

Renewable Energy

Solar
Wind
Micro Hydro
Geothermal
Biomass/fuels
Efficiency

Olympic Energy Systems, Inc. 907 - 19th Street Port Townsend, WA 98368 (360) 379-2536

Structural Insulated Panels : Local Company Builds 'Structures To Go'

A Port Angeles firm combines practical know-how, creativity, talent, and recycled materials to make a product and a difference . . .

Vertical beams from an old county building, drive gear and other metallic components from an industrial "dump", and on old metal trailer bed were part of the vision of Noel Van Giesen, a well-known area entrepreneur and the man behind the successful Olympic Energy Expo events in 2001, 2002, and 2003.

A press, capable of applying 28,000 pounds of weight to a stack of SIP panels during the "sandwich" gluing operation, was built in less than the span of 2 weeks by Noel's team, which also includes skilled tradesmen—from welders to builders and carpenters.

SIP panels are Structural Insulated Panels, where Styrofoam insulation is "sandwiched"

between sheets of OSB board or plywood to form a very strong and highly insulating product for building walls, roofs, and floors for dwellings, workshops, big and small...that is, *Structures To Go*, the name of the enterprise.



Noel is an energy conservation hound and SIP panels achieve more (energy savings) with less (money and materials).

The press is part of the gluing process in making SIP panels. A minimum of 6 pounds per

square inch is required to assure an even bond between the rigid panels and the insulating foam. After setting and removal from the press, the panels are prepared for assembly with other panels. Foam is shaved from the edges to accommodate the insertion of splines (narrow strips of smaller SIP panels) for making joints.

The whole process—from manufacturing SIP panels to creating kits ready to build can take less than two days, which gets us to the very reason for building a press and developing a facility for making building kits...it saves money. An operation can provide valuable building options to the public, while enabling living wage jobs in the community. JAC

SIP Panel Specs

- 4 x 8 feet Panels
OSB Board, Plywood, or other
- Polystyrene Insulation
High insulation (high R-value)
- Press @ 28,000 lbs
Built of recycled materials: counter-weights, gears, pulleys, cable, I-beams
- 1/3 Less Cost to Build
Translates to lower retail cost
- Uses Local Panels

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News and Announcements

WHAT	WHEN	WHERE
Jefferson Energy Center	1st/3rd Mondays 7:00	TBA in PT
O. P. Energy Group	Last Friday/Month 2 pm	Sequim Library
Power Lunch	2nd Friday 11:30 am	TBA in PT

WHO WE ARE—Olympic Energy Systems, Inc.

Olympic Energy Systems, Inc. was founded by an electrical engineer in 2001 as a renewable energy consulting firm specializing in solar photovoltaic design. The company can assist in the application of a variety of alternative and clean energy technologies—solar, wind, micro-hydro, fuels, energy efficiency and energy management. Company goals are common to all clients:

Optimum Performance

Positive Economic Return

True Sustainability

Company operations are located in Port Townsend, Washington and primarily serve the North Olympic Peninsula and other portions of the state. Olympic Energy Systems uses local licensed contractors for installation. Fees are paid only upon successful project completion, which reduces the inherent risks of high tech solar to the clients.

The founder, Jonathan Clemens, relocated from Texas, where he was involved in renewable energy activities. Serving on the board of the Texas Solar Energy Society (TxSES) proved a valu-

able experience for him. TxSES and the Texas Renewable Energy Industries Association (TREIA) hosts the annual Renewable Energy Roundup and Sustainability Fair in Fredericksburg, TX, where Jonathan has spoken about the Economics of Renewable Energy.

FREE Site, Cost, and Economic Assessments

For more information, contact:

Olympic Energy Systems, Inc.
907—19th Street
Port Townsend, WA 98368
(360) 379-2536



Renewable Energy Consulting
And System Development
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BOOK REVIEW—“The LONG Emergency” by James Howard Kunstler

No surprise that the author of ‘*Geography Of Nowhere*’ has written a follow-on called ‘The Long Emergency’. Mr. Kunstler pulls no punches. He writes what he sees...a nation on the brink of its day of reckoning. The day is more like an era—the post Peak Oil era, a time of very compelling forces, tending us toward a permanent and eerie contraction.

The Age of Cheap Oil powered the creation of the Geography of Nowhere, that is, the unsustainable suburbanization

and automobile-centricism of America in the 1900’s.

“We are in for a rough ride through uncharted territory.” Kunstler predicts that we are moving into “an abyss of economic and political disorder on a scale that no one has ever seen before.” He calls this “The Long Emergency.”

His chapter titles - there are 7 - radiate ominous messages ...

1. Sleepwalking Into The Future
2. Modernity And The Fossil Fuels Dilemma
3. Geopolitics And The Global Oil Peak

4. Beyond Oil: Why Alternative Fuels Won’t Rescue Us
5. Nature Bites Back: Climate Change, Epidemic Disease, Water Scarcity, Habitat Destruction, And The Dark Side of the Industrial Age
6. Running On Fumes: The Hallucinated Economy
7. Living In The Long Emergency

Some predictions (and they are among many) ... do not expect the national government to be an effective agent to address our growing problems. Expect home ownership (particularly in the suburbs) to become a liability. Expect regionalism and localism, local food production, recycling and reuse to *continued*

$H_2O \rightleftharpoons 2H^+ + 2e^- + O$
(with 1.229 volts...where do we find them volts?
Hmm. Try looking up.)

In 1803, we expended 1 calorie of energy to produce 10 calories of food. In 2003, we (in the “developed countries”) expend 10 calories of energy to produce 1 calorie of food!

Would Jefferson be impressed?

Check out the great workshops at Solar Energy International’s website:
www.sei.org

The San Juan Series occurs in Spring and Fall annually.

Olympic Peninsula Energy Group (OPEG) debuts in the area

MISSION

Raise energy awareness, advance energy use efficiency, and achieve a sustainable energy regime on the Olympic Peninsula and beyond.
Simple as that. Simplicity carried to an extreme becomes elegance.

GOALS

Affordable Energy
Energy Security
Transition to Renewable Energy through collaborative efforts in a diverse community.
Simple as that. Perhaps not so simple, but a good target to start.

CHALLENGES

Rising Energy Costs,
Regional Growth,
Expensive Alternatives, like solar energy and bio fuels, which have complex implications for the economy and environment.
Not so simple.



**Energy Matters
Forum
Monthly**

Address your concerns & learn about energy
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FREE
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Solar Energy System Planning

The Big Picture

System Planning

- **Clean Coal Technology**
 - Billions of dollars in Federal subsidies, ongoing
 - Electricity (Near term)
 - WA State recently approved permits for two coal-fired electric plants
 - Transportation Fuel (Long term)
 - Plants now under development to convert Anthracite Coal to fuel
- **Nuclear Energy**
 - Growing interest in the U.S.
 - National Energy Policy Act of 2005 subsidizes nuclear
 - New power plants under development outside of U.S.
- **Renewable Energy...Role?**
 - Currently no Renewable Portfolio Standard at Federal level
 - Minimum % or amount of energy for electricity generation required to be sourced from Renewable Energy
 - Some states have adopted standards
 - Texas requires 2,000 MW of RE sourced power by 2009
 - Per the US DOE
 - Total Energy demand will rise from 100 to 130 quads (billion million BTUs) by 2020
 - The Transportation sector will see the greatest increase in energy consumption
 - The growth in conventional energy consumption will EXCEED new RE generation

- **Specify**
 - Learn the Basics of Solar
 - Define User Goals & Objectives
 - Perform a Site Evaluation
- **Design**
 - Perform Basic Activities
 - Define System Architecture
 - Trade System Options (Size, Function, Configuration, and Component)
 - Conduct Analysis (including performance and cost)
 - Draft an Implementation Plan (upon a Preliminary Design)
 - Establish Preliminary Design and Cost Estimate (before Go-Ahead)
 - Establish Final Design (before Installation)
- **Implement**
 - Do Paperwork (permits, applications; obtain manuals; etc.)
 - Procure
 - Install
 - Finalize Net Metering Agreement
 - Apply for incentive payments

Basics of Solar

User Goals & Objectives

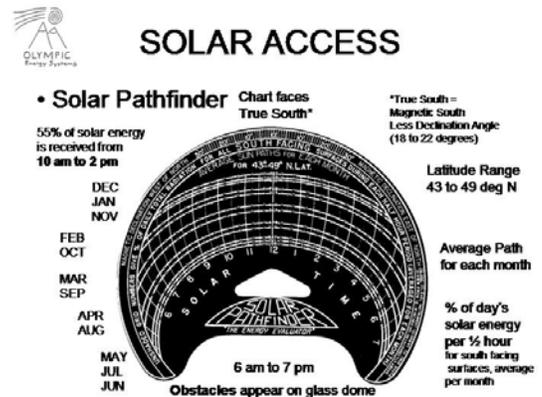
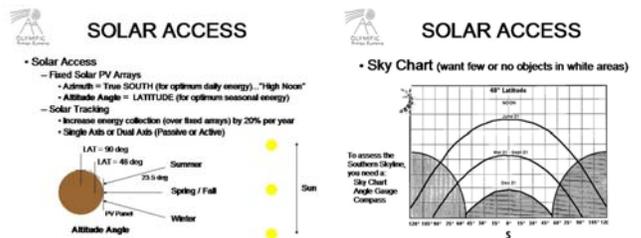
- **Photovoltaic (PV) Panels**
 - Generate electric charge by the photoelectric effect
 - Output is used, stored in batteries, or transmitted to the utility grid
 - PV Panels typically produce 12 or 24 Volts DC, 75 to 185 Watts, and are current limiting
 - PV Panel performance in cloudy weather is minimal (<20% of Rated Power)
- **PV Array**
 - Series/Parallel connected PV Panels to achieve desired Voltage and Wattage
 - 100 Square Feet PV = 1000 Watts, typical, commonly at 48 Volts DC or High (>)
 - Mount on Roof, Ground, Wall, Pole (fixed), Pole (tracking - about 20% more energy)
 - Orient fixed arrays to True South +/-15 degrees at Latitude Angle (48 degrees)
- **Inverter** (converts DC to AC for household use or synchronized output to the utility grid)
 - Typically shut down when the utility grid is down or failed (for safety reasons)
- **Net-Metering** (State law in Washington and dozens of other states)
 - The tying of independent power producer output to the utility grid to acquire credit on-site energy production; 1000 Watt array = 1500 KWh/year, typical in PNW
- **Available Incentives**
 - Utility rebates (PSE \$450 per 1 KW)
 - Utility production payments (\$0.18 - \$0.54 per KWh)
 - Green Tags (from NW Solar Co-Op at \$0.10 per KWh)
 - Federal tax credits (30% of system cost; capped at \$2,000 for residential)
 - Tax exemptions (WA State Sales Tax exemption for solar)

- **Establish User Goals**
 - Save Money (on energy costs)
 - Achieve Energy Security
 - Lower Ecological Impacts
 - Other (Personal Legacy, Philanthropy, Grow the RE Industry, Invest)
- **Define Objectives**
 - Reduce utility power consumption by xxx KWh
 - Achieve a specified Return, Present Worth, or Payback
 - Demonstrate a System (informing, teaching)
 - Reduce impact from a utility outage (maintain autonomy)
 - Maintain a system growth potential

These goals and objectives should be established before designing a solar energy system.

Site Evaluation

- **Load (Energy Reduction Potential) Assessment**
 - Types of energy sources at site (electricity, propane, NG, wood, etc.)
 - Number of occupants or users and their energy profiles and habits
 - Appliances and equipment - type, size, age, and expected lifetime
 - Space Heating Method and Domestic Hot Water
 - Potential energy use reductions (conservation or efficiency) - identify
 - Utility and fuel bills (monthly, yearly)
- **Solar (Energy Potential) Assessment**
 - Local Planning Jurisdiction (applicable permits and codes - city, county)
 - Local Covenants (Neighborhood or Owners Associations)
 - Local Weather (Example, snow and wind; assess physical loads)
 - SOLAR ACCESS (Latitude, Blockages - trees, buildings, Climate)
 - Manual Method or Solar Pathfinder (tool)
 - Peak Sun Hours per Day (annualized): 3 to 3.5 Seattle, 3.5 to 4 NOP, 5 CA)
 - Collector mounting options (considering space and south facing)
 - Type and condition of mounting surfaces (particularly the roof)
 - Future site conditions (tree growth, area development plans, re-roofing)





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The solution on the horizon

JOIN THE
 AMERICAN SOLAR ENERGY SOCIETY
WWW.ASES.ORG

Odds and Ends (when finishing, it's just the beginning...)

Continued from Page 2

great new levels.

“The Long Emergency will demand so much of individuals in terms of personal responsibility, civic cooperation, and adult skills, that large numbers of people will be unprepared to cope...”

Will the mechanisms of justice still be in force? [Well, ‘Judge Judy’ won’t likely be around...]

“Falling standards of living, loss of

amenity, shrinking life expectancy, resource scarcity, political disorder, military strife will present a compelling new set of circumstances that will shelter many of our cherished beliefs” in the perfectibility of man, fostered artificially by the Industrial Age. We will know soon enough.

Enough of that future stuff. Did you know that only 8% of US households in 1907 were wired for electricity? Hmm. Read on...

Kunstler does reveal his reading and review of Daniel Yurgin’s “The Prize”—the epic quest for oil, money, and power...a book previously reviewed in *RE News*. Therein lies a fog of facts:

The world has burned through One Trillion barrels of oil to date, out of its estimated Two Trillion barrel endowment.

World discovery of oil peaked in 1964 (peaking in the US in the 1930’s). The US passed peak production in 1970. The world is expected to reach Peak Oil production somewhere between 2005 and 2020...we will not know until after we reach it! Too late?

The world is now consuming 27 Billion barrels of oil per year, with the US grabbing over 6 Billion barrels per year.

Does that mean, given the Peak Oil prediction, that we will all run out of oil in about 37 years?

All this editor can say is...

Do the math.

North Olympic Peninsula News

The new and still to be formalized Jefferson Energy Group (JEC) hosted its first workshop on October 14, 2005, focusing on grid-tied Solar PV.

OES successfully published its paper on its RCM Cost Model in the proceedings of the Solar World Conference 2005 in Orlando, Florida.

More workshops and power lunches are planned.

Stay tuned.

OES is still handing out an important phone number—for a good time, call

1 800 USA RAIL



Port Townsend in Jefferson County in the State of Washington