STUDIES

THE NEW VALUE FRONTIER
KYOCERA

Project Type	***Institutional***
Country	***Cuba, IL /USA***
Application	***Grid-Connect***
PV size	***58 kW***
Year	***2004***

CASE STUDIES

THE NEW VALUE FRONTIER
KYOCERA

Project Type	***Residential***
Country	***Sag Harbor, NY /USA***
Application	***Grid-Connect***
PV size	***2.45 kW***
Year	***2004***

CASE STUDIES

THE NEW VALUE FRONTIER
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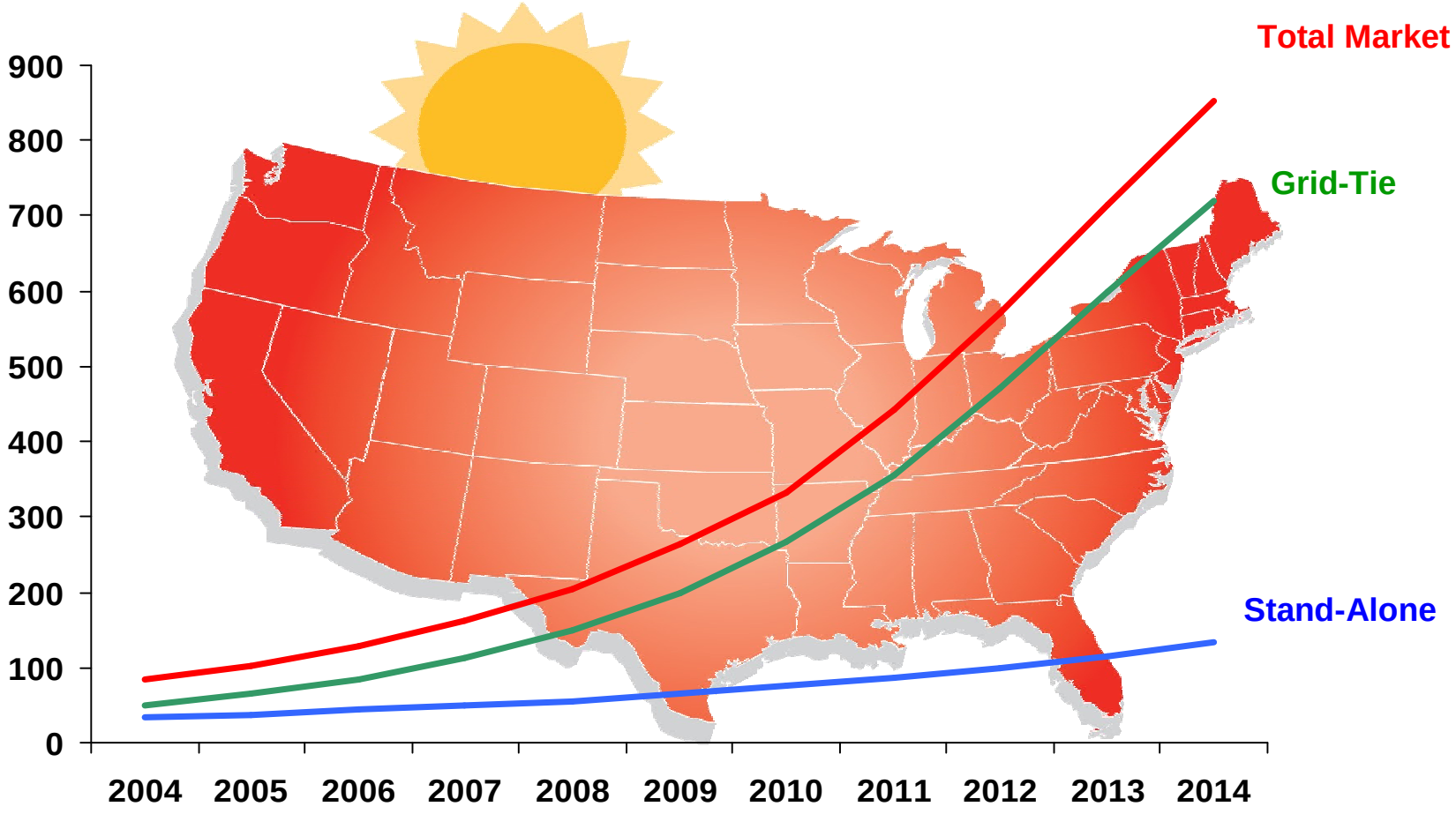
Project Type	*Residential*
Country	*Elk Grove, CA /USA*
Application	*Grid-Connect*
PV size	*2.5 kW*
Year	*2005*

US Market Trend



Global Market – World Energy Trend

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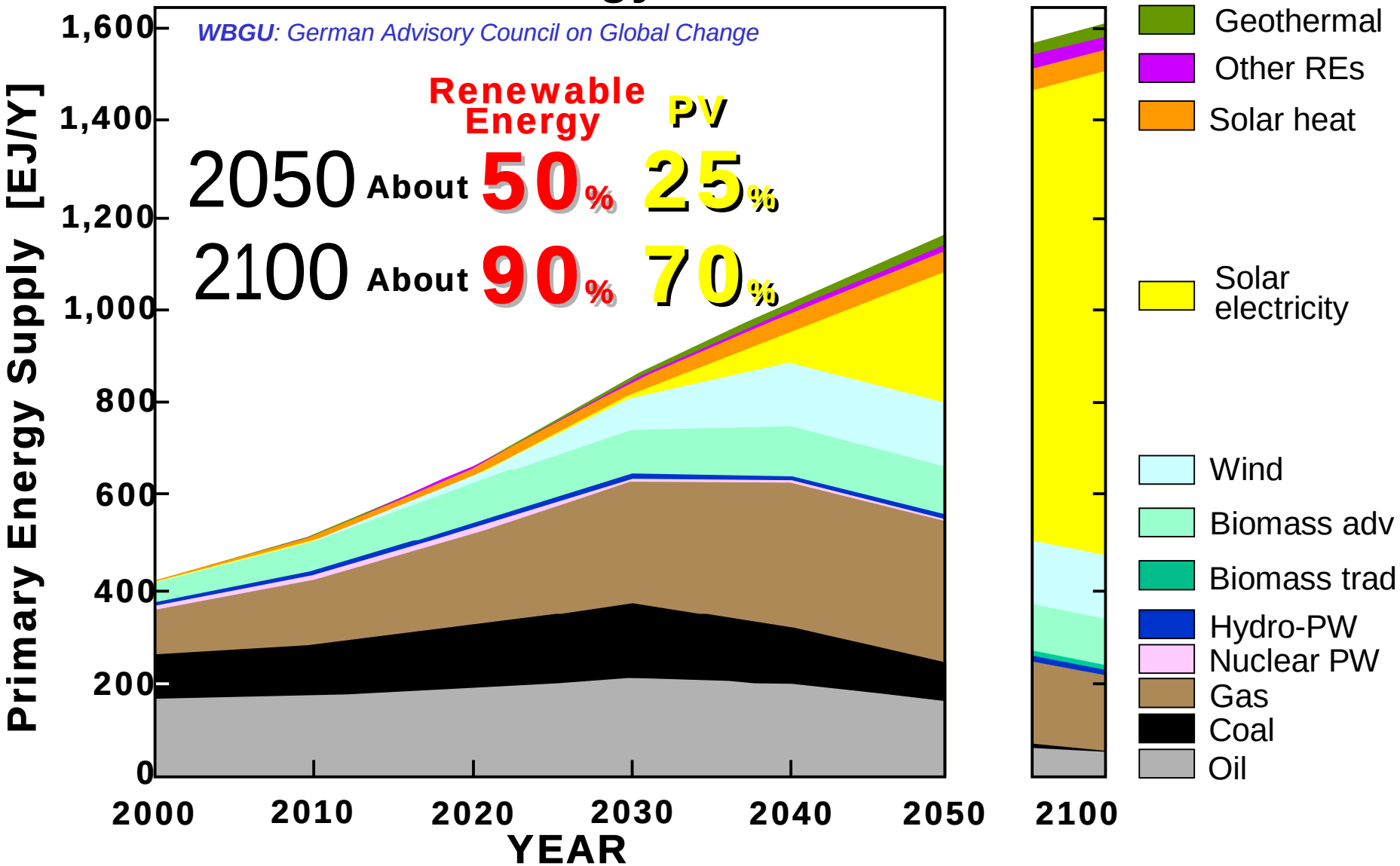
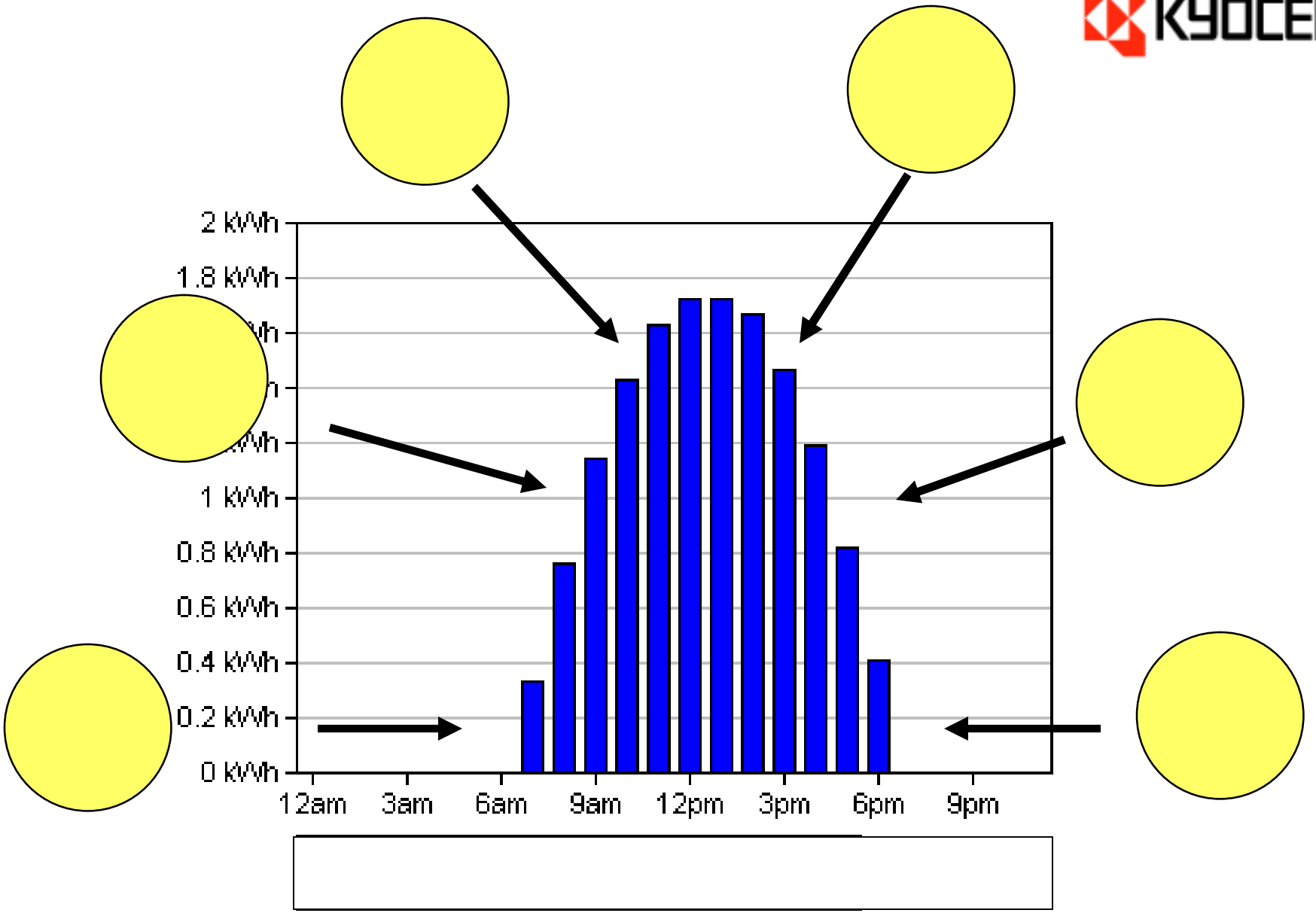
WBGU's World Energy Vision 2100



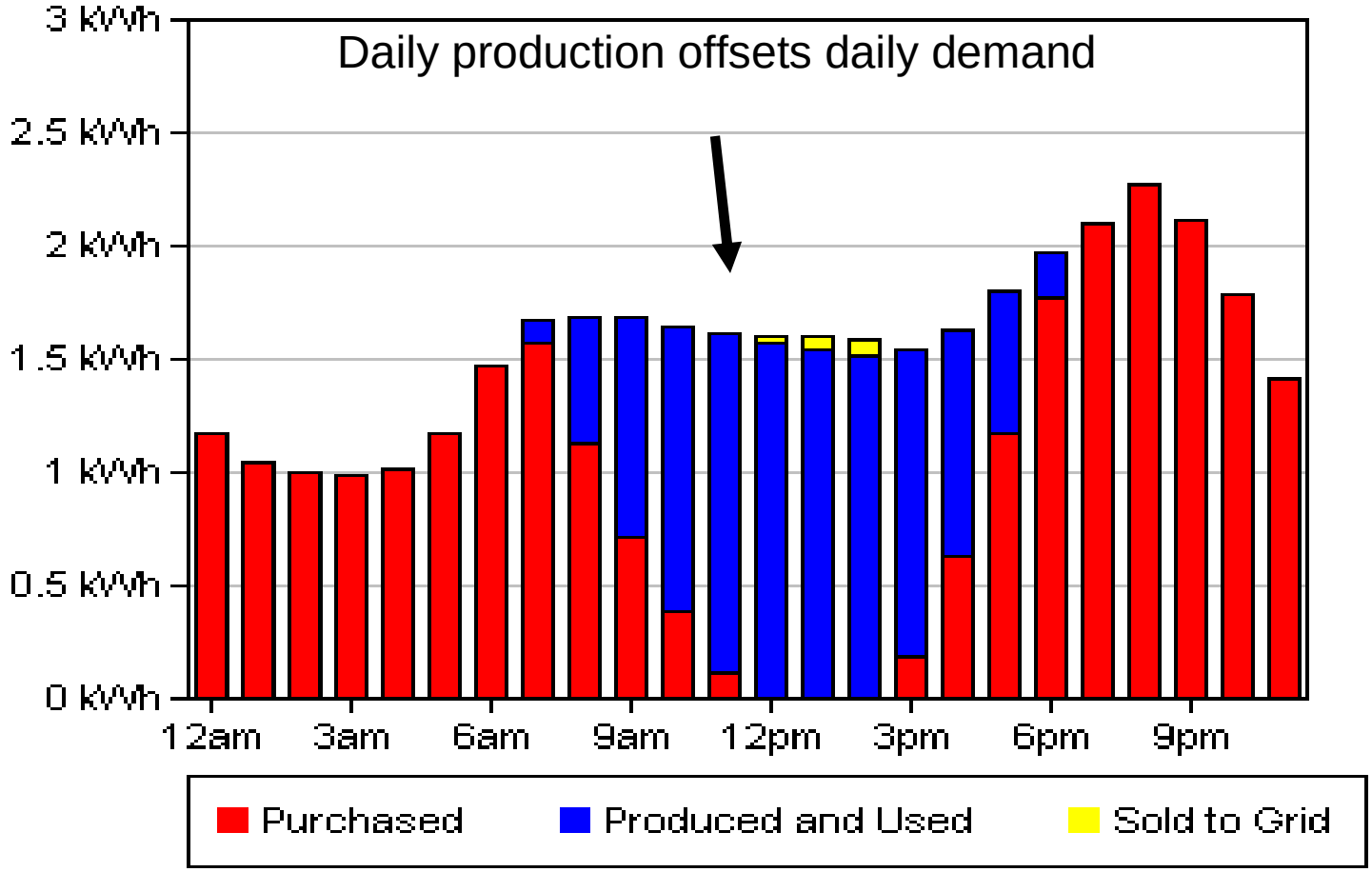
Why a Solar Home?

- **Increase Home Value**
- **Lower Electric Bills**
- **Protection from Electric Price Increases**
- **Cleaner Environment**
- **Energy Independence**
- **Disaster & Power Outage Protection**



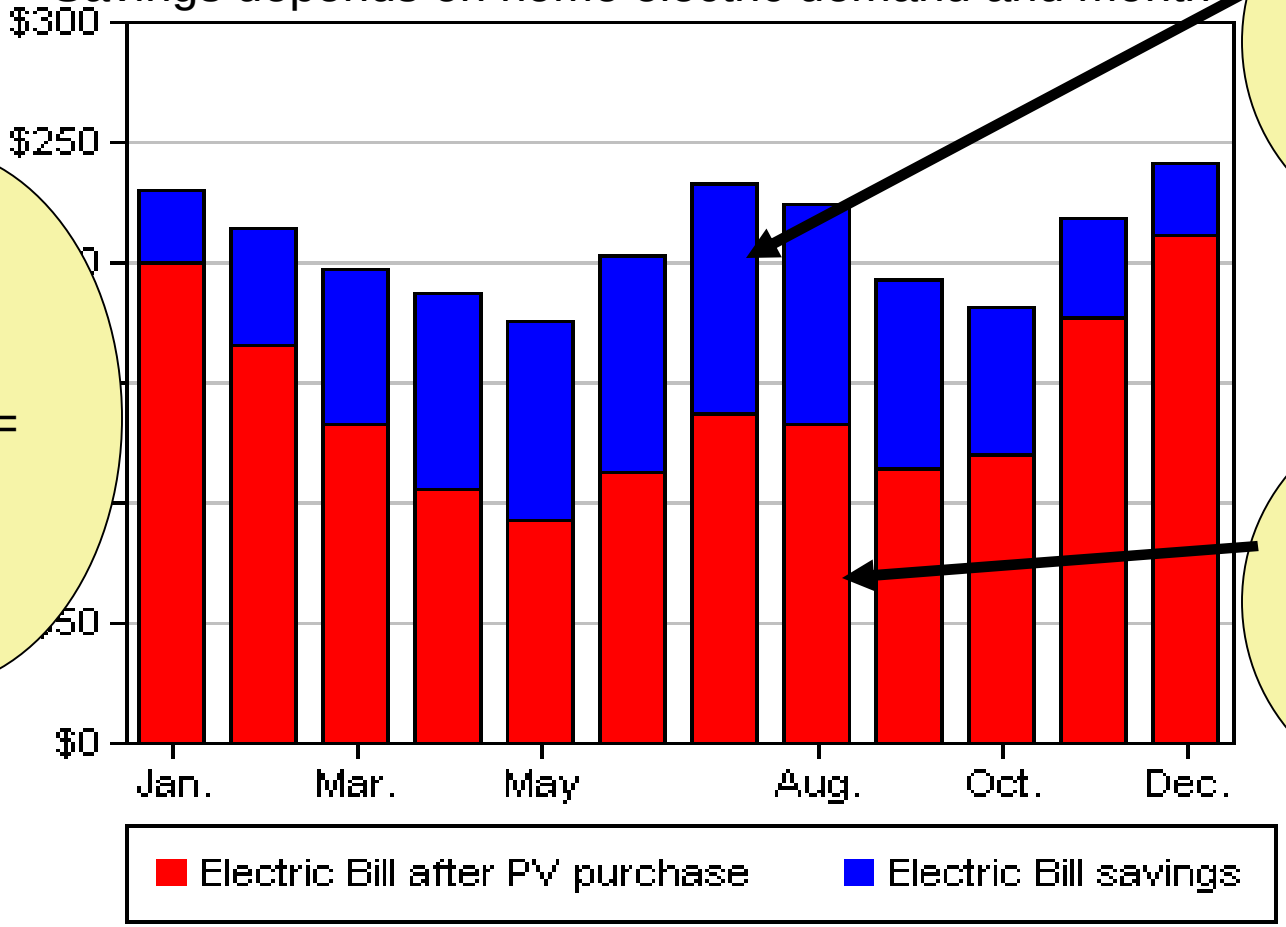
Daily Electric Production changes with the sunlight

PV Production and Electric Demand



Monthly Savings

Savings depends on home electric demand and month

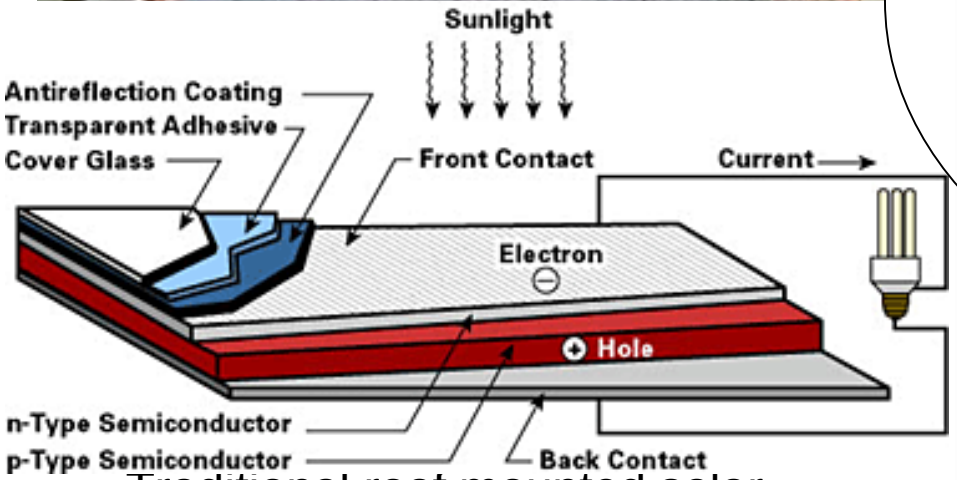


Larger solar system = Larger Saving

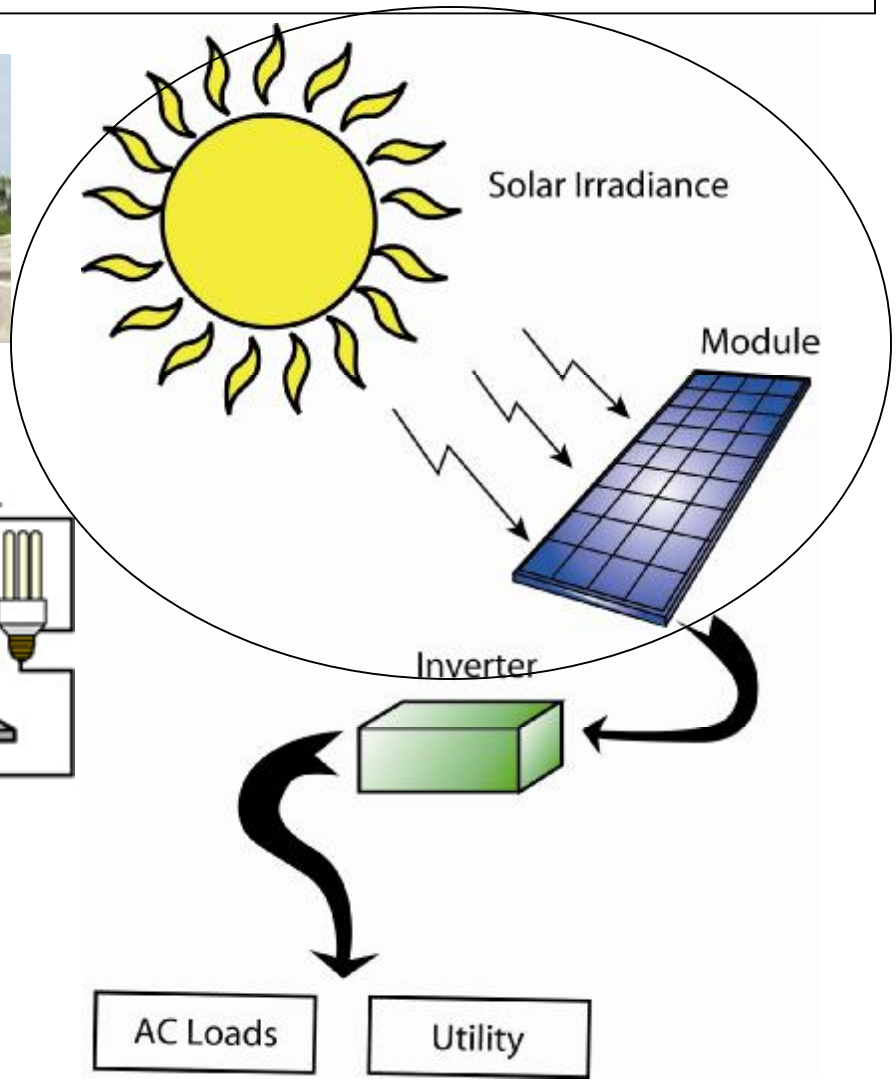
Monthly solar production

Monthly home demand

Modules produce DC Power



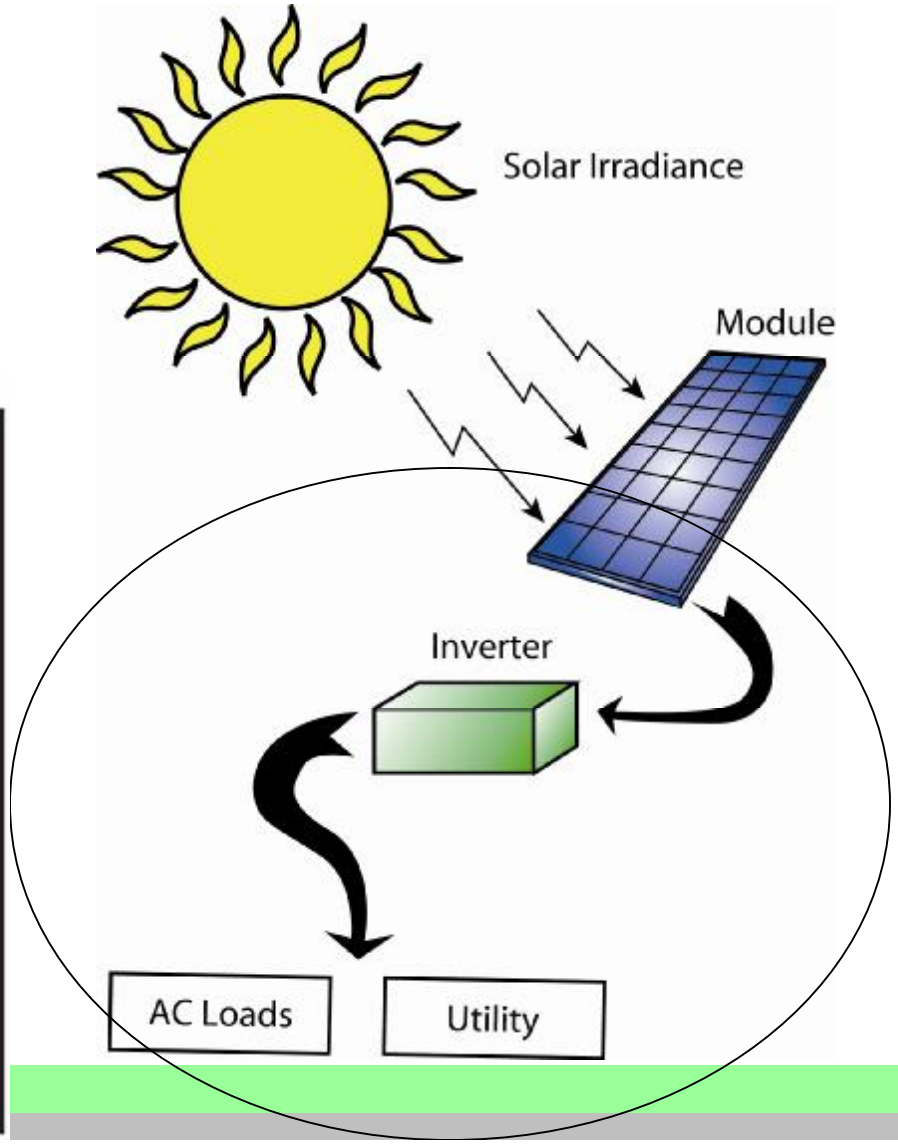
Traditional roof mounted solar panels



Inverter converts DC to AC Power

Solar cells directly convert sunlight into direct electric current

Invertors convert DC electricity to AC current



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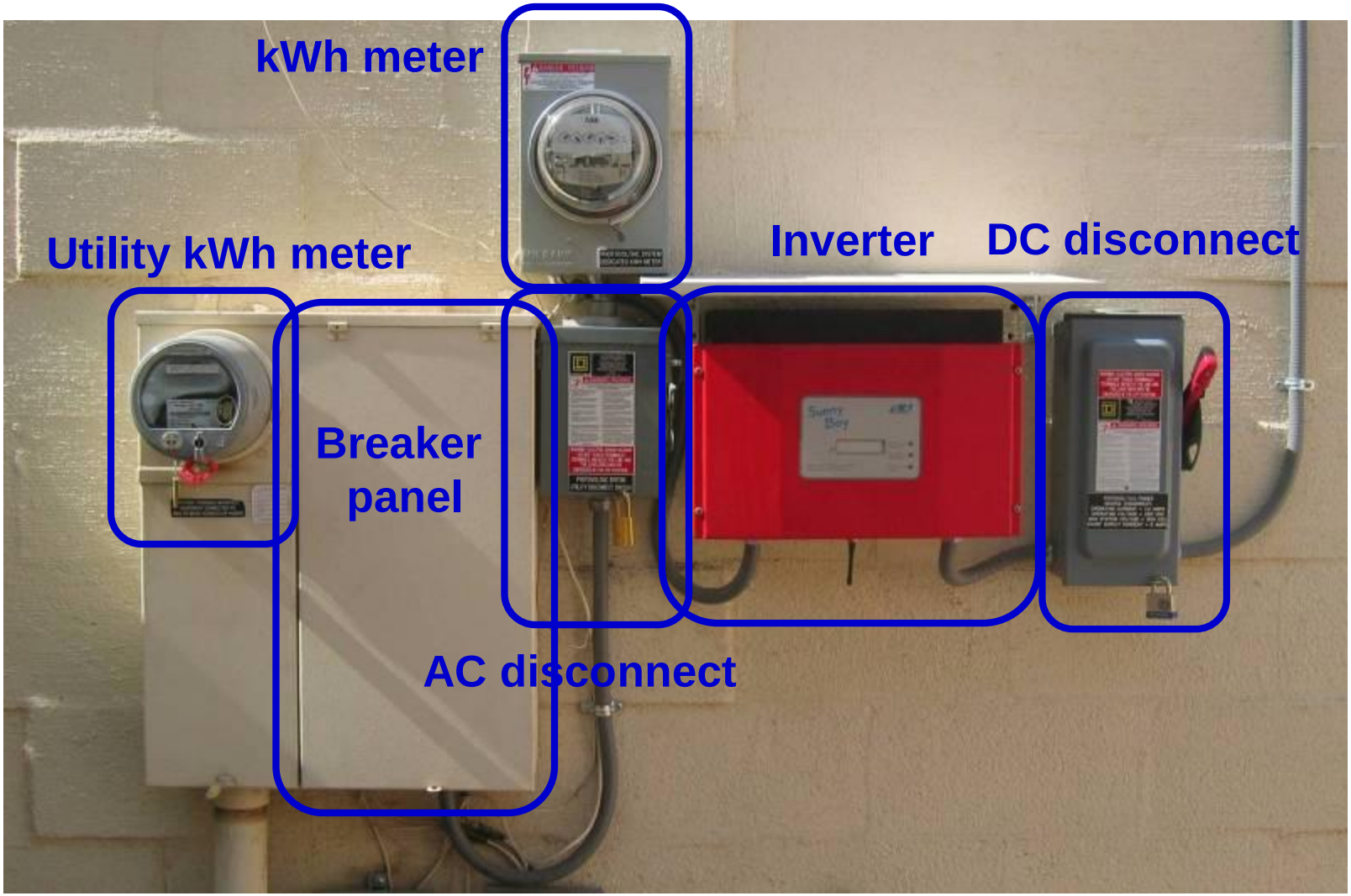
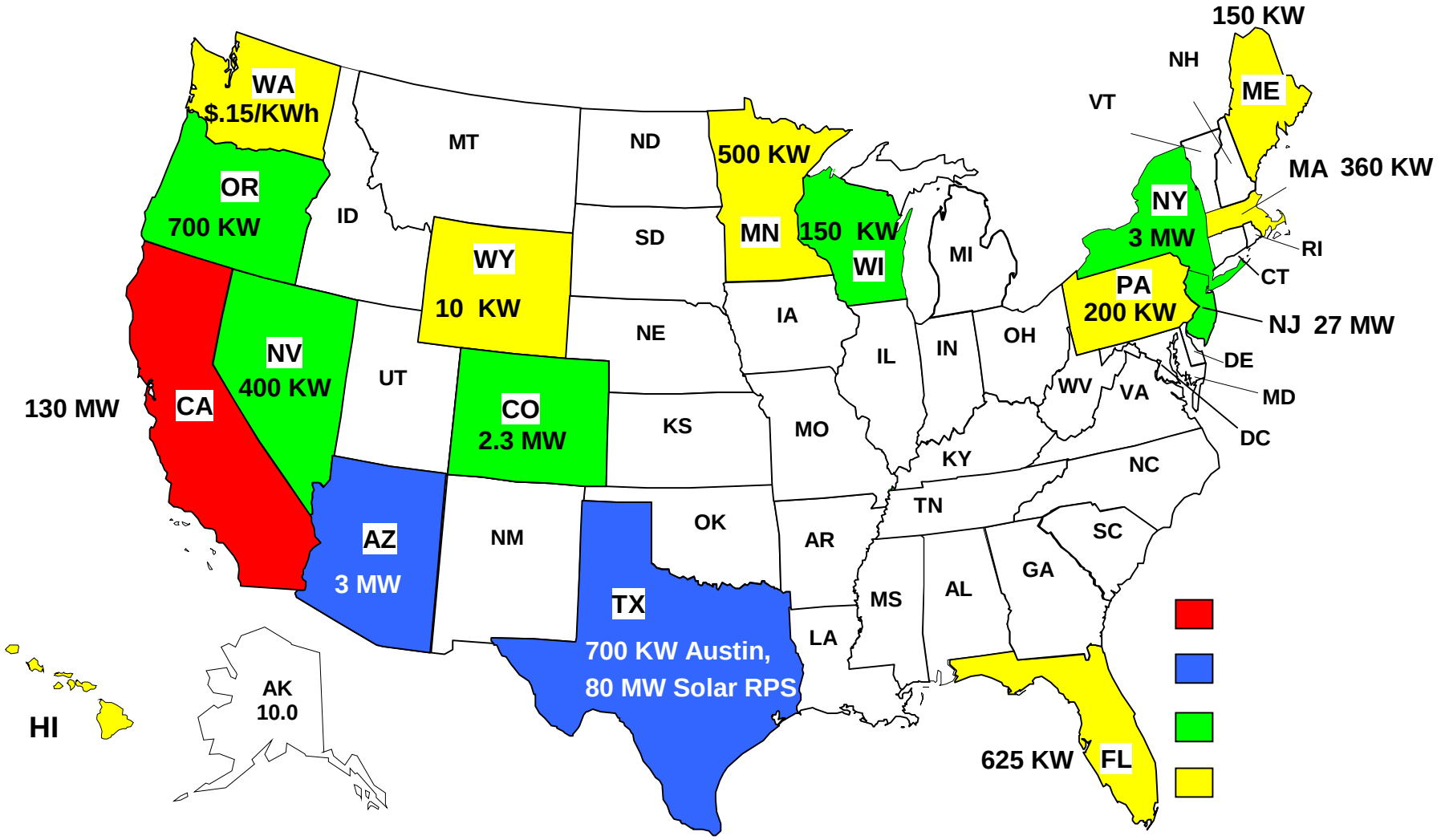
Residential Installation



STATE INCENTIVE PROGRAMS



FINANCIAL INCENTIVES

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DSIRE
Database of State Incentives for Renewable Energy

- FAQs
- Summary Maps
- Summary Tables
- Search By
- Glossary
- Other Resources
- Library
- Schools Going Solar
- New / Updated Incentives

Last Updated: 07/15/04

The Database of State Incentives for Renewable Energy (DSIRE) is a comprehensive source of information on state, local, utility, and selected federal incentives that promote renewable energy. To access information, use the menu to the left or click on the maps below.

Federal Incentives

www.dsireusa.org

T US Territory Incentives

LOUISIANA?

- Take advantage of existing Federal incentives
- Learn more about state & local programs
- Join existing state & local Renewables efforts
- Spread the word to friends, family & co-workers
- Vote for those that support Renewables!

Thank You!

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