Orange Button Data Standards for Solar Financing: Using common data formats and analysis tools to increase efficiency and reliability of PV deployment

Tom Tansy, Chairman, SunSpec Alliance
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Agenda

• Solar financing challenges today
• Orange Button program to improve efficiency and reduce cost
• XBRL financial data standard
• Orange Button taxonomy
• How to get involved
Standards
Data standards

Lower cost, increase accuracy, make data more timely
Solar Financing Standards

Simplify solar financing data to reduce costs and streamline processing.
Orange Button Coverage

Feasibility → Finance → Design & Construction → Operations

Portfolio Management → Securitization & Takeout Finance → Insurance & Surety → Construction Finance → Project Finance
United States:
- 8,000 Banks report to FDIC
- 6,000 Public companies report to the Securities and Exchange Commission (SEC)
- Mutual funds and credit rating agencies to the SEC

Outside the U.S.:
- Public companies: South Korea, Iran, Israel, China, Japan, Taiwan
- Private companies: UK, Spain, Denmark, South Korea, Italy, Belgium, Germany
- Banks: Peru, Panama, Chile
- Government: Netherlands, Australia
How data is collected and used in the United States

6,000 publicly traded companies submit financials to the SEC every quarter

Data providers:
S&P, Thomson Reuters, Morningstar, Bloomberg

The public
Investors
Business
Media

Securities and Exchange Commission
# Consolidated Balance Sheet Data:

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Cash and cash equivalents</td>
<td>$595,344</td>
<td>$504,383</td>
<td>$577,080</td>
<td>$160,080</td>
<td>$50,471</td>
</tr>
<tr>
<td>Total current assets</td>
<td>$902,138</td>
<td>$997,616</td>
<td>$783,924</td>
<td>$313,938</td>
<td>$241,522</td>
</tr>
<tr>
<td>Solar energy systems, leased and to be leased- net</td>
<td>$4,375,553</td>
<td>$2,796,796</td>
<td>$1,682,521</td>
<td>$984,121</td>
<td>$535,609</td>
</tr>
<tr>
<td>Total assets</td>
<td>$7,287,118</td>
<td>$4,551,219</td>
<td>$2,792,120</td>
<td>$1,335,592</td>
<td>$812,703</td>
</tr>
<tr>
<td>Total current liabilities</td>
<td>$1,193,362</td>
<td>$566,513</td>
<td>$338,029</td>
<td>$213,939</td>
<td>$246,886</td>
</tr>
<tr>
<td>Long-term debt, net of current portion</td>
<td>$1,066,595</td>
<td>$282,789</td>
<td>$231,504</td>
<td>$76,864</td>
<td>$14,111</td>
</tr>
<tr>
<td>Convertible senior notes, net of current portion</td>
<td>$894,560</td>
<td>$777,726</td>
<td>$222,827</td>
<td>$—</td>
<td>$—</td>
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<tr>
<td>Solar asset-backed notes, net of current portion</td>
<td>$395,667</td>
<td>$293,215</td>
<td>$46,824</td>
<td>$—</td>
<td>$—</td>
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<tr>
<td>Deferred revenue, net of current portion</td>
<td>$1,010,491</td>
<td>$557,408</td>
<td>$410,161</td>
<td>$204,396</td>
<td>$101,359</td>
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<tr>
<td>Financing obligation, net of current portion</td>
<td>$68,940</td>
<td>$73,379</td>
<td>$78,505</td>
<td>$140,639</td>
<td>$61,685</td>
</tr>
<tr>
<td>Other liabilities and deferred credits</td>
<td>$279,006</td>
<td>$211,024</td>
<td>$193,439</td>
<td>$114,006</td>
<td>$36,314</td>
</tr>
<tr>
<td>Redeemable noncontrolling interests in subsidiaries</td>
<td>$320,935</td>
<td>$186,788</td>
<td>$44,709</td>
<td>$12,827</td>
<td>$22,308</td>
</tr>
<tr>
<td>Convertible redeemable preferred stock</td>
<td>$—</td>
<td>$—</td>
<td>$—</td>
<td>$—</td>
<td>$125,722</td>
</tr>
<tr>
<td>Total stockholders’ equity (deficit)</td>
<td>$(366,680)</td>
<td>$(745,642)</td>
<td>$(617,598)</td>
<td>$(183,601)</td>
<td>$(37,662)</td>
</tr>
<tr>
<td>Noncontrolling interests in subsidiaries</td>
<td>$535,062</td>
<td>$406,942</td>
<td>$186,817</td>
<td>$96,793</td>
<td>$100,338</td>
</tr>
<tr>
<td>Entity</td>
<td>USD Units</td>
<td>Decimals</td>
<td>Period</td>
<td>2015</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------</td>
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<td></td>
</tr>
<tr>
<td>Solar City Corporation</td>
<td>USD 902,138</td>
<td>Thousands</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Field &amp; Agreed Upon Definitions</th>
</tr>
</thead>
</table>

Notes on the table:
- The table captures metadata needed to describe financial data.
- USD: United States Dollars
- Thousands: Thousands of USD
Applying standards in Orange Button

Project Finance

- EPC Agreement
- Continuity of Operations
- Project Schedule
- PPA Agreement
- Site Lease
- O&M Contract

Price
- Production Cap
- Production Guaranty
- Provider
- Default Provisions
- Effective date
- End of term provisions
- Name of off-taker
- Point of sale
- COD guaranty
- Curtailment provisions
- Term
- Termination date
- Amendment Execution Date
- Counterparty
- Escalator Clause
- Guaranteed output (kWh)
- Performance guaranty %
- Rate type
- Volume Cap
- Etc.
How to build effective standards

1. Establish a solid governance structure
2. Create a development plan
3. Identify stakeholders
4. Develop core content with subject matter experts and technical experts
5. Expose content to stakeholders
6. Test
7. Conduct public review
8. Incorporate revisions
9. Finalize and publish
10. Establish support and maintenance plan
Building the Orange Button Taxonomy

Solar data fields
IECRE, SunSpec, contributions from financial institutions

US GAAP Financial Reporting Taxonomy
15,000 data fields
Financial statements
Notes to the financial statements

Orange Button Taxonomy
Estimate 1,500 + data fields
Next steps

• Continue refining the taxonomy
• Need further review and input from solar finance experts
• Need more examples of reports
• Conduct public review

Why get involved?

• Incorporate your own process and data fields into the standard for solar financing
Questions?

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