DOE Challenge Home Consolidated Renewable Energy Ready Checklist

DOE Challenge Home National Program Requirements Mandatory Requirement 7 (Renewable Ready) shall be met by any home certified under the DOE Challenge Home program, only where **all three conditions** of the following conditions are met:

1. Location, based on zip code has at least 5 kWh/m^2/day average daily solar radiation based on annual solar insolation using PVWatts online tool: http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html **AND**;

2. Location does not have significant natural shading (e.g., trees, tall buildings on the south-facing roof, **AND**;

3. Home as designed has adequate free roof area within +/-45° of true south as noted in the table below. Note that in some cases a house may have insufficient roof area for the Solar Electric RERH checklist, but it may still have the minimum roof area for the solar thermal RERH Checklist and would therefore have to comply with the Solar Thermal RERH checklist. In other cases, the home may only have adequate south facing roof for the Solar Electric or Solar Thermal RERH Checklist, but not both. In that case the builder can decide which one of those two checklists to apply.

Photovoltaic		**Solar Water Heating**	
House Size (sq. ft.)	Free South Roof Area	House Size (sq. ft.)	Free South Roof Area
≤ 2000	110	≤ 2000	40
≤ 4000	220	≤ 4000	60
≤ 6000	330	≤ 6000	80
> 6000	440	> 6000	100

If any of the above conditions are not met, the home is exempt from requirements contained in the Consolidated RERH checklist.

Note:

- If a solar photovoltaic system is included with the home, then compliance with the PV portions of the Consolidated RERH checklist is not required.
- If a solar hot water system is included with the home, then compliance with the SHW portions of the Consolidated RERH checklist is not required.

These requirements were adapted from the EPA's Renewable Energy Ready Home Solar Photovoltaic Specification Guide (RERHPV Guide) and EPA's Renewable Energy Ready Home Solar Water Heating Specification Guide (RERHSWH Guide). For further guidance on any of the above items, this checklist notes the section of the appropriate guide. These guides can be accessed on the DOE Challenge program website at http://www1.eere.energy.gov/buildings/residential/pdfs/rerh_pv_guide.pdf and http://www1.eere.energy.gov/buildings/residential/pdfs/rerh_swh_guide.pdf.

	PV	SWH
Designate a proposed array location and square footage on architectural diagram: **PV** _____ sq.ft. **SWH** _____ sq.ft. *(RERHPV Guide 1.1)* *(RERHSWH Guide 1.1)*	❒	❒
Identify orientation (Azimuth) of proposed array location: **PV** _____ degrees. **SWH** _____ degrees. *(RERHPV Guide 1.2)* *(RERHSWH Guide 1.2)*	❒	❒
Identify Inclination of proposed array location: **PV**_____ degrees. **SWH**_____ degrees. *(RERHPV Guide 1.3)* *(RERHSWH Guide 1.3)*	❒	❒
Provide code-compliant documentation of the maximum allowable dead load and live load ratings of the existing roof; recommended allowable dead load rating can support an additional 6 lbs/sq. ft. for future solar system. *(RERHPV Guide 2.1)* *(RERHSWH Guide 2.1)*	❒	❒
Provide architectural drawing and riser diagram of RERH solar PV system components and solar hot water components. *(RERHPV Guide 3.5) (RERHSWH Guide 3.6)* **Alternative**: Provide home buyer with the following information: ➢ List of renewable-ready features ➢ Available free roof area within +/- 45° of true south ➢ Location of panel or blocking for future mounting of PV and SWH components ➢ Location of Riser ➢ Location of Breaker or slot for future breaker in electrical service panel ➢ Copy of the Consolidated RERH Checklist ➢ A copy of the RERH Solar PV Specification Guide ➢ A copy of the RERH Hot Water Specification Guide	❒	❒
Install a 1” metal conduit for the DC wire run from the designated array location to the designated inverter location (cap and label both ends). *(RERHPV Guide 3.2)*	❒	
Install a 1” metal conduit from designated inverter location to electrical service panel (cap and label both ends). *(RERHPV Guide 3.3)*	❒	
Install a single 4” chase or two 2” chases from utility room to the attic space below designated array location (cap and label both ends). *(RERHSWH Guide 3.5)*		❒
Provide code-compliant documentation of the maximum allowable floor load rating for storage tanks installed on non-concrete floors. *(RERHSWH Guide 2.2)*		❒
Install and label a 4’ x 4’ plywood panel area for mounting an inverter and balance of system components. *(RERHPV Guide 3.1)* **Alternative:** Blocking is permitted to be used as an alternative to the 4’ x 4’ panel. The area designated for the future panel to mount PV components shall be clearly noted in the system documentation.	❒	
Install a 70-amp dual pole circuit breaker in the electrical service panel for use by the PV system (label the service panel) *(RERHPV Guide 3.4)* **Alternative:** Provide a labeled slot for a double-pole breaker in the electrical service.	❒	
Note: *Homes equipped with an ENERGY STAR qualified whole home gas tankless water heater or an ENERGY STAR qualified heat pump water heater are exempt from the remaining provisions of the checklist.*		
Install and label a 3’ x 3’ x 7’ area in the utility room adjacent to the existing water heater for solar hot water tank. *(RERHSWH Guide 3.1)*		❒
Install and label a 3’ x 2’ plywood panel area adjacent to the solar hot water tank for the balance of system components/pumping package. *(RERHSWH Guide 3.2)* **Alternative:** Blocking is permitted to be used as an alternative to the 3’ x 2’ wood panel area designated for the future panel to mount solar HW components shall be clearly noted in the system documentation.		❒