Solar Development Guidelines and Permitting Recommendations for UC Berkeley Local Government Climate Change Policies Meeting

December 2011
RECURRENT ENERGY: BUSINESS OVERVIEW

- 2.4 GW project pipeline and 450 MW portfolio of signed contracts makes Recurrent Energy one of the largest PV developers in North America
- Primary solar development company for Sharp Corporation worldwide

Recurrent Energy has the resources, experience, technology, and access to capital to deliver utility solar at any scale.
## PPA & FIT PROJECT HIGHLIGHTS

### Operating Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Capacity</th>
<th>Tariff</th>
<th>COD Date</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish Rooftop</td>
<td>5 MWstc</td>
<td>FiT</td>
<td></td>
<td>Spanish feed-in tariff. Summer 2010 COD.</td>
</tr>
<tr>
<td>SFPUC/Sunset Reservoir</td>
<td>5 MWstc</td>
<td>PPA</td>
<td>Operating</td>
<td>25-year PPA with SFPUC. Fall 2010 COD.</td>
</tr>
<tr>
<td>Kaiser Permanente</td>
<td>15 MWstc</td>
<td>PPA</td>
<td>Operating/Final COD '11</td>
<td>Multiple projects spread across northern and southern CA.</td>
</tr>
</tbody>
</table>

### Contracted Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Capacity</th>
<th>Tariff</th>
<th>COD Date</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW Utility Solar Farms</td>
<td>22 MWstc</td>
<td>PPA</td>
<td>COD 2011-2012</td>
<td>Two projects, construction under way.</td>
</tr>
<tr>
<td>SCE</td>
<td>83 MWstc</td>
<td>PPA</td>
<td>COD 2012-2013</td>
<td>Projects spread across central/southern CA.</td>
</tr>
<tr>
<td>SMUD Solar Farms</td>
<td>88 MWstc</td>
<td>PPA</td>
<td>COD 2011-2012</td>
<td>Multiple projects in Sacramento, CA area.</td>
</tr>
<tr>
<td>PJM Rooftop</td>
<td>6 MWstc</td>
<td>Wholesale</td>
<td>COD 2011</td>
<td>Rooftop solar project in PJM service territory.</td>
</tr>
<tr>
<td>PG&amp;E</td>
<td>27 MWstc</td>
<td>PPA</td>
<td>COD 2012</td>
<td>Ground-mount solar PV in California.</td>
</tr>
<tr>
<td>CA Municipal</td>
<td>27 MWstc</td>
<td>PPA</td>
<td>COD 2012-2013</td>
<td>Ground-mount solar PV in California.</td>
</tr>
</tbody>
</table>

450+ MW Contracted, Operating, or in Construction
SOLAR DEVELOPMENT 101: ROOFTOP IS NOT A PANACEA

A Disappointing Reality – Rooftop PV Can’t Deliver the Necessary Impact
a. Insufficient – aggregated rooftop is still low share of solar penetration necessary in market
b. Difficult – finding viable rooftops is incredibly challenging
c. Expensive – rooftop PV does not have economies of scale like utility scale PV

Policy recommendation - Rooftops Are Important But Not a Critical Climate Policy

Table: Roof Viability Challenges

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>BINARY RISK</th>
<th>WHY IS THIS A CHALLENGE?</th>
<th>IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof Condition</td>
<td>Yes</td>
<td>Unknown roof condition on many sites; takes thorough structural analysis ($$) and time to evaluate</td>
<td>Bad roof condition may invalidate the sites</td>
</tr>
<tr>
<td>Title</td>
<td>Yes</td>
<td>Other minority interests, fund restrictions, and/or property covenants can terminate the transaction at the 11th hour</td>
<td>Potential Site loss</td>
</tr>
<tr>
<td>Owner Interest</td>
<td>Yes</td>
<td>Roof rent is low, tough to justify owner’s time spent on project and risk to building tenant</td>
<td>Significant time spent; owner walks away</td>
</tr>
<tr>
<td>Interconnection Costs</td>
<td>Yes</td>
<td>Commercial buildings clustered on single feeder limits the penetration of large rooftop solar</td>
<td>Large distribution upgrade cost may invalidate project</td>
</tr>
</tbody>
</table>

- **Recommendations for rooftop PV permitting**
  - Ministerial permit required, only building permit
  - Utilize SB 226
  - Reasonable fees and quick expedited processing
  - Tier 1-3 Guidance Document from CCPDA
SOLAR DEVELOPMENT 101: CRITERIA FOR THE PERFECT SITE

- Interconnection
- Solar Insolation
- No/low existing easements
- Land Economics
- Not in Floodplain
- Disturbed land
- No long gen-ties
- Physically impaired land
- No washes, streams, or drainage
- Flat topography
- No native plants or species
MARKET CONTEXT – FIERCE COMPETITION FOR 20MW PPA

Projects 20MW & Under in CAISO, PG&E, SCE, and SDG&E Interconnection Study Queues

Supply: 504 Projects
Demand: ~30 Projects
(1 out of 17)

*Based on Recurrent Energy Research and includes only solar projects
LOCAL GOVERNMENT POLICY RECOMMENDATIONS:

**WARNING:**

1. Predetermined “solar zones” can be flawed
   a. Grid capacity and distribution is extremely difficult to correctly determine and always changing
   b. Solar zones could create land rush, driving land prices, creating uncompetitive projects. County loses projects to neighbor
   c. Creates false hopes/wasted development efforts

2. Uncompetitive and unpredictable county policy will drive developers to neighboring counties

3. High permit fees and slow permitting process will also drive developers elsewhere
LOCAL GOVERNMENT POLICY RECOMMENDATIONS

SUGGESTIONS:

1. Local policy should designate preferred solar project **siting criteria**
   a. “Fast Track”: preferred criteria satisfied
   b. Case by case: preferred criteria not satisfied; merits of project presented to County in project application

2. Programmatic EIR
   a. Requires big effort in short term but streamlined process for long term
   b. Master EIR or MND to bundle projects is an alternative

3. Objective, predictable and consistent criteria are critical for business environment

4. Reasonable development impact fees and building permit fees

5. Guidance Document for Solar Energy Facilities
   a. CCPDA is presenting Guidance Document at Dec 9 meeting
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