7th Annual California Solar Regatta

May 4 and 5, 2018
Rancho Seco Recreational Area
smud.org/Solar-Regatta
The California Solar Regatta (CSR) extends a warm welcome to all teams competing in the 2018 Regatta Cup Races.
Mission

The mission of the SMUD California Solar Regatta (CSR) is to teach students about solar electricity. The program has been established to promote renewable energy through solar technology and innovation, by using a fun way to connect design and engineering. The CSR invites teams from California to compete and showcase their boat design, innovative engineering, and team spirit, through a variety of racing and presentation.

Team

A team entering a boat in the CSR shall consist of:

- A minimum of four students and a team mentor or team leader.
- No more than 30 team members.
- A minimum of two certified pilots.

Note: All team members must sign a liability and a photo-release waiver. Team members under the age of 18 must include a parent/guardian signature.
Entry Requirements and Procedures

Each team is required to:

• Complete each task on the checklist.
  See Table A.

• Complete an application form.
  See Table B.

• Submit a SMUD equipment liability waiver in order to receive the solar modules. These will be provided by the race organizer, after the application is submitted.

• Complete a swimming test to the satisfaction of the team mentor/team leader.

• Provide a SMUD liability waiver for each participant. Those under 18 must have a parent/guardian’s signature. Appendix A.

• Provide a SMUD media release form for each participant. Those under 18 must have a parent/guardian’s signature. Appendix B.

• Provide a copy of the California Department of Boating and Waterways Safety Certificate of Completion for each and/or pilot or crew member in the water.

• Provide a short video (two minutes maximum) updating the event organizer on the production of the boat (See Table A for due date).
<table>
<thead>
<tr>
<th>Check When Complete</th>
<th>Task</th>
<th>Description</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete the CSR Application</td>
<td>This application commits to participation and provides the Team contact information.</td>
<td>October 15, 2017</td>
</tr>
<tr>
<td></td>
<td>Complete equipment liability waiver</td>
<td>This allows you to use the SMUD solar modules. EVEN if you completed one last year – You need to complete a new one.</td>
<td>October 28, 2017</td>
</tr>
<tr>
<td></td>
<td>California Solar Regatta general meeting and PV pickup</td>
<td>This is a MANDATORY MEETING – Send a representative if you can’t make it. Solar modules will be distributed at this time. If you have an idea or contribution to the event this is the forum for open discussion.</td>
<td>TBA</td>
</tr>
<tr>
<td></td>
<td>Let us know how you are doing. Check in by email with <a href="mailto:suzette.bienvenue@smud.org">suzette.bienvenue@smud.org</a> and provide a video link to YouTube.</td>
<td>Mandatory - Make a one to two minute video of your ideas, challenges and progress. Please check in with your progress to date. This is also an opportunity to express concerns or ask for advice or help.</td>
<td>February 1, 2018</td>
</tr>
<tr>
<td></td>
<td>Please allow two weeks for processing and mailing of certificate.</td>
<td>All students who will be on the boat must show proof of course completion by March 14, 2018. It is highly recommended that all participants enroll in the FREE boating safety course: California Boating: A Course for Safe Boating. You may also choose another safety organization to award the boating safety certificate.</td>
<td>March 14, 2018</td>
</tr>
<tr>
<td></td>
<td>Turn in all required paperwork and have participants register online by this date</td>
<td>Required for all participants, including Team Mentors and Team Leaders. Please alphabetize by last name and place all paperwork in an envelope with the name of your school on the front and address to: SMUD Energy Education &amp; Technology Center c/o Suzette Bienvenue 6301 S Street, MS A226 Sacramento CA 95817 If you waited until the last minute, personally drop off the packet to the security kiosk by the end of the business day, March 14, 2018. No late paperwork will be accepted after this date. ABSOLUTELY NO EXCEPTIONS.</td>
<td>March 14, 2018</td>
</tr>
<tr>
<td></td>
<td>Park opens for teams</td>
<td>Teams are incentivized and highly encouraged to camp as well. See smud.org/RanchoSeco for camping information.</td>
<td>May 3, 2018</td>
</tr>
<tr>
<td></td>
<td>California Solar Regatta</td>
<td></td>
<td>May 4 and 5, 2018</td>
</tr>
</tbody>
</table>
## 2018 California Solar Regatta Application

<table>
<thead>
<tr>
<th>Educational institution</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mailing address</td>
<td></td>
</tr>
<tr>
<td>Faculty advisor or school official</td>
<td></td>
</tr>
<tr>
<td>Email</td>
<td></td>
</tr>
<tr>
<td>Cell phone</td>
<td></td>
</tr>
<tr>
<td>Department or program</td>
<td></td>
</tr>
<tr>
<td>Department or school phone</td>
<td></td>
</tr>
</tbody>
</table>

| Team leader |  |
| Address     |  |
| Email       |  |
| Cell phone  |  |
2018 California Solar Regatta Application (continued)

<table>
<thead>
<tr>
<th>Secondary contact</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Relation to project</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Email</td>
<td></td>
</tr>
<tr>
<td>Cell phone</td>
<td></td>
</tr>
<tr>
<td>Additional contact</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Email</td>
<td></td>
</tr>
<tr>
<td>Cell phone</td>
<td></td>
</tr>
<tr>
<td>Web page (optional)</td>
<td></td>
</tr>
<tr>
<td>Facebook page (optional)</td>
<td></td>
</tr>
</tbody>
</table>

Please submit this application along with a mission statement, list of proposed partners and a proposed timeline or building plan to Suzette.Bienvenue@smud.org.

We agree to use the SMUD provided solar modules in the design and building of a solar powered boat to compete in the 2018 California Solar Regatta.

Faculty advisor or school official signature ___________________________ Date _____________
7th Annual
California Solar Regatta

Dates/Times

**May 4 - Prep Competition** – Boats must be checked in from 7 a.m. – 8:00 a.m. on the day of the event. It is encouraged that boats complete the safety check and register the evening before. The event begins at 9 a.m. Camping will save your team time, automatically gain 5 points and a stipend.

**May 5 - College Competition** – Boats must be checked in from 7 a.m. – 8:00 a.m. on the day of the event. It is encouraged that boats complete the safety check and register the evening before. The event begins at 9 a.m. Camping will save your team time, automatically gain 5 points and a stipend.

Boats not assembled and checked in by 8:30 a.m. will have 3 points deducted from their Regatta Cup point total.

**Address**

Rancho Seco Recreational Area
14960 Twin Cities Road
Herald, CA 95638
1-800-416-6992

Visit [smud.org/RanchoSeco](http://smud.org/RanchoSeco) for maps and important park information including directions.

Accommodation

CSR provides camping at the Rancho Seco Recreational Area. Camping is optional, but highly recommended. If you choose to camp the evening prior to your event, tent camping in the Group Area location is **FREE**. This area is adjacent to the area where the boats will be moored. Please register your team prior to camping. See Suzette Bienvenue at the event site.

Two large fire pits are available for bonfires. Please use the area responsibly.

You may set up volleyball nets and play sports on the grass areas. Bounce houses are not allowed. **No alcohol is allowed in group campsites. Use of alcohol will result in expulsion from the park and competition. Quiet time is at 10 p.m. No generators, large gatherings or games are allowed after this time.**

RV parking is not provided although available. RV parking with hook-ups will require a fee of $40. Each site has a BBQ, fire pit, picnic table, drinking water, and electrical outlets. Reservations must be made to use these. Go to [smud.org/RanchoSeco](http://smud.org/RanchoSeco).

There are 12 additional tent campsites for family and friends on the south side of the lake. A fee is required and reservations must be made to use these. The park closes at 8 p.m. Please enter the park before 8 p.m.
Guests

Each team may invite an unlimited number of guests. Friends and family are welcome but only Team Members (who have previously registered) may participate in the actual events. Picnic tables and BBQs are available for use by non-registered guests. Guests may also register for the additional campground and RV sites at smud.org/RanchoSeco.

No popup tents in front of designated area delimited by American flags. All tents, in ground signs and camping equipment, must be 25 feet from shore. This area to be kept clear will be delineated by American and Solar Regatta flags. Race officials and lifeguards must have a clear unobstructed view of the lakeshore, lake and all activities, at all times.

We would like to encourage spectators at the races. Invite your school administration, friends and family. There is a lot to do at Rancho Seco Recreational Area:

Swimming – There is a roped off area with a sandy beach.

Boating – Watercraft can be launched at a variety of ramps (see map). You may also rent electric motor or paddle boats.

Fishing – The freshwater lake supports bass, blue gill, crappie, and catfish. A fishing license is required.

Hiking – The Howard Ranch Trail is a seven-mile loop through open grassland.

Wildlife – There is lots of wildlife and birds to see, including bald eagles on the north side of the lake.

Pets – Please make use of the dog park. Pets are not allowed in the Solar Regatta group campgrounds. If you bring a dog to the event, it must be on a leash at all times.

Parking

You will be allowed two vehicle parking passes per team. Your parking passes will be mailed to the address provided in your original application. All other vehicles with your group will pay the $10/day parking fee. The fee is per car only. There is not an additional charge per person. Please follow signs to the race area and do not park in the designated boat check in lanes. Tow rigs must park in the gravel lot, south of the group campsite (see map).

Registration

Team mentors/team leaders must register student teams. Your team will receive a registration envelope/packet once your boat passes the safety inspection.

The envelope/packet will contain:

- An alphabetical list of all the REGISTERED students, team members and team mentors/team leaders.
- One ORANGE wristband for each REGISTERED attendee.
- One BLUW wristband for each REGISTERED pilot.
- One lunch ticket for each REGISTERED attendee.
- One Master Race Schedule.

NOTE: Any students, team members or team mentors not registered will not be able to use the catering services. Any students not registered, as a pilot indicated by a blue wristband, will not be allowed on the boat in the water.
Registration - (continued from page 9)

Each team and individual team members must be registered by 8 a.m. on the race date.

Boat Safety

- Bring your tow vehicle down coned passageway in the parking lot.
- You may have 15 minutes to unload your boat and equipment and bring them to your assigned mooring area.
- Return and park tow rig in the designated tow rig parking lot.
- Position your boat on saw horses (or any other object which raises the boat) between the mooring flag and the line marked by Solar Regatta flags. This is considered the pit area.
- Verify that your boat is 100% ready for inspection and that you have all of the safety equipment listed on page 16. Solar modules should be installed.
- Contact event organizer to request a safety check.
- Each boat must have a safety check between 2 p.m. - 7 p.m. on the day before the race or by 8 a.m. on race day. Once your team and boat has been reviewed by a safety inspector, you will receive the registration packet and boat identifier.

- Each school will have the required student and team information listed on a separate spreadsheet. If a student is not pre-registered, they will not be allowed to participate in the race or receive catering services.
- Students, team leaders, and team mentors will be given event wristbands. The boat’s pilots will be identified with a blue wristband. Teams which fail to register in advance of the event will not be allowed to participate in the race or receive catering services.
- Each team must have one point of contact (adult) that will be the source of information for the team. This contact will receive all communications, schedules, and the meal tickets for the group. Each team will have one backup contact person.
- Team numbers will be assigned on March 14 when the team paperwork packet is submitted. The identifying boat number will also be your mooring location on the lake.
- Each team will be given a Master Race Schedule, which will list their time slots for races as well as a presentation time.
Design Review
In order to be eligible to receive Cup points for boat design, technical, artistic and sustainability, you must request a design review.

- At the race official tent select a 15 minute time block between 7 a.m. and 2 p.m. on race day. Judges will interview your team on these additional topics and cup points.
- Have students prepared to answer questions during the designated time reservation.
- Be ready to answer questions and explain the use of solar, wiring, design, materials, and mechanical operation of your boat.

Help
SMUD employees and volunteers will be wearing red shirts. If you have a concern or a question, please find a volunteer.

Our employees at the SMUD Information Tent will be available to answer general questions. Minor first aid, sunblock and lip balm will be available.

Food
We will provide a FREE breakfast and lunch. Breakfast is based on a first-come, first-served basis (no ticket is required). Lunch is a barbecue. Choose a hamburger or veggie burger. One lunch ticket is provided for each REGISTERED attendee. Lunch will be served from noon – 1 p.m.

Water will be available at various locations.

The Rancho Seco Beach Snack Shack will be open until 7 p.m. selling assorted candy, ice cream and packaged snacks. Other beach novelties and supplies are also available for purchase.

There are grills available throughout the camping and picnic area. You are welcome to use them. Please use caution when cooking with flames.

If you choose not to purchase food, we recommend that you bring additional drinks and food. The nearest towns, Ione to the east and Galt to the west, are 15 miles away.

Race Information
Be sure to check in your boat upon entering the event area. Once your boat passes inspection, you will be given laminated boat numbers, which identifies your team. Adhere the laminated boat numbers to each side of your boat’s bow.

Race schedule signs will be posted. Look for your team’s designated number as assigned to race entries. Your team MUST be prepared 15 minutes prior to each event.

A Master Race Schedule located in the Racing Official Tent will be updated continuously with current scores. Scores will be updated frequently and will be displayed on a TV screen.
## Table C - Schedule of Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 3, 2018</td>
<td>2 p.m. – 7 p.m.</td>
<td>Prep boat and team registration. Camping. Safety checks 4 - 7 p.m.</td>
</tr>
<tr>
<td></td>
<td>7 a.m. – 9 a.m.</td>
<td>Breakfast served</td>
</tr>
<tr>
<td></td>
<td>7 a.m. – 8 a.m.</td>
<td>Prep boat and team registration. Safety check until 8 a.m.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Late arrivals will have 5 points deducted for each hour.</td>
</tr>
<tr>
<td></td>
<td>7 a.m. – 2 p.m.</td>
<td>Sign up for reservation design review at the race official tent</td>
</tr>
<tr>
<td></td>
<td>8:45 a.m. – 9 a.m.</td>
<td>Welcome and flag salute</td>
</tr>
<tr>
<td></td>
<td>9 a.m. – 9:20 a.m.</td>
<td>Regatta group photo</td>
</tr>
<tr>
<td></td>
<td>9:30 a.m. – 3:30 p.m.</td>
<td>Boat races and presentations – see Master Race Schedule for individual event times</td>
</tr>
<tr>
<td></td>
<td>noon – 1 p.m.</td>
<td>Lunch served</td>
</tr>
<tr>
<td></td>
<td>3:30 p.m.*</td>
<td>Awards</td>
</tr>
<tr>
<td></td>
<td>4 p.m. – 8 p.m.</td>
<td>College boat and team registration. Camping.</td>
</tr>
<tr>
<td>May 4, 2018</td>
<td>7 a.m. – 9 a.m.</td>
<td>Breakfast served</td>
</tr>
<tr>
<td></td>
<td>7 a.m. – 8 a.m.</td>
<td>College boat and team registration. Safety check until 8 a.m.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Late arrivals will have 5 points deducted for each hour.</td>
</tr>
<tr>
<td></td>
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</tr>
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<td>8:45 a.m. – 9 a.m.</td>
<td>Welcome and flag salute</td>
</tr>
<tr>
<td></td>
<td>9 a.m. – 9:20 a.m.</td>
<td>Regatta group photo</td>
</tr>
<tr>
<td></td>
<td>9:30 a.m. – 3:30 p.m.</td>
<td>Boat races and presentations – see Master Race Schedule for individual event times</td>
</tr>
<tr>
<td></td>
<td>noon – 1 p.m.</td>
<td>Lunch served</td>
</tr>
<tr>
<td></td>
<td>3:30 p.m.*</td>
<td>Awards</td>
</tr>
<tr>
<td>May 5, 2018</td>
<td>7 a.m. – 9 a.m.</td>
<td>Breakfast served</td>
</tr>
<tr>
<td></td>
<td>7 a.m. – 8 a.m.</td>
<td>College boat and team registration. Safety check until 8 a.m.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Late arrivals will have 5 points deducted for each hour.</td>
</tr>
<tr>
<td></td>
<td>7 a.m. – 2 p.m.</td>
<td>Sign up for reservation design review at the race official tent</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>noon – 1 p.m.</td>
<td>Lunch served</td>
</tr>
<tr>
<td></td>
<td>3:30 p.m.*</td>
<td>Awards</td>
</tr>
</tbody>
</table>

* Time dependent on timely completion of races and weather conditions.
Award Ceremony

All winners will be announced at the end of the last race, once judges have tallied the scores. The Award Ceremony will take place at the Presentation Stage. Trophies and awards will be given at that time.

Promotional Materials

If you would like to promote the CSR, you are welcome to use SMUD photos and videos. Like us on Facebook to get regular updates. Visit the CSR web page at smud.org/Solar-Regatta. Please credit SMUD whenever possible and notify the event organizer of news releases.

Participants will release their rights to photos and video recordings taken by the event organizers. Photos may be used in promotional or future educational programs. Each student, team mentor, team leader MUST turn in a waiver, and if under 18, the waiver must be signed by a parent or legal guardian.

<table>
<thead>
<tr>
<th>$150</th>
<th>All paperwork was submitted by March 14, 2018 as stipulated in the check list</th>
</tr>
</thead>
<tbody>
<tr>
<td>$50</td>
<td>All student/team members have completed and passed the boat certification exam and submitted results as stipulated in the check list</td>
</tr>
<tr>
<td>$150</td>
<td>Team and boat registered the day before the race</td>
</tr>
</tbody>
</table>

Stipend

Team mentors/team leaders (one per team) may be eligible for a stipend up to $350. Please fill out the attached W-9 form. Pencil in your team and school name at the top of the form.

To receive a stipend you must comply with the following and submit a completed W-9. See Appendix C.
Media, Advertising and Logos

- This is an educational event which may be covered by media. Please wear conservative beachwear. T-shirts and shorts are appropriate. Do not shred, tear or alter the T-shirts. No crop tops, see-through clothing and no bikini bottoms.
- It’s encouraged that each team have uniforms or matching T-shirts.
- Please do not choose red t-shirts for your team. This will cause confusion since we need SMUD employees and volunteers to be quickly identified in an emergency. If red is your school color, opt for a white T-shirt with red.
- Please coordinate with SMUD’s media personnel. All teams, please notify the race organizer of any media releases, or any contact with media. If a team is located outside of Sacramento County, you may do your own media release.

- All teams will be required to do a team photo shoot with the boat, a team photo shoot in a SMILE booth, and participate in the Regatta group photo.
- All teams, by individually signing the media release, agree to be photographed and/or videotaped while on the water or on shore.
- The race organizer may make a request to place a video or GoPro camera on the team’s boat.
# Required Items Check List Section

## Personal

<table>
<thead>
<tr>
<th>Item</th>
<th>Requirement</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration Form</td>
<td>One per entry</td>
<td>One per school, listing all participants.</td>
</tr>
<tr>
<td>SMUD School Equipment Liability Release</td>
<td>One per entry</td>
<td>One per school, listing solar modules to be loaned (this must be signed prior to delivery of solar modules). Due before receiving solar modules.</td>
</tr>
<tr>
<td>SMUD Liability Waiver</td>
<td>One per participant</td>
<td>Signed by parent/guardian if student is under 18 Must also be completed by teacher and any other adult participating. Due by March 14, 2018</td>
</tr>
<tr>
<td>Media Release</td>
<td>One per participant</td>
<td>Signed by parent/guardian if student is under 18 Must also be completed by teacher and any other adults participating. Due by March 14, 2018</td>
</tr>
<tr>
<td>Proof of Boating Safety Attendance</td>
<td>One for the pilot and alternates or <strong>ANYONE</strong> in the water</td>
<td>California State Parks Division of Boating and Waterways One Capitol Mall, Suite 500 Sacramento CA 95814 Contact: Sara Schlussler <a href="mailto:sara.schlussler@parks.ca.gov">sara.schlussler@parks.ca.gov</a> 916-327-1833 <a href="http://www.dbw.ca.gov">www.dbw.ca.gov</a> Due by March 14, 2018 *You may choose a different source to attain Boating Safety certificates. Please note that other organizations may change fees for this process.</td>
</tr>
</tbody>
</table>
## Safety Equipment

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life jacket</td>
<td>One for pilot and anyone else on the boat</td>
<td>USCG approved, Type I, II or III worn by boat pilot.</td>
</tr>
<tr>
<td>Air horn</td>
<td>One per boat</td>
<td>Used for emergencies only. Must be easily reached by seated boat pilot.</td>
</tr>
<tr>
<td>Orange flag</td>
<td>One per boat</td>
<td>This flag must be displayed in the event of a breakdown. Must be easily reached by seated boat pilot.</td>
</tr>
<tr>
<td>Fire extinguisher</td>
<td>One per boat</td>
<td>USCG approved with a one pound capacity. Must be easily reached by seated boat pilot.</td>
</tr>
<tr>
<td>Paddle(s) or oar(s)</td>
<td>One per boat</td>
<td>Must be easily reached by seated boat pilot.</td>
</tr>
<tr>
<td>25 feet of rope</td>
<td>One per boat</td>
<td>Attached to center of the bow. Must be a minimum of .25 inches in diameter. The other end must be easily reached by seated boat pilot.</td>
</tr>
<tr>
<td>Vented battery box</td>
<td>One per boat</td>
<td></td>
</tr>
<tr>
<td>Protective footwear</td>
<td>Each participant in the water or on the boat</td>
<td>Water shoes, sandals, tennis shoes.</td>
</tr>
<tr>
<td>Protective eyewear</td>
<td>One for anyone handling the battery</td>
<td>Sunglasses are OK.</td>
</tr>
<tr>
<td>Dead man or “kill” switch</td>
<td>One per boat and for pilot</td>
<td>This device shuts power to the motor if the pilot loses control of the craft. This device should be wired to disconnect power to the motor when the switch is shorted. It must be functional at all times when the pilot is in the boat and must be demonstrated during the safety test.</td>
</tr>
<tr>
<td>Walkie talkie</td>
<td>One for the pilot and one for the team mentor/team leader</td>
<td>This is needed to communicate information between the team on shore and on the boat.</td>
</tr>
</tbody>
</table>
Technical Section

Definition

A solar powered boat makes direct use of the sun's energy. The solar energy must be received exclusively by on-board photovoltaic cells. On-board energy storage into the battery bank is permitted. No additional batteries may be used. The design of the boat should only use solar as the form of energy (cannot use wind, human, or other source of energy).

Participating teams may either custom build a boat from scratch or modify an existing boat to create a solar powered boat. The boats can be no longer than 20 feet (bow to stern) and no wider than 8 feet to allow for legal trailer towing. The prep class solar boat shall use four SMUD provided solar modules (MSX-64). College class solar boat shall use two SMUD provided solar modules (JKM230P-60).

Classes

Prep Class, grades 7-12 inclusive, will compete on Friday, May 4, 2018. Collegiate Class, community colleges and universities, will compete on Saturday, May 5, 2018.

Solar Module Specifications

Prep class students must use the solar modules (MSX-64) loaned by SMUD. Please see the MSX-64 spec sheet for additional information. Any solar module, which appears to have been modified, will be disqualified and must be removed prior to the race. See Appendix D for MSX-64 specification.

College students must use JKM230P-60 loaned by SMUD. Please see the JKM250P-60 spec sheet for information. See Appendix E for JKM230P-60 specification.

Battery Specs

The battery bank must consist of a sealed, marine quality battery/batteries having a total rating of not more than 180 Watt-hours. Example: 15 amp-hours @ 12 volts. If a charge controller is used in the solar charging system of the boat, a visible means to disconnect the battery from the charging system must be installed. No shore charging of batteries will be permitted using a generator or any other means. Once the battery bank has been inspected, approved, and tagged, it may not be exchanged. Participants must bring a copy of the battery specifications in a clear, plastic sleeve envelope.

Motor/Drive Specifications

The team can install a DC motor of their choice. The motor cannot have any internal batteries. It cannot be changed out during the Regatta without race official approval. Props may be changed in-between races.
Boat and Personal Safety

- The Regatta Safety Inspectors will perform a full safety inspection of each boat prior to the Regatta. All boats must float and pass a safety inspection in order to race.

- All boat pilots/passengers must have passed a boating safety course, be able to tread water for at least 1 minute, and easily swim to shore.

- Life jackets and footgear are required for all participants on or in the water. The team mentor/team leader is responsible to assure swimming ability.

- Any accident or injury must be reported immediately to the event staff.

- Any Team determined to operate their craft unsafely will be given one warning by Event Staff. Further unsafe behavior will result in disqualification and possible ejection from the event.

- Make sure all of your safety devices; ropes, air horn, flag, tow rope are easily within reach of seated pilot.

- If your boat breaks, stalls or gets stuck, raise the orange flag to signal for a tow. You do not need to keep your flag up during the tow.

- Make sure your kill switch is operable. The motor should stop automatically when engaged.

- Swim toward the rescue boat. A life ring will be tossed in your direction.

- Paddles or oars should be used to get back to shore after a race to avoid becoming a safety hazard. Paddles or oars may not be used during the actual race.

- Each boat must have 25 feet of rope attached to the center of the bow.

- A communication unit (walkie talkies) to communicate with the team members on shore is required.

Insurance and Liability

Each team must supply prior to competition a SMUD waiver of liability form for each participating student and advisor and a SMUD photo release form. Lack of documents will prevent participation at the event without exception. All documents must be received by March 14, 2018. Team mentors/team leaders who submit their paperwork on time, complete and in order will receive a $150 stipend.

Documents can be submitted in person at SMUD’s Customer Service Center Security Kiosk at 6301 S Street, Sacramento CA 95817, or by express mail. Documents must be submitted in a sealed envelope, addressed to Suzette Bienvenue/EE&TC, with the school, mentor name and phone number clearly labeled on the front.
The envelope should contain:
• Alphabetized by last name a list of all the student participants.
• Alphabetized by last name a list of all of the team mentors/team leaders.
• Alphabetized completed SMUD video/photo/audio and liability forms.
  - NOTE if a student is under 18, a parent/guardian must sign these forms
• Boating certificates for each pilot.
  A $75 stipend will be paid to each team mentor/team leader (one per team) having all of his/her students take and pass the boating exam.

Technical Specifications

Any craft not in compliance with the rules will not be allowed to participate or will need to correct the deficiency prior to 9 a.m. of the race date.

Each team must have one student designated as the student boat engineer who will need to communicate directly with the Regatta Safety Inspector and be able to explain the mechanical, electrical, construction, and technical operation details of the boat. The Regatta Safety Inspector will be able to add up to 3 points toward the Regatta Cup if the student boat engineer is able to completely describe the electrical system of the boat.

• The battery bank will be tagged for compliance and the tag must not be removed for the duration of the event. Unless directed by race officials, only one battery bank may be used. Once tagged, the battery or bank may not be swapped out unless directed by a regatta official.
• Boat may not be longer than 20 feet or wider than 8 feet.
• The maximum height above waterline is 5 feet.
• Boat materials must not be toxic or pollute the water.
• The pilot must be visible at all times.
• The throttle mechanism on the craft must be free moving and when released, must return to the zero current position.
• The battery/solar selector switch must be placed within each boat and in visual sight of the pilot. The motor switch must be easily visible to the Race Starter Officials who will check that the switch is in the correct position.
• The kill switch must cut power to the motor in the event of an emergency. Typically, one end of the lanyard is connected to the switch and the other is connected to the pilot.
• The pilot’s cockpit must allow for easy entry/egress.
• The solar modules must be attached with mechanical fastening to the hull. The design should take into account the possibility of gusty winds.
• Boats must have their laminated boat ID number, which will be provided at check in at the Safety Check and Battery Inspection, displayed on both sides of the bow. If the bow is not a good location, the safety official

Continued on next page
will choose a location to attach the number. The laminated signs must be properly affixed for the duration of the event.

- Team names are recommended but optional. We encourage you to have fun.
- Race officials reserve the right to disapprove any graphics.
- In case of inclement weather, teams must bring a duplicate battery to be able to run the races on battery power.

**Procedure for Check-in**

Make sure that your boat is assembled and completely ready to be checked in before proceeding to your mooring spot. This area will be clearly marked by a mooring flag. **Do not proceed until you are ready.**

At the mooring spot in the pit are:

- Your boat will receive a thorough inspection.
- Safety check should not take more than 15 minutes.
- Position your boat on the saw horses in the pit area.
- Verify that your boat is 100% ready and that you have all the safety equipment.

- Contact event organizer to request a safety check. Each boat must pass a safety check between 2 p.m. – 7 p.m. on the day before the race or by 8 a.m. on race day.
- Pick up your team envelope/packet which will contain:
  - Meal tickets for all registered students and team mentors/team leaders.
  - Event wristbands for all registered students and team mentors/team leaders.
  - Pilot wristbands for all having proved a passing score for the boating safety exam.
  - Alphabetized list of participants who have registered.
  - Master Race Schedule and Schedule of Events (may be subject to change so verify completeness).
- Immediately upon passing inspection and receiving your boat numbers, securely tape your numbers to each side of the bow.
- Immediately move your tow vehicle to the gravel tow-rig lot. See event map.
- You may then place your boat in the water and tie off to your mooring.
Repairs

On your boat:

- All repairs must be made on a raised surface like sawhorses and only in designated pit areas.
- Any damage must be promptly notified to the race official.
- After repairs have been completed, it must be available for the Regatta Safety Inspector.
- All teams will be courteous to other boats, teams, and observers.
- No pop-up tents, in-ground signs, flags or coolers in front of the area delimited by American and white regatta flags in grounds. Race officials and lifeguards must have a clear, unobstructed view of the lakeshore, lake and all activities.

Safety

It is the responsibility of the team to decide whether to compete in the events. Water sports can be unpredictable, therefore, involves an element of risk. There will be lifeguards on hand.

By entering the CSR, each team and individual team member acknowledges that:

- Each team member, by signing the liability waiver, is aware of the risks involved in racing.
- The safety of the participants is the main consideration of the race organizer.
- Each team is responsible for the safety of the boat, and all team members on shore and on the water.
- Each pilot will wear a life jacket.
- No pilot will use a harness or seat belt.
- Each pilot will wear a safety “Kill switch” release.
- Each team will be notified of any changes on the Master Race Schedule in the Racing Official Tent.
- Once a heat has been announced, the team racing next must be in the water near the event and ready within 5 minutes or the boat will be disqualified for that race.

Weather or Cancellation

The race organizer may cancel any race due to weather or any reason.

If there is rain or lack of sun, races will be modified to have the boats run on battery power for the sprint and slalom races. Have an extra battery available.

Events, Judging and Awards

It is the intention to conduct the following races: Slalom, Sprint, and Endurance. The race courses will be set by the race organizer. Teams will be notified of any changes on the Master Race Schedule in the Racing Official Tent.

There will be trophies and/or monetary awards for the following categories:
Slalom Race

Solar only – battery is switched off and not operable.

This race is coded in **ORANGE** on the Master Race Schedule and marked by **ORANGE** race flags on the course.

In this race, boats compete in a test of maneuverability and speed, moving through a specified obstacle course defined by a series of buoys, without hitting or missing any buoys. This is an individual competition. The winner of the Slalom Race will be the boat that completes the course in the quickest time.

- To begin the race, boats must arrive at the Slalom Race Starting Dock at their designated time.
- The pilot will communicate with the Slalom Race Starting Official to determine where to position the boat before the start.
- The pilot will verify with the Slalom Race Starting Official that the boat’s battery switch is in the “OFF” position.
- The Slalom Race Starting Official will start the race; monitor the race to assure the boat stays on course and doesn’t miss or hit any buoys, and times the race.
- The race will start with an air horn blast from the Slalom Race Starting Official.
- The boat will complete the slalom race course as indicated by the map below (approximately 150 yards in each direction). Please note the start and finish lines.
- Hitting or missing a buoy will cost the boat a penalty, adding 20 seconds to the boat’s racing time per incident.
- Each boat will make one timed run.
- At the completion of the race, the Slalom Race Starting Official will add any time penalty to the boat’s racing time.
- Failure to complete the race will result in a score of DNF.
- After the race is finished, the boat will return to its mooring location (or next race if applicable).
- The Slalom Race Starting Official’s recorded time is final and will be reported to race official tent.

Slalom Race (single boat)
Sprint Race

Solar only – battery is switched off and not operable.

This race is coded in RED on the Master Race Schedule and marked by RED race flags on the course.

In this race, two boats will race side by side to see which is the fastest. This is an individual competition. The winner of the Sprint Race will be the boat that completes the course in the quickest time.

- To begin the race, boats must arrive at the Sprint Race Starting Dock at their designated time.

- The pilot will communicate with the Sprint Race Starting Officials at the Sprint Race Starting Dock to determine where to position the boat before the start.

- The pilot will verify with the Sprint Race Starting Official at the Sprint Race Starting Dock that the boat’s battery switch is in the “OFF” position.

- The Sprint Race Starting Official at the Sprint Race Finishing Dock will start the race; monitor the race to assure the boat stays on course, and times the race.

- The race will start with an air horn blast from the Sprint Race Starting Official at the Sprint Race Finishing Dock.

- Each boat will complete the sprint race course as indicated by the map below (approximately 100 yards). Please note the start and finish lines.

- Each boat will race twice, approximately once in the morning and once in the afternoon. Please see Master Race Schedule for assigned times.

- Failure to complete the race will result in a score of DNF.

- After the race is finished, boats will return to their mooring location.

- The Sprint Race Starting Official’s recorded time is final and will be reported to race official tent.

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Sprint Race (two boats)
Endurance Race

Battery only – solar system is switched off and not operable.

This race is coded in **BLUE** on the Master Race Schedule and marked by **BLUE** race flags on the course.

In this race, a boat will test its endurance and battery effectiveness, racing around a designated course, as far as it can in 25 minutes. The boat must switch its pilot midway in the race. The winner of the Endurance Race will be the boat that completes as many laps as it can around the course before running out of time or running out of battery.

- Boats must arrive at the Endurance Race Starting Ramps, located at the west end of the Mooring Area, at their designated time. Each boat is assigned a ramp, Ramp A or Ramp B. See the Master Race Schedule for race times and ramp assignment.
- This race requires two Pilots and at least one, maximum of two, launch crew. Midway through the race, the boat will return to its assigned ramp, switch Pilots, and return to the race course to complete the race. The launch crew will assist with the exchange of pilots.
- Boats do not have to run this race with the solar modules attached.
- To begin the race, the pilot will communicate with the on shore Endurance Race Captain at the Endurance Race starting ramps to determine where to position the boat before the start.
- The pilot will verify with the Endurance Race Captain that the boat’s battery switch is “ON” and the boat’s solar system is “OFF” and not operable.
- The Endurance Race Captain will start the race. The Endurance Race Official, located on the Endurance Race Dock, will monitor the race to assure boats stay on course.
- The race will start with an air horn blast from the Endurance Race Captain.
- Each boat will proceed along the specified route moving in a counter clockwise direction on the course layout (approximately 200 yards around buoys). Please see map on the next page.
- Boats will make as many laps as possible until a second air horn blast from the Endurance Race Captain is sounded (at about the 10-minute mark).
- At the sounding of the second air horn, pilots will return to their respective ramps (A or B) on shore, switch pilots, and continue with the race.
Endurance Race (continued)

- The Race will end at the sound of a third air horn blast from the Endurance Race Captain (at the 25-minute mark).

- Hitting or missing a buoy will cost the boat a penalty of reducing the total number of laps by ½ lap per incident.

- The Endurance Race Official will record the number of laps by each boat, to the nearest quarter lap, and report the number to the race official.

- Failure to complete the race will result in a score of DNF.

- After the race has ended, boats will return to its Mooring Location, not to the Endurance Race Starting Ramps (A or B) a ½ lap penalty will be applied to any team that blocks or returns to the Endurance Race Starting Ramps.

Endurance Race (two boats)
Presentation

10-15 minute student presentation about their boat, its design and operation.

This event is coded in GREEN on the Master Race Schedule and marked by GREEN race flags on the stage.

Student teams will give a short (10–15 minute) presentation on stage in the Presentation Area, about their solar powered boat. The presentation should be targeted to both a general audience and the Presentation Judges. After their presentation, students will take questions from the Presentation Judges. The winner of the Presentation Award will be the team that scores the highest total points from evaluations of the five topics listed below.

- Student Presentation-Teams must arrive at the Stage in the Presentation Area at their scheduled time. Please see the Master Race Schedule.
- Access to a computer is not available. Students may use poster board or other handouts.
- Students must cover the following five topics:
  - Sustainability – What did the team learn about materials and the use of recycled or repurposed items?
  - Technical design – What was the inspiration for the mechanical systems? Why was a particular control system used?
  - Design – What was the inspiration and the reason for a particular design?
  - Solar – Is there a working knowledge of solar/electric systems?
  - Teamwork – Did students take the lead designing and working on the boat? Did all students have active participation?

Up to ten points will be awarded for each topic. The final presentation score will be the total of the scores in the five topics.

ADDITIONAL AWARDS:

These awards are also factored into the Regatta Cup points. To be eligible, your team needs to make an appointment for a design review between 7 a.m. – 2 p.m. on race day.

Best Design, Technical – This is based on the Judges’ decision for the best mechanical and electrical design.

Best Design, Boat – This is based on the Judges’ decision for best boat and hull design.

Best Design, Sustainability – This is based on the Judges’ decision for best use of recycling or repurposing of materials.

Best Design, Artistic – This is based on Judges’ decision for most creative and artistic design or theme.

Scoring

A rubric will be used to tally points. See TABLE D.

DNF or DNQ will count as zero points.

In the case of a tie, any supplemental awards received will be taken into consideration.
### Table D – Regatta Cup Championship Calculation Points

<table>
<thead>
<tr>
<th>Event</th>
<th>1st Place</th>
<th>2nd Place</th>
<th>3rd Place</th>
<th>School/Points</th>
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<tr>
<td>Slalom</td>
<td>15</td>
<td>10</td>
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<tr>
<td>Speed</td>
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<td>Endurance</td>
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<tr>
<td>Presentation</td>
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<td>Technical</td>
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<td>Boat Design</td>
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<td>Sustainability</td>
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<td>Artistic</td>
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<tr>
<td>Check In Points</td>
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<tr>
<td>CUP WINNER</td>
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</tbody>
</table>
Supplemental Awards

These categories will also receive trophies.

**Best Design, Drive Train** – This is based on the Judges’ decision for the best drive train design built from scratch (NOT BOUGHT).

**Spirit Award** – This is based on the Judges’ decision for the team with the most spirit. *Each team is required to take one team photo at the SMILE booth.*

**Best Video** – This is a SMUD award for the best boat design video.

**Leading by Example** – This is based on the Judges’ decision for who has set the best examples in good sportsmanship.

Prizes

Trophies will be given for all Regatta Cup Categories, Additional Awards, and Supplemental Awards.

The Regatta Cup Winner will receive $500. All team mentor/team leaders must complete a W-9 form. See Appendix C.
Pit Area — Shoreline to the area marked by Solar Regatta flags at 20 feet. This area is designated for teams only to have boats inspected or make repairs.

Walkway — This area is in between the Pit Area and the public viewing space. It is marked by Solar Regatta flags on one side and American flags on the other. Keep this area clear for race officials and lifeguards.

Public Viewing Area — All spectators must stay behind the line marked by American flags.
Please Print

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<thead>
<tr>
<th>Name</th>
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<tr>
<td>Phone</td>
<td>Mentor Name</td>
<td>Are you over 18? (Circle one)</td>
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<td>YES / NO</td>
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</table>

WARNING: RECREATIONAL SITES ARE INHERENTLY DANGEROUS PLACES. A PERSON CAN BE INJURED OR EVEN KILLED WHILE AT A RECREATIONAL SITE.

The effect of your execution of this document will prevent you, your heirs, assigns, personal representative(s), next of kin, guardian(s) and legal representative(s) ("releasor(s)"), from making any claims against the Sacramento Municipal Utility District ("SMUD"), its directors, officers, representatives, agents and employees of ("releasees") arising out of, in consequence of, or in any manner relating to your presence at or near entry upon the Rancho Seco Park located at: 14960 Twin Cities Road, Herald CA ("premises") during the period of: May 4-5, 2018.

RELEASE, WAIVER AND INDEMNITY: In consideration of being permitted to enter the Premises, I, on behalf of myself, heirs, assigns, personal representatives, next of kin, guardians and legal representatives hereby:

1. Release, Waive, Discharge, and Covenant Not to Sue the Releases for all claims, loss, damage, expense and liability on account of any injury, including death, arising from the negligence or other acts or omissions, howsoever caused, arising out of, in consequence of or in connection with my presence at or near, or entry upon the Premises.

2. Agree to Indemnify, Defend, Protect and Hold Harmless the Releases from all claims, loss, damage, expense and liability they may incur arising from any claim brought by myself, on my behalf, or by my heirs, assigns, personal representatives, next of kin, guardians or legal representatives and excepting only such loss to the extent it directly results from the sole negligence or willful misconduct of Releases.

ACKNOWLEDGEMENT OF RISKS: I understand and am aware that being at or near the Premises and the engagement in activities on the Premises poses risks of injury or death. The possible risks include, but are not limited to:

1. Injuries arising from slipping, falling, tripping or drowning;
2. Injuries arising from supervision or instruction, negligent or otherwise; or
3. Being struck by, colliding with, or injured by falling objects, other participants or vehicles, equipment, materials, supplies or structures.

GENERAL TERMS AND CONDITIONS

1. The partial or complete invalidity of any one or more provisions of this Release of Liability and Indemnity Agreement shall not affect the validity or continuing force and effect of any other provision.

2. This Release of Liability and Indemnity Agreement is intended to be as broad and inclusive as permitted by the laws of the State of California.

3. No oral representations, statements or inducements apart from the foregoing written agreement have been made.
SMUD Personal Waiver of Liability - continued

This Release of Liability and Indemnity Agreement extends to and includes any and all claims, liabilities, injuries, damages and causes of action that the parties do not presently anticipate, know, or suspect to exist, but that may develop, accrue or be discovered in the future.

**RELEASOR EXPRESSLY WAIVES ALL RIGHTS UNDER CALIFORNIA CIVIL CODE SECTION 1542, WHICH PROVIDES:**

“A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her must have materially affected his or her settlement with the debtor.”

**KNOWING AND VOLUNTARY EXECUTION:** I have carefully read this Release of Liability and Indemnity Agreement and fully understand its contents. I understand that by signing this document I am waiving valuable legal rights and agree to be bound to the terms and conditions set forth above.

**IF YOU ARE OVER 18, you may sign, otherwise please have your guardian complete the Consent and Release.**

Signed: ____________________________ Dated: ____________________________

Print Name: ____________________________

School and Team Name: ____________________________

**Parent’s Consent and Release for Minor:**

I certify that I am the parent/legal guardian of this minor who is under the age of 18, and I acknowledge that I have read this Agreement and fully understand its contents. I understand that by signing this document I am waiving valuable legal rights of this minor, and agree to be bound fully by the terms and conditions set forth above.

Signature of Parent or Guardian: ____________________________

Relationship: ____________________________ Date: ____________________________
Media Release Form

Are you over 18? (YES) (NO)

Event and Location of Photo/Video or Audio Recording:
7th Annual California Solar Regatta in Rancho Seco Recreational Area

Event Date: May 4-5, 2018    Photographer/Videographer: ________________________________

Address/Phone Number: ________________________________

I, the undersigned, do hereby consent to the use and give the Sacramento Municipal Utility District (SMUD) permission to record my image and/or voice and grant SMUD all rights to use these sounds, still or moving images in any media whatsoever for promotional, advertising, or other purposes of the Sacramento Municipal Utility District.

I agree that all rights to the sound, still or moving images, and any and all plates, negatives, recording tape, memory and/or digital files belong to SMUD.

I waive all claims to compensation or damages based on the use of my image or voice, or both, by Sacramento Municipal Utility District. I acknowledge I am participating on a voluntary basis and have not been promised, nor do I expect, any compensation for my participation.

I also waive the right to inspect or approve any finished photograph or video or audio recording.

I understand that this consent is perpetual, that I may not revoke it, and that it is binding on me, my heirs and assigns.

I am 18 years of age or older and I am competent to contract in my own name or I am the parent and/or legal guardian of the minor person named below.

I have read this consent form before signing below, and I fully understand the contents, meaning and impact of this consent form.

Participant’s Name (please print): ____________________________________________

Signature: ________________________________ Date: ____________________________

Phone: ________________________________

Address: ____________________________________________

If the participant is under 18 years of age, a parent or legal guardian must sign below agreeing to and acknowledging the terms stated above on behalf of the participant.

Parent/Guardian Name (please print): __________________________________________

Signature: ________________________________ Date: ____________________________

Address (if different): ____________________________________________

Phone (if different): ____________________________________________
# Form W-9 Request for Taxpayer Identification Number and Certification

## Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on the “Name” line to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see How to get a TIN on page 3.

### Note
If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

## Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below), and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

**Certification instructions.** You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

### Exemptions (see instructions):
- Exempt payee code (if any)
- Exemption from FATCA reporting code (if any)

### Social security number

- - - -

### Employer identification number

- - - - - - -

### Signature of U.S. person

### Date

## General Instructions

### Section references are to the Internal Revenue Code unless otherwise noted.

#### Future developments.** The IRS has created a page on IRS.gov for information about Form W-9, at www.irs.gov/w9. Information about any future developments affecting Form W-9 (such as legislation enacted after we release it) will be posted on that page.

#### Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, payments made to you in settlement of payment card and third party network transactions, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners’ share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct.

### Note
If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester’s form if it is substantially similar to this Form W-9.

#### Definition of a U.S. person.

For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

#### Special rules for partnerships.

Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners’ share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.
Appendix D

MSX-60 and MSX-64 Photovoltaic Modules

The MSX-64 and -60 are among the most powerful of Solarex's Megamodule™ series, a product line which is the culmination of nearly three decades of extensive research in polycrystalline silicon photovoltaics. With over 3 amperes of current at peak power, these modules offer the most cost-effective package in the industry, and charge batteries efficiently in virtually any climate.

These modules may be used in single-module arrays or deployed in multiple-module arrays, wired in series/parallel combinations as required to meet current and voltage requirements. They are engineered under Solarex's IntegraSystem™ system integration concept, which ensures full compatibility with other Solarex subsystems and components (support hardware, regulators, etc.) and easy system assembly. As single-module arrays, they may be mounted on a variety of surfaces using optional kits or by means of user-fabricated support hardware. Solarex also offers hardware for supporting multiple-module arrays.

These modules are well-suited for virtually all applications where photovoltaics are a feasible energy source, including telecommunications systems, pumping and irrigation, cathodic protection, remote villages and clinics, and aids to navigation.

Individually Tested, Labeled and Warranted
As part of the final inspection procedure, every MSX module is tested in a solar simulator and labeled with its actual output—voltage, current, and power at maximum power point ($P_{max}$)—at Standard Test Conditions and Standard Operating Conditions. Furthermore, the MSX-64 and -60 are covered by our industry-leading limited warranty, which guarantees:

- that no module will generate less than its guaranteed minimum $P_{max}$ when purchased;
- at least 80% of the guaranteed minimum $P_{max}$ for twenty years.

Contact Solarex's Marketing Department for full terms and limitations of this unparalleled warranty.

Reliable and Versatile
The Megamodule series has proved its reliability at thousands of installations in every climate on Earth. Among the features that contribute to its versatility:

Dual Voltage Capability
These modules consist of 36 polycrystalline silicon solar cells electrically configured as two series strings of 18 cells each. The strings terminate in the junction box on the module back. Shipped in 12V configuration, modules may easily be switched to 6V configuration in the field by moving leads in the junction box. This design also allows installation of bypass diodes on 18-cell strings, which can improve reliability and performance in systems with nominal voltage 24V and above.

High-Capacity Multifunction Junction Box
The size of the junction box (25 cubic inches, 411cc) and its six-terminal connection block allow most system array connections to be made right in the J-box. The box also can accommodate bypass or blocking diodes or a small regulator, which can save the expense and labor of additional boxes. The box is raintight (IP54 rated) and accepts 1/2" nominal or PG13.5 conduit or cable fittings. The standard terminals accept wire as large as AWG #10 (6mm²); an optional terminal block accepts wire up to AWG #4 (25mm²).

Proven Materials and Construction
Megamodule materials reflect Solarex's quarter-century of experience with solar modules and systems installed in virtually every climate on Earth.

- Polycrystalline silicon solar cells: efficient, attractive, stable.
- Modules are rugged and weatherproof: cell strings are laminated between sheets of ethylene vinyl acetate (EVA) and tempered glass with a durable Tedlar backsheet.
- Tempered glass superstrate is highly light-transmissive (low iron content), stable, and impact-resistant.
- Corrosion-resistant, bronze-anodized extruded aluminum frame is strong, attractive, compatible with Solarex mounting hardware and most other mounting structures.

Options
- Blocking and bypass diodes
- Solarstate™ charge regulator
- Protective aluminum backplate

More than 20 years ago, Solarex made the first polycrystalline silicon solar cell, advancing photovoltaics beyond the first-generation monocrystalline technology developed for electronics. Developed specifically for photovoltaics, polycrystalline silicon is used in Solarex's Mega™ series to provide a wide range of attractive, efficient modules. They require substantially less energy to manufacture and generate substantially more energy per rated watt than other crystalline silicon modules.
Appendix E

www.jinkosolar.com

JKM250P-60 POLY CRYSTALLINE MODULE 230-250 Watt

Jinko Solar introduces a brand-new line of high-performance modules in wide application.

KEY FEATURES

- High module conversion efficiency (up to 15.27%), through superior manufacturing technology
- Anti-reflective coating improves light absorption and reduces surface dust
- Excellent performance in low-light irradiance environment
- Entire module certified to withstand high wind loads (2400 Pascal) and snow loads (5400 Pascal)
- High salt mist and ammonia resistance

QUALITY & SAFETY

- Positive power tolerance of -0/+3% *
- 10 year warranty on material & workmanship *
- Industry leading power output warranty (12 years/90%, 25 years/80%)
- Premium linear performance warranty *

Premium Performance Warranty

* Based on customer requirements and contract terms

IEC61215, IEC61730 certified products

APPLICATIONS

On-grid residential roof-tops
On-grid commercial industrial rooftop
Solar power plants
Off-grid systems
### Engineering Drawings

![Engineering Drawings Diagram](image)

### Electrical Performance & Temperature Dependence

- **Current-Voltage & Power-Voltage Curves (240W)**
- **Temperature Dependence of Iac, Voc, Pmax**

### Mechanical Characteristics
- **Cell Type**: Poly-crystalline 156x156mm (6 inch)
- **No.of cells**: 60 (6x10)
- **Dimensions**: 1650x992x45mm (64.97x39.06x1.77 inch)
- **Weight**: 19.0kg (41.9 lbs.)
- **Front Glass**: 3.2mm, High Transmission, Low Iron, Tempered Glass
- **Frame**: Anodized Aluminium Alloy
- **Junction Box**: IP65 Rated
- **Output Cables**: TÜV 1x4.0mm²/ UL 12AWG, Length:900mm

### Packaging Configuration
- (Two boxes=One pallet)
- 23 pcs/box, 46 pcs/pallet, 644 pcs/40HQ Container

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>JKM230P</th>
<th>JKM235P</th>
<th>JKM240P</th>
<th>JKM245P</th>
<th>JKM250P</th>
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<td>JKM235P</td>
<td>JKM240P</td>
<td>JKM245P</td>
<td>JKM250P</td>
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<td>Short-circuit Current (Isc)</td>
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<td>Power tolerance</td>
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**STC:** ☀ Irradiance 1000W/m²  ▪ Module Temperature 25°C  🌴 AM=1.5

*Power measurement tolerance: ± 3%*

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The company reserves the final right for explanation on any of the information presented hereby. EN-MKT -250P_v1.0_rev2012
Glossary

**Event**
- SMUD – Sacramento Municipal Utility District
- Regatta Cup – Award for winning the whole Regatta
- California Solar Regatta (CSR) – Official Name
- CSR – Acronym
- Cup Races – Endurance, Sprint, Slalom

**Staff**
- Event and Race Organizer – Suzette Bienvenue
- Race Sponsor – Brent Sloan
- Race Official – Any responsible official, on shore or on dock
- Race Captain – Responsible race official on shore.
- Race Starting Official – Responsible race official on dock
- Event Staff – SMUD employees and volunteers
- Regatta Safety Inspector – Responsible race official conducting safety check and battery inspection.
- Presentation Judges – Responsible race official for judging presentations
- Judges – Responsible race official for evaluating the additional awards and the supplemental awards.

**Location and Detail**
- Master Race Schedule – All races and presentation time schedule
- Individual Race Schedule – Individual race and presentation time schedule
- Safety Check and Battery Inspection – What all boats must complete to be able to compete
- Battery Inspection Tag – Tag placed on battery after Safety Check and Battery Inspection
- Identifying Boat Number – Laminated number to be secured on both sides of the front bow of the boat
- Boat Check in Area – Area in parking lot where Safety Check and Battery Inspections are conducted and team packets are handed out
- Schedule of Events – Daily time schedule listing all activities
- Event Map – Map showing locations of all activities and races
- SMUD Information Tent – General information and First Aid Tent
- Racing Official Tent – Race coordination and Official Time/Lap Recording Tent
- Safety Check-in – Boat must pass a thorough check for safety prior to event registration.
- Design review – To be eligible for Cup points, teams must be interviewed by judges on the design and technical detail of the boat.
- Pit area – The location where the boat will be inspected and repaired. This area is between the shoreline and the line marked by Solar Regatta flags.
Location and Detail  (continued)
• Presentation Area – Area where opening information is given, presentations are made, and awards are given
• Presentation Stage – Stage in presentation area
• Award Ceremony – Ceremony for race and presentation winners

Race Detail
• Boat Ramp – Ramp from shore into water to launch boats
• Mooring Location – Individual location on shore where boats are secured
• Mooring Area – Area along the shore where boats are secured
• Dock – Floating dock in lake where races start and finish
• Buoy – Obstacle in lake for boats to maneuver around
• Race Heat – There are two Race Heats for the Sprint Race, one in the morning and one in the afternoon

Participant
• Team Mentor – Adult or teacher responsible for underage team members
• Team Leader – Captain or leader of the boat team
• Team Member – Registered as part of the school team
• Attendee – Any registered student, mentor, or parent volunteer
• Pilot – Student piloting the boat (must have a boating Safety Certificate)
• Crew Member – Team member not piloting the boat
• Student Boat Engineer – Team member responsible for electrical and technical information about the team boat
• Spectators – Those not actively participating in the races or competition