SUNSPEC OPEN SOLAR DATA EXCHANGE

FINANCE

Technical Workgroup Call

August 22, 2016 10:30 AM PDT
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Agenda

– Orange Button Overview
– Describe oSDX Technical Workgroup Process, Roles, Enrollment and Schedule
– Outline Mission and Goals of the Workgroup
– Workgroup Topic Areas with Definitions
– Workgroup Starting Priority with Relevant Standards & Documents
– Next Steps/Homework
Standards For Solar Bankability

Convene
• Document requirements to meet industry needs
• Manage Stakeholder Engagement
• Strategy

Integrate
• User-friendly software tools and capabilities
• Data Translation and Exchange

Define
• Data Taxonomy
• APIs
• Testing/Interoperability

ORANGE BUTTON INITIATIVE
## SGIP and SunSpec Working Groups

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<th>Feasibility</th>
<th>Finance</th>
<th>Design</th>
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SunSpec Technical Workgroup Roles

- **TWG Chair**
  - Runs calls, records issues, assigns tasks, writes agendas, compile contributions, master of the specification
  - Michelle Savage (michelle.savage@xbrl.us)

- **Co-Chair**
  - Assist Chair
  - Sam Adeyemo (sadeyemo@aurorasolar.com)

- **Authors/Contributors**
  - Write sections of specifications

- **Reviewers**
  - Attend calls, comment on workgroup deliverables

- **SunSpec**
  - Coach Chair & Co-Chair, host and compile documents, manage participants, outreach, record meeting notes and attendance during calls
SunSpec TWG Enrollment

• Participants must have a completed IP Agreement
  ○ [http://sunspec.org/participate-sunspec-osdx-program/](http://sunspec.org/participate-sunspec-osdx-program/)

• Or be a member of SunSpec Alliance

• Forward enrollment questions to [osdx@sunspec.org](mailto:osdx@sunspec.org) OR send to above link
SunSpec Tools

• Teamwork
  o Repository for working documents
  o Accessible by formally enrolled participants
    – SunSpec manages access

• SunSpec Website
  o Workgroup specific pages
  o Links to Teamwork
  o Host content ready for public consumption

• Microsoft Word, Excel, PDF
SunSpec TWG Schedule

• (Updated)
• Operations - Monday, August 22 @ 9:00 am PT
  o https://global.gotomeeting.com/join/690132277
• Project Feasibility - Monday, August 22 @ 1:00 pm PT
  o https://global.gotomeeting.com/join/771605509
• Finance - Monday, August 22 @ 10:30 am PT
  o https://global.gotomeeting.com/join/257567365
• Design - Tuesday, August 23 @ 10:00 am PT
  o https://global.gotomeeting.com/join/126583301
• Construction - Tuesday, August 23 @ 11:30 am PT
  o https://global.gotomeeting.com/join/383550005
Finance TWG Mission

Draft to be discussed

• Improve business reporting in solar financing by using standards to establish processes that reduce costs, and that increase efficiency and timeliness through automation and improved quality assurance standards.

• Data standards developed should:
  “...wring out inefficiencies in the manner solar assets are developed, financed, managed and transferred for long-term financial performance in order to reduce transaction costs, improve visibility into financial performance, facilitate lower-cost compliance and fraud reduction, improve risk assessment, and open the availability and lower the cost of investment capital.”

Source: Orange Button Finance Requirements Working Group Charter
Finance TWG Goals

- Establish consistent, unambiguous, agreed-upon information model (meaning and associated metadata) standards for solar financing
- Make solar financing data machine-readable
- Leverage existing financial standards
TWG Major Milestones

• Review MRD and perform standards evaluation and GAP analysis  
  o Initial review by November 1, 2016
• Develop Product Requirements Document (PRD)  
  o Initial draft by December 1, 2016
• Develop data standards and technical drafts  
  o Initial drafts by January 1, 2017
• Develop API’s and compliance test framework  
  o Initial release by February 1, 2017
• Iterative process running through November 2017  
  o Work in close coordination with SWG while MRD is being developed  
  o Address as many use cases from MRD as is feasible
Finance TWG Topics & Definitions

- **Project Finance**
  - Definition: Project finance is the financing of long-term infrastructure, industrial projects, and public services based upon a non-recourse or limited recourse financial structure, in which project debt and equity used to finance the project are paid back from the cash flow generated by the project.

- **NEW - Portfolio Finance**
  - Definition: Financing a group of projects.

- **Portfolio Management**
  - Definition: The process of making decisions about investment mix and policy, matching investments to objectives, asset allocation for individuals and institutions, and balancing risk against performance.

- **Insurance**
  - Definition: What does this encompass and how does it affect bankability

- **Surety**
  - Definition: Surety is the guarantee of the debts of one party by another. A surety is the organization or person that assumes the responsibility of paying the debt in case the debtor policy defaults or is unable to make the payments. The party that guarantees the debt is referred to as the surety, or as the guarantor.

- **Underwriting**
  - Definition: What does this encompass and how does it affect bankability (FEEDBACK)

- **Construction Finance (FEEDBACK)**
  - Definition: Methods of financing construction projects.

- **NEW – Securitization (FEEDBACK)**
- **NEW - Project M&A**
- **NEW - Physical O&M**

**WHAT IS THE ORDER OF PRIORITY FOR THE WG = WHAT COMES FIRST**
• Products
  o Project finance
  o Construction finance
  o Portfolio finance
  o Securitization/take-out financing ??
  o Surety
  o Insurance

(asset management and underwriting are actions taken in support of the above products)
• Defined: Project finance is the financing of long-term infrastructure, industrial projects and public services based (potentially change highlighted section) upon a non-recourse or limited recourse financial structure, in which project debt and equity used to finance the project are paid back from the cash flow (and tax equity benefits) generated by the project. Should include ongoing monitoring of portfolio assets and the administering of those assets.

• Relevant Standards
• Relevant Documents
  o SWG Generated Scoping Study Document
• Questions to be answered
  o Q1
  o Q2
  o Q3
Portfolio Finance

• Defined: Financing multiple projects.

• Relevant Standards

• Relevant Documents
  o SWG Generated Scoping Study Document

• Questions to be answered
  o Q1
  o Q2
  o Q3
Portfolio Management

• Defined: The process of making decisions about investment mix and policy, matching investments to objectives, asset allocation for individuals and institutions, and balancing risk against performance.

• Relevant Standards

• Relevant Documents
  o SWG Generated Scoping Study Document

• Questions to be answered
  o Q1
  o Q2
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Surety

- Defined: Surety is the guarantee of the debts of one party by another. A surety is the organization or person that assumes the responsibility of paying the debt in case the debtor policy defaults or is unable to make the payments. The party that guarantees the debt is referred to as the surety, or as the guarantor.

- Relevant Standards
- Relevant Documents
  - SWG Generated Scoping Study Document
- Questions to be answered
  - Q1
  - Q2
  - Q3
Insurance

- Defined: Insurance is a form of risk management to hedge against the risk of a contingent, uncertain, tangible or intangible loss (the “Loss”). An insurance transaction involves the insured having an insurable interest (e.g. asset ownership) and an insurance company covering the Loss. Under an insurance policy, the insured assumes payment of an insurance premium against the promise of the insurance company to compensate the insured in the event of a Loss. An insurance company is the organization or person that assumes the responsibility to partially or entirely cover a Loss in an insured event subject to (i) the terms and conditions of the respective insurance policy and (ii) local rules and regulations.

- Defined Types
  - General liability
  - Property risk
  - Environmental risk
  - Business interruption risk
  - Electronic / electric operation risk
  - **Power plant performance risk (e.g. performance warranties)**
  - Creditor default risk (e.g. accounts receivable PPA)
  - Political risks (e.g. changes in legislation)
  - Currency risks (e.g. US$ investment vs. local currency returns)
  - Etc.

- Relevant Documents
  - SWG Generated Scoping Study Document

- Questions to be answered
  - Q1
  - Q2
  - Q3
Underwriting

- Defined:
  - Securitization
  - Bonding

- Relevant Standards
- Relevant Documents
  - SWG Generated Scoping Study Document
- Questions to be answered
  - Q1
  - Q2
  - Q3
• Defined: methods of financing construction projects.

• Relevant Standards

• Relevant Documents
  o SWG Generated Scoping Study Document

• Questions to be answered
  o Q1
  o Q2
  o Q3
Next Steps/Homework

• Enroll in the workgroup and start collaborating [http://sunspec.org/participate-sunspec-osdx-program/](http://sunspec.org/participate-sunspec-osdx-program/)
• Review SWG generated Scoping Study document
• Review and compile further relevant data, documents and standards
• Consider the topics, propose other topics
• Consider the questions, propose other questions
• [Join one or more SGIP WGs](https://sunspec.org/participate-sunspec-osdx-program/) to help produce a complete and meaningful Market Requirements Document (MRD)
  o While the SGIP Finance WG is most pertinent to Finance Data, all SGIP WGs are important.
Key Slides From Last Call

Operations Technical Workgroup Call

August 15, 2016 10:00 AM PDT
International Standards, Best Practices, and Existing Taxonomies

- XBRL US GAAP Taxonomy
- XBRL US WIP Taxonomy
- Wells Fargo Solar Project Data Fields list
- Wells Fargo Solar Origination and PM Process diagrams