

Enterprise wide *pvl* Implementation

Prepared for PVPMC 2024
08 May 2024

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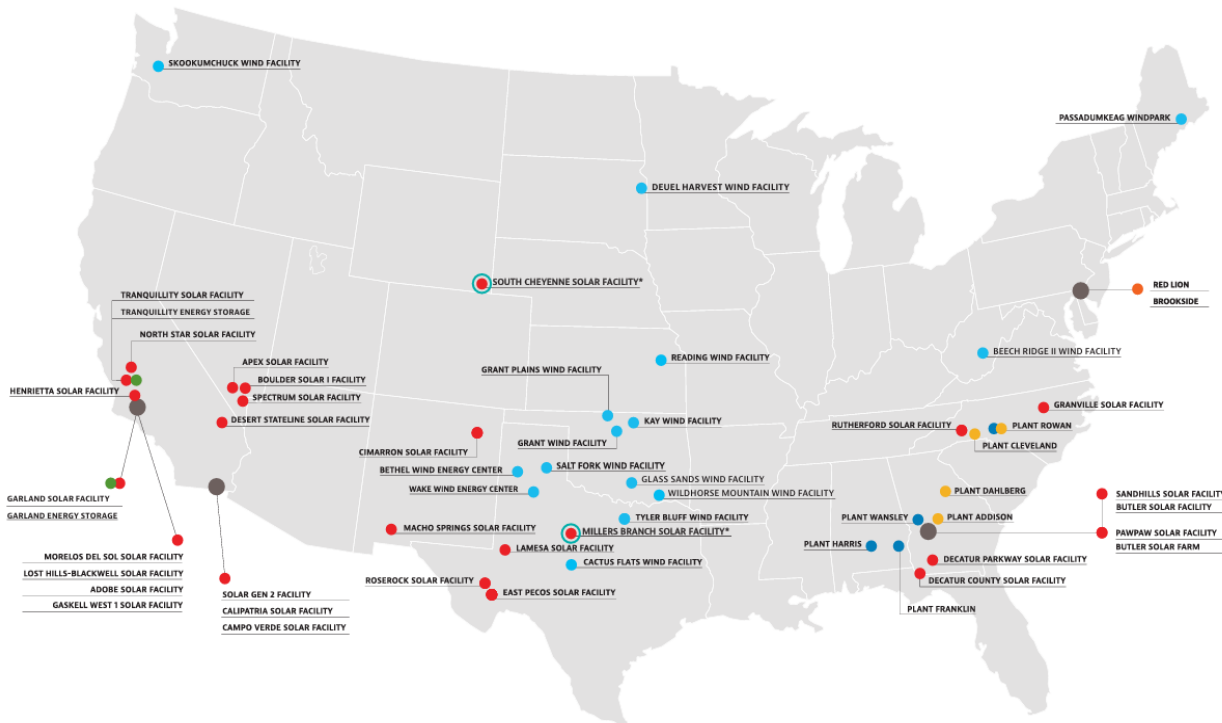
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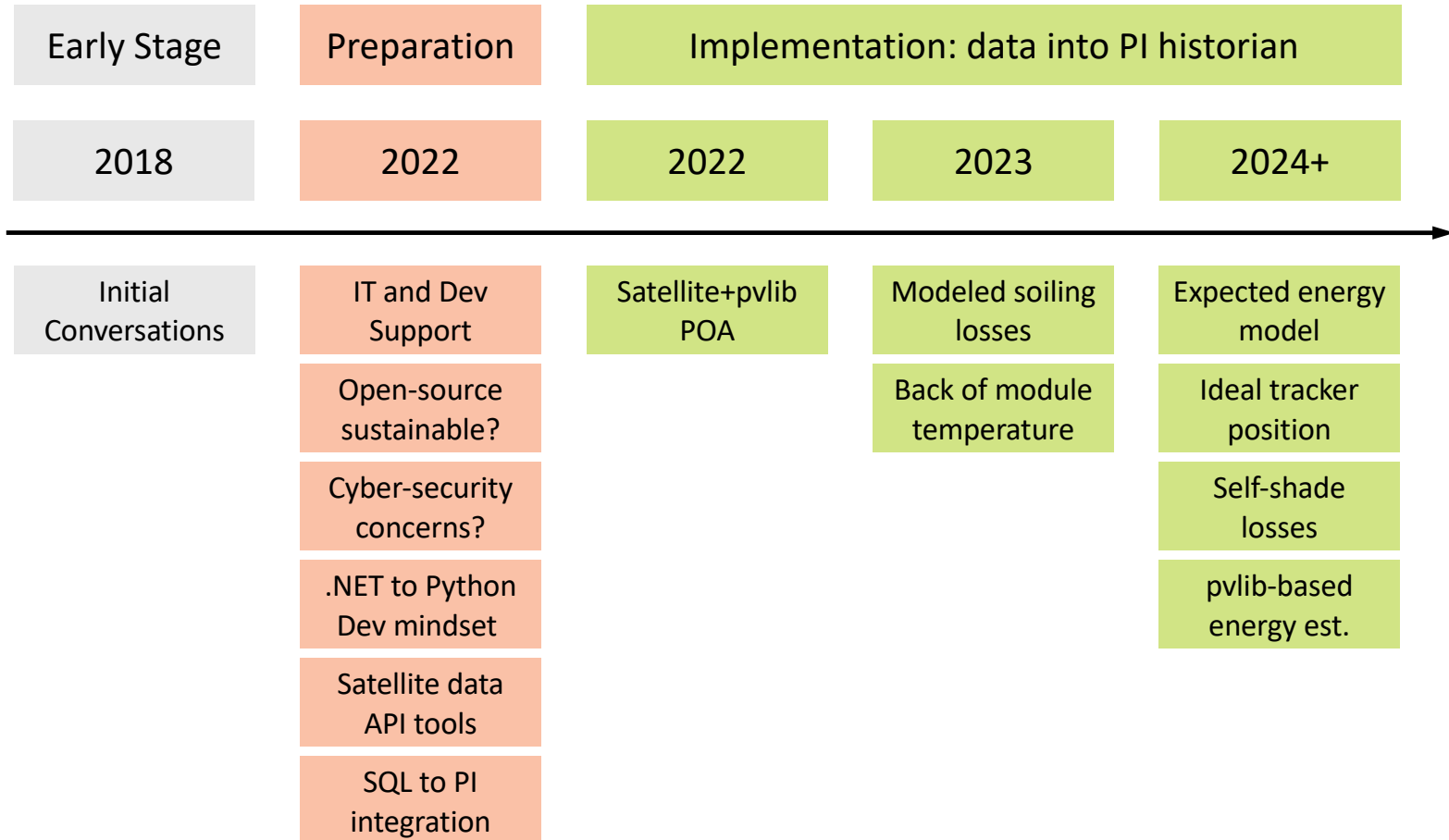
Intro to SPC and Team



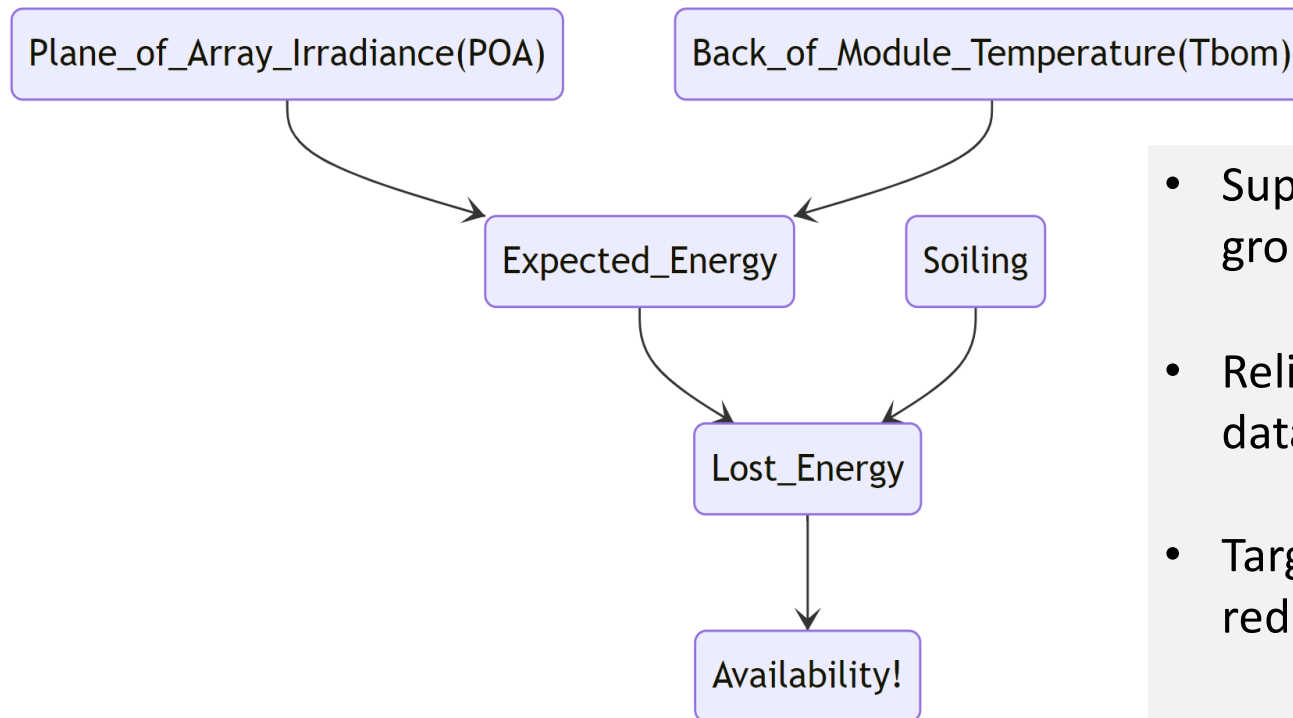
SPC Renewables Portfolio

- 33 Solar Facilities
 - 2550 MW
 - 1582 Inverters
 - 104 Weather Stations
- 15 Wind Facilities
 - 2530 MW
 - 1011 Turbines
 - 25 MET Towers
- 2 BESS Facilities
 - 160 MWh

SPC's *pvl*ib Expedition



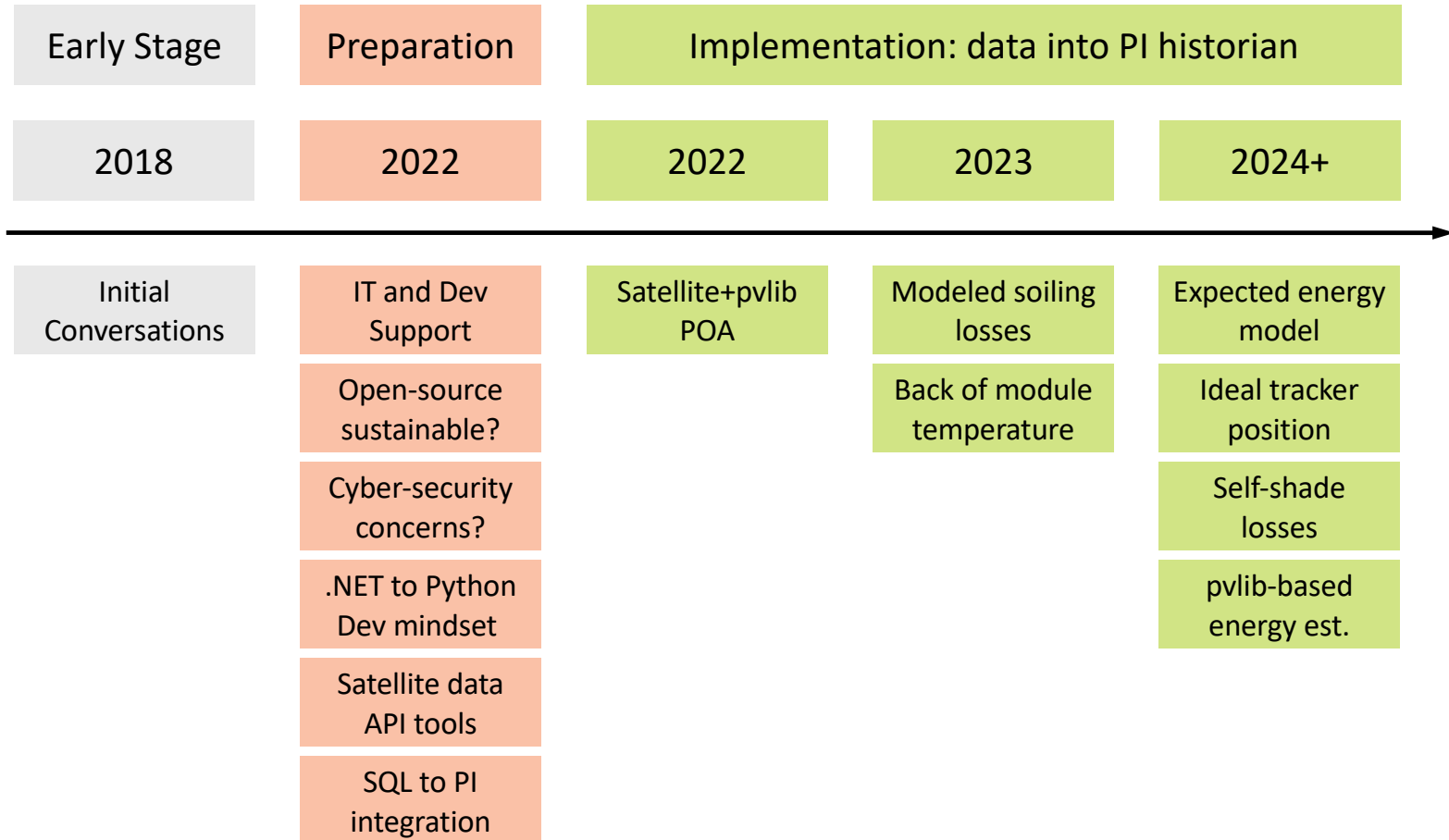
“WHY” these features



- Supplementing/Validating ground measurements
- Reliable secondary sources of data
- Targeted sensor maintenance, reduce uncertainty
- Higher Availability!

$$Availability = \frac{Generation}{Generation + Lost\ Energy}$$

SPC's *pvl*ib Expedition



Lessons Learned

- Ideas for others

- Plan ahead: we should have added Tbom, soiling, tracker position all at once
- Start conversation early, find open source "champions" in IT
- Have a plan for long-term support (open source helped reduce risk)
- Build a good plant metadata table

Room for Collaboration

- **How could pvlib community support this type of integration?**
 - More full workflow examples, tutorials, training sessions
 - » Including performance engineering examples (sensor drift detection, tracker clock drift, etc.)
 - Seamless new data sources/vendor integration to iotools
 - » iotools would have saved us about six months of time



Southern
Power

Utilized Code

POA

- `pvlib.irradiance.get_total_irradiance` & `pvlib.tracking.SingleAxisTracker.get_irradiance`
 - `pvlib.solarposition.get_solarposition`
 - `pvlib.irradiance.get_extra_radiation`
 - `pvlib.atmosphere.get_relative_airmass`
 - `pvlib.tracking.singleaxis`

Soiling

- `pvlib.soiling.hsu`
- `pvlib.soiling.kimber`

BOM Temp

- `pvlib.temperature.sapm_module`