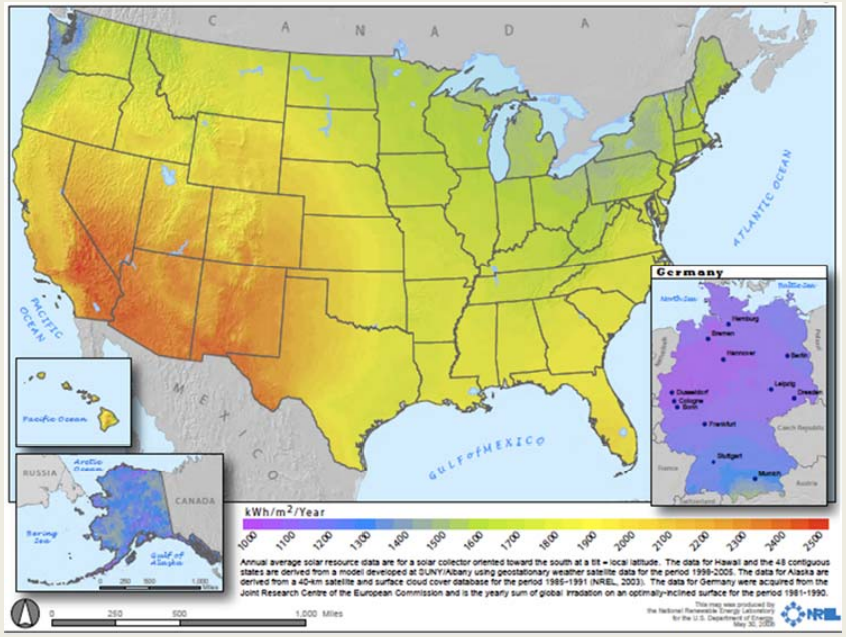
CUTTING SOLAR RED TAPE

Evergreen State Solar Partnership
Rooftop Solar Challenge 1
Sunshot

SunShot
U.S. Department of Energy

WASHINGTON PV CONTEXT

- 285 cities, 39 counties, 62 electric utilities
- > 18 MW distributed generation installed >4,000 rooftop systems
- Production incentive until June 2020
- Each with their own permitting and interconnection process
- Installations happen where process is easier



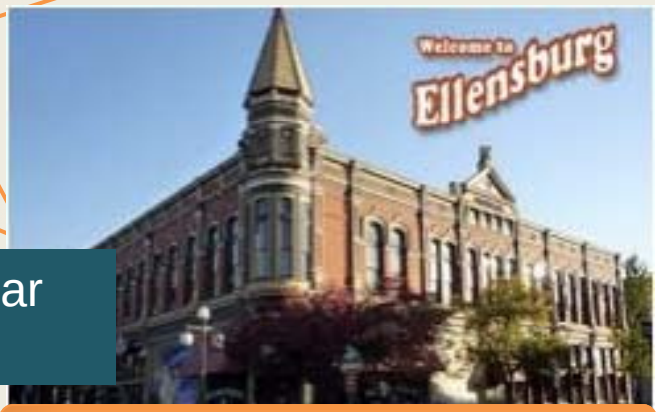
EVERGREEN STATE SOLAR PARTNERSHIP

Edmonds/Snohomish PUD

Bellevue/Puget Sound Energy

Commerce
NWSEED
Solar WA
Sustainable Connections

Seattle/Municipal Utility



Ellensburg/Municipal Utility

DOE SunShot Goal: make solar cost-competitive by 2020

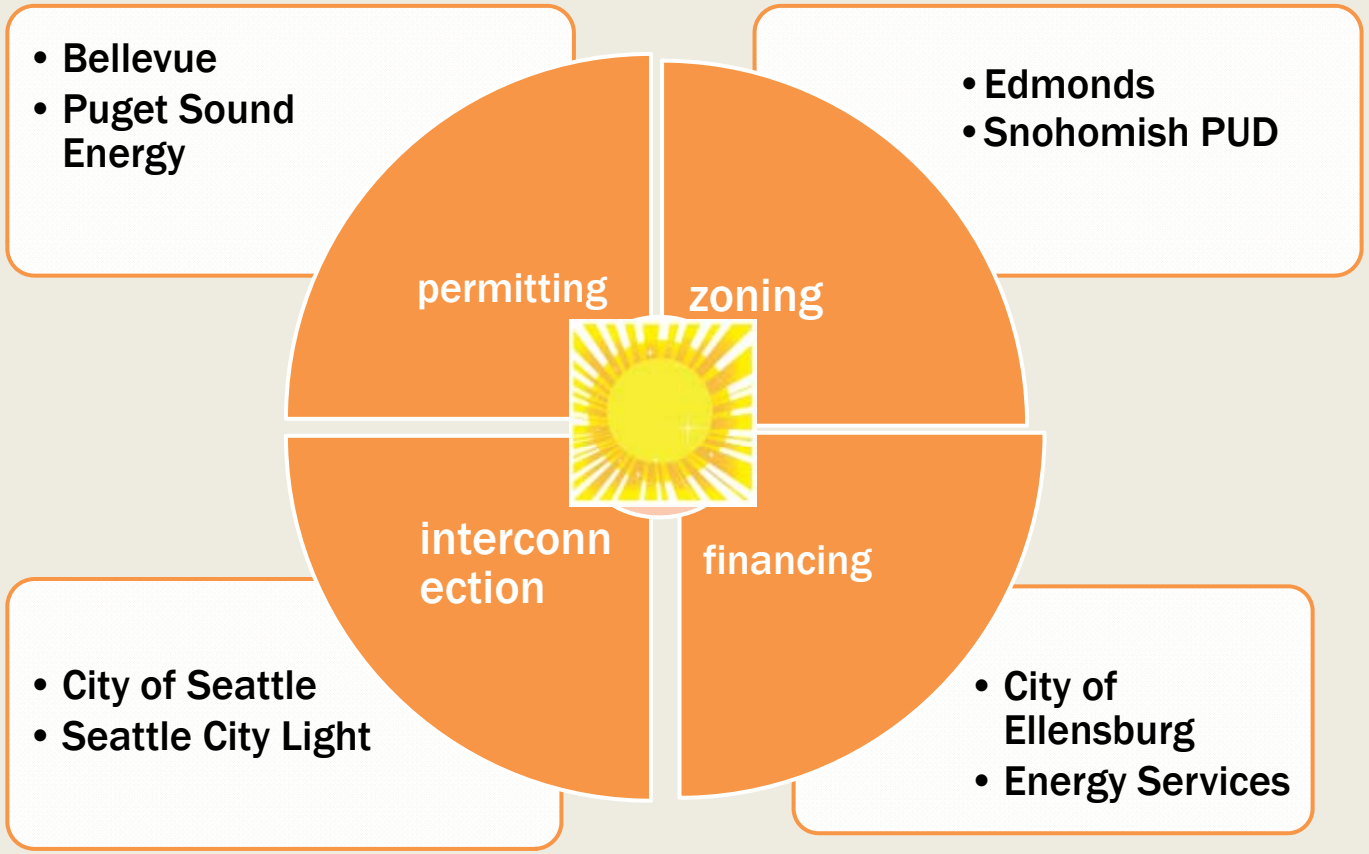
ESSP WORK PLAN

Improve market conditions: Double installations in 3 years

- Drive down "Balance of System" Costs
- Reach $2/watt installed by 2020 (residential)
- Score an "A" in "Freeing the Grid"

- Streamline and Standardize Permitting
  - Across 4 Participating Jurisdictions (Yr 1)
  - Across the State (Yr 2 & 3)
- Streamline and Standardize Interconnection
  - Across 4 utilities
- Improve zoning / planning / siting
- Expand financing options

TEAM APPROACH



Facilitation, Support, Website: NW SEED, Commerce

Outreach: Sustainable Connections, Thurston Energy, Solar WA

WHAT'S MOVING THE MARKET?

- Neighborhood bulk purchasing
  - Increased Seattle installs by 50%
- Declining equipment costs
- Financing & Rebates
  - Solar Express in Snohomish PUD
  - Production incentives
  - Many states - 3rd Party Ownership
- Clear permitting requirements – known by all
- Carbon concerns
- Desire to take action

CHALLENGES TO STATEWIDE SUCCESS

- Permit processes vary
- International codes
- financing – up front
  - Incentive uncertainty
  - Net metering cap
- responsibilities
  - Washington State Building Code Council
  - Washington Utilities & Transportation Commission
  - Labor & Industries
  - utilities

installation would be prevented under 2012 Fire Code

APPROACH

- Engage – describe goal
  - Outline existing
  - Review model approaches
  - Compare
- Engage / learn / train
  - Seek review / webinars
- Test / Refine / compromise

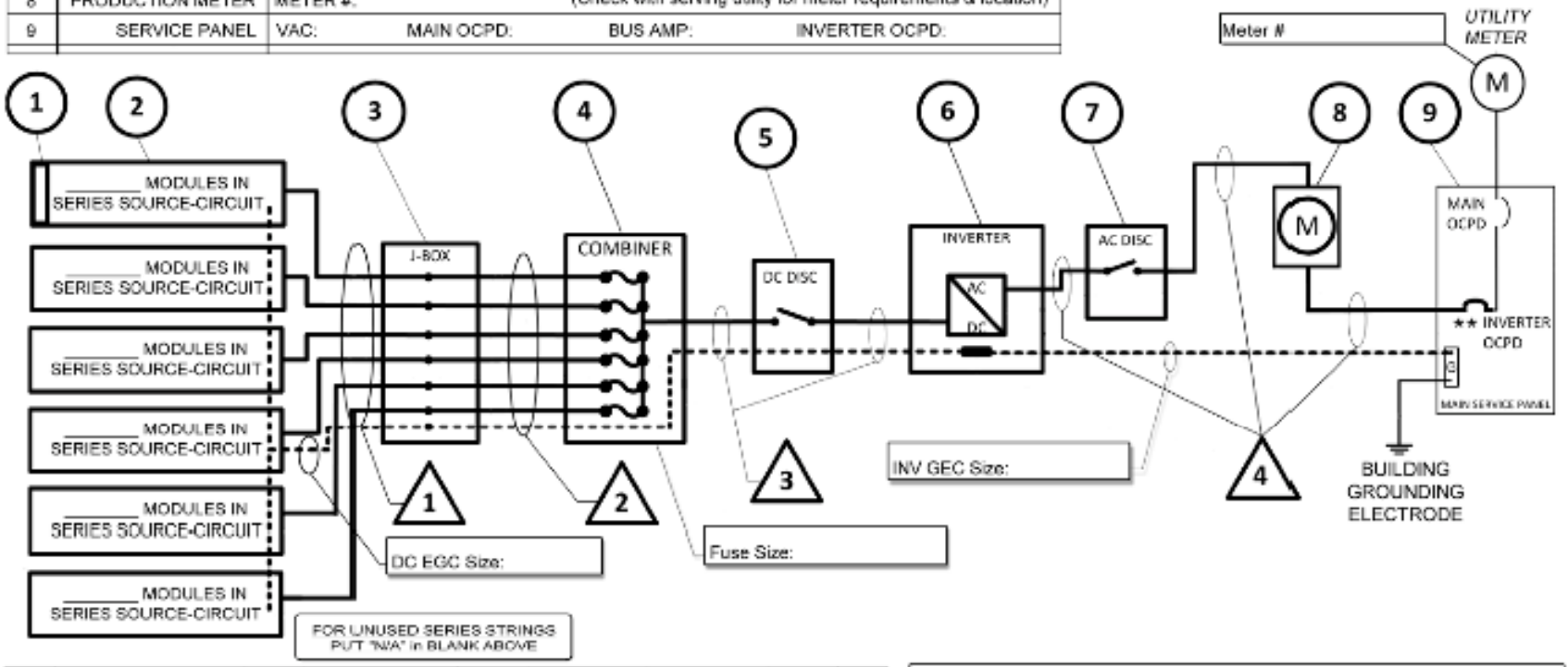
PROPOSALS

- Expedited permit process
- Standard one line diagram
- Common website
- Electronic submissions
- Standard interconnection
- 3rd party financing
- Refine incentives based on costs/value

EQUIPMENT SCHEDULE

TAG					
1	SOLAR PV MODULE	MAKE:	MODEL:		(Attach Cut Sheet - See notes for ratings)
2	PV ARRAY	WEIGHT:	HEIGHT FROM ROOF:		(Attach cut sheet of mounting system)
3	J-BOX	LENGTH:	WIDTH:	HEIGHT:	NEMA RATING:
4	COMBINER	MAKE:	MODEL:		(Attach cut sheet)
5	DC DISCONNECT	VDC:	DC AMP:	MAKE:	
6	DC/AC INVERTER	MAKE:			(Attach cut sheet - See notes for ratings)
7	AC DISCONNECT	VAC:	AMPS:	MODEL:	
8	PRODUCTION METER	METER #:			(Check with serving utility for meter requirements & location)
9	SERVICE PANEL	VAC:	MAIN OCPD:	BUS AMP:	INVERTER OCPD:

Contractor – Installer Information	
Permit #:	Date:
Name:	
Address:	
Contact Name:	
Contact Phone:	
Email:	



TAG	Conductor Insulation Type	CU/AL	Conductors Size	Amps	Num	*Derated Amps	Raceway Size	Type	Ambient Temp Roof	Attic	Distance off Roof	
1												
2												
3												
4												

* Note: Derating of conductors based on number of conductors in raceway, ambient temp and distance off roof where applicable. (NEC 310.15)
** Note: Conductors and overcurrent devices shall be sized to carry not less than 125 percent of the maximum currents. (NEC 690.8(A))

Standard Electrical Diagram - Residential Small Scale PV System
Central Inverter Systems

THIS PLAN MUST BE PROVIDED TO THE INSPECTOR AT THE JOB SITE

Site Name:

Site Address:

This plan is NOT intended to be used with micro inverters or transformer-less inverters. Conductors, where installed outdoors in raceways shall be "W" rated and have an insulation rating of 90 deg C.

Rev - 02/23/2013

MODELS TO COMPARE

Expedited Permit:
Portland, OR

- 24 hour turn-around
- Valuation minus hardware

- Statewide Solar Code Oregon (Electric Specialty Code):

Financing:
Snohomish PUD

SOLAR EXPRESS
clean → renewable → bright

Seattle and Ellensburg
Community Solar

PLANNING, ZONING, POLICY, DEVELOPMENT REGULATIONS

- Ferndale, WA – Energy Efficient Design, Advanced Technologies, Greater Good, Low Impact, Economic Development (EAGLE)
- Guidelines
- Tree & Vegetation Considerations
- Plan for solar
- Fire Codes
- Homeowners associations

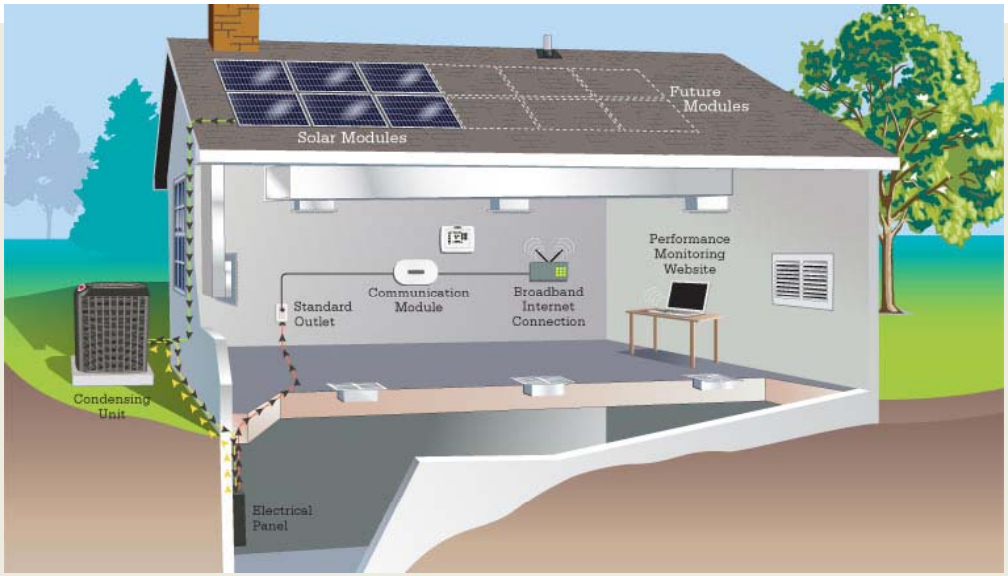
MODEL ORDINANCES

- Solar America Board for Codes and Standards (Solar ABC) report
- Interstate Renewable Energy Council (IREC) report
- National Renewable Energy Laboratory (NREL)
- Database of State Incentives for Renewables & Efficiency (DSIRE)
- WA State Dept of Commerce report
- States: Oregon, Massachusetts

Guidance Materials: American Planning Association

http://www.planning.org/research/solar/

SOLAR READY BUILDINGS



- Solar access, easements, rights now and future
- Technical design – roof angle, equipment placement, potential production potential and desires
- Pre-installed parts – roof mounts, conduit, service panel space
- Interconnection restrictions, process
- Structural needs for additional weight, wind load, snow load

PACIFIC NORTHWEST SOLAR PARTNERSHIP

- Standard process drives down costs / improves compliance / safety / predictability / smart grid
- Codes stress efficiency & solar ready
- Utilities embrace DG – diversify system
- Training installers / code people

CHALLENGES AHEAD

- Addressing greenhouse gases
- integrating efficiency across fuels & uses to optimize for consumers
- Simplify & integrate policy / incentives / price signals
- Improve codes & improve processes
- engage users, enforcers, trainers, suppliers
- Adjust the regulatory model to incorporate distributed generation, renewables and storage & changing utility role

WASHINGTON IS OPEN FOR SOLAR BUSINESS!

Learn more at:

www.nwsolarcommunities.org

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Department of Commerce
Innovation is in our nature.