

GIVING THE CUSTOMER A NEW WAY TO GO SOLAR

Samuel Molina Jr
May 5th, 2017




Tucson Electric Power
— 1892-2017 —
125 YEARS OF SERVICE

About **TEP**

- Started in 1892
- Provides service to 420K customers
- Owned by Fortis, Canada's largest investor-owned gas and electric utility holding
- Highly invested in the community
- Renewable Energy Portfolio consists of 540 MW:
 - 254 MW of Utility Scale Solar
 - 105 MW from Residential DG
 - 97 MW from Commercial DG
 - 80 MW from Utility Scale Wind
 - 4MW from Bio Gas



Renewables Department

- 2000 – Renewables Department was created only had a staff of four people
- 2006 - REST was issued
- 2009: 300+ applications for interconnections
- 2014 – Incentive programs were ended
- 2015 – 4,165 applications for interconnection
- 2017 – 10MW Battery Storage projects were deployed



The Problem

- ACC's Renewable Energy Standard and Tariff (REST)
 - Requires 4.5% of electric sales to come from renewable Distributed Generation (DG) by 2025
 - For TEP, this will be roughly 425,000,000 kWh annually
 - In 2016, TEP had ~90,974,875 kWh from DG, or ~\$8.3 million in lost annual sales
- Each 1MW of capacity represents about \$210,000 of lost sales
 - In 2016 TEP had over 27 MW of residential solar installs, and an additional 4 MW of commercial installations. We are on track to exceed these numbers in 2017.

By 2025, TEP would lose more than
\$30 million annually
in residential sales alone...

The Solution

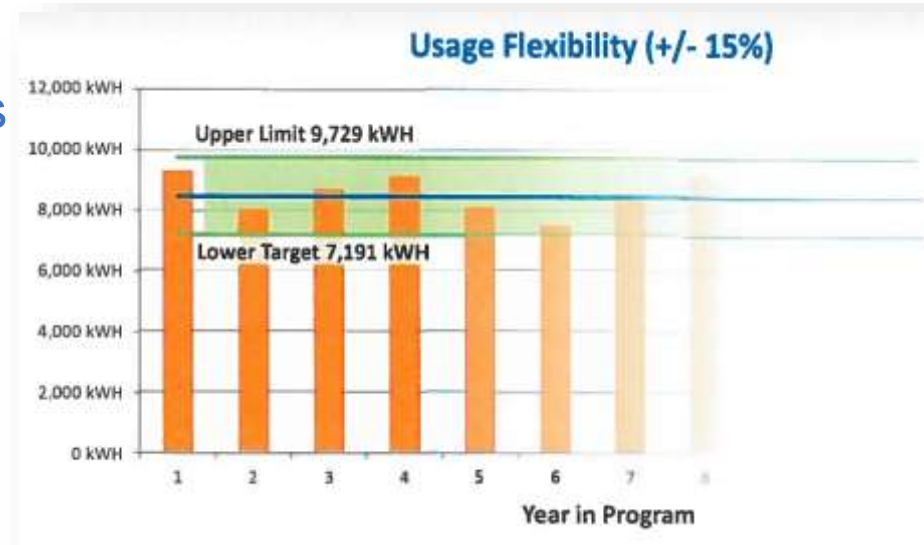
TEP Owned Residential Solar Program (T.O.R.S.)

- 2015 REST Plan – Approved December 18th, 2014
- Up to 600 homes in TEP service territory as pilot
 - Or up to \$10M
- ~3.5MW residential solar



The Value to the Customer

- TEP owns, operates, and maintains system Local solar installer support
 - design and install system
- TEP is a 125 year old, stable, reliable community partner
- Consumer protections afforded through Arizona Corporation Commission
- Fixed energy rate for up to 25 years
- No FICO credit score restrictions
- No large, out-of-pocket expense



The Value to the TEP

- Mitigation of lost revenue
- Reduce impact of cost-shift to non-solar customers
- Incorporated into distribution management system
- System connected to TEP grid on utility-side of meter
- Maintain visibility in community as leading energy provider
- Retention of customers
- The first step to changing rate design to non-volumetric approach

TORS Tariff

- Available to ALL TEP homeowners in good standing
- Based on previous 12 months total usage - creates a “price per installed kW” - \$16.50/month per kW
- Energy price fixed for up to 25 years, with adjuster at +/- 15%
- \$250 processing fee once system is complete
- Customer may exit program at no cost or penalty and have TEP remove the system if the ACC modifies the tariff

Example Bill 1

- Standard Rate - Less than average usage
- Previous 12 month total usage: **7,586 kWh**
- Previous 12 average monthly bill: **\$79.91**

DO NOT SEND PAYMENT. This bill is for your information only. Your Auto Pay designated account will be debited \$79.24 on 03/31/2015.

TUCSON, AZ 85745-1359										
R-10-Residential Solar - Company Owned Program (Service No.) 03/11/2015 to 04/08/2015										
Solar Fixed Rate										65.84 ← New Solar Fixed Rate
Renewable Energy Standard Tariff										3.19
DSM Surcharge - kWh 584.00 @ \$0.002311										1.35
ACC Assessment										0.15
RUCO Assessment										0.02
City Franchise Fee										1.58
State Sales Tax										4.11
Regional Transportation Authority Tax										0.36
City Sales Tax										1.41
City Public Utility Tax										1.23
TOTAL CURRENT CHARGES - Electric Service										79.24 ← Solar Rate + Taxes
With Rate R01, your Bill would have been:										47.69
Meter	Unit of Measure	Next Read Date	Current Read Date	Prior Read Date	Days	Current Reading	- Prior Reading	= Reading Difference	x Multiplier	= Usage
	KWH	5-07	4-08	3-10	29	71225	70914	311	1	311

- New solar R10 rate: **\$65.84**
- New total bill: **\$79.24**

Example Bill 2

- Standard Rate - Average usage
- Previous 12 month total usage: **11,414 kWh**
- Previous 12 average monthly bill: **\$117.50**

VAIL, AZ 85641-2558											
R-10-Residential Solar - Company Owned Program (Service No.) 03/17/2015 to 04/16/2015											
Solar Fixed Rate										99.17	← New Solar Fixed Rate
Renewable Energy Standard Tariff										3.19	
DSM Surcharge - kWh 951.00 @ \$0.002311										2.20	
ACC Assessment										0.20	
RUCO Assessment										0.03	
State Sales Tax										5.87	
Regional Transportation Authority Tax										0.52	
TOTAL CURRENT CHARGES - Electric Service										111.18	← Solar Rate + Taxes
With Rate R01, your Bill would have been:										66.73	
Meter	Unit of Measure	Next Read Date	Current Read Date	Prior Read Date	Days	Current Reading	- Prior Reading	= Reading Difference	x Multiplier	= Usage	
AMRS-339176	KWH	5-13	4-16	3-16	31	8250	7740	510	1	510	

- New solar R10 rate: **\$99.17**
- New total bill: **\$111.18**

Example Bill 3

- Standard Rate – Above average usage
- Previous 12 month total usage: **30,211 kWh**
- Previous 12 average monthly bill: **\$302.45**

TUCSON, AZ 85719-4363										
R-10-Residential Solar - Company Owned Program (Service No.) 06/27/2015 to 07/26/2015										
Solar Fixed Rate										262.35 ← New Solar Fixed Rate
Renewable Energy Standard Tariff										3.19
DSM Surcharge - kWh 2,324.00 @ \$0.002311										5.37
ACC Assessment										0.55
RUCO Assessment										0.09
City Franchise Fee										6.11
State Sales Tax										15.81
Regional Transportation Authority Tax										1.41
City Sales Tax										5.43
City Public Utility Tax										4.75
TOTAL CURRENT CHARGES - Electric Service										305.06 ← Solar Rate + Taxes
With Rate R01, your Bill would have been:										487.37
Meter	Unit of Measure	Next Read Date	Current Read Date	Prior Read Date	Days	Current Reading	- Prior Reading	= Reading Difference	x Multiplier	= Usage
	KWH	8-21	7-26	6-26	30	31742	28195	3547	1	3547

- New solar R10 rate: **\$262.35**
- New total bill: **\$305.06**

Example Bill 4

- Discounted Rate
- Previous 12 month total usage: **14,730 kWh**
- Previous 12 average monthly bill: **\$126.80**

TUCSON, AZ 85710-8639

R-10-Residential Solar - Company Owned Program (Service No.) 03/06/2015 to 04/03/2015

Solar Fixed Rate	127.88	
Renewable Energy Standard Tariff	3.19	← New Solar Fixed Rate
DSM Surcharge - kWh 1,228.00 @ \$0.002311	2.84	
ACC Assessment	0.27	
RUCO Assessment	0.04	
City Franchise Fee	3.02	
State Sales Tax	7.82	
Regional Transportation Authority Tax	0.70	
City Sales Tax	2.69	
City Public Utility Tax	2.34	

TOTAL CURRENT CHARGES - Electric Service 150.79 ← Solar Rate + Taxes
 With Rate R01, your Bill would have been: 87.66

Meter	Unit of Measure	Next Read Date	Current Read Date	Prior Read Date	Days	Current Reading	- Prior Reading	= Reading Difference	x Multiplier	= Usage
SK2-	KWH - ON	5-04	4-03	3-05	29	5455	5289	166	1	166
SK2-	KWH - OFF	5-04	4-03	3-05	29	18876	18388	488	1	488

- New solar R10 rate: **\$127.88**
- New total bill: **\$150.79**

TORS Timeline

- July 1, 2014 – REST Plan filed for 2015
- October, 2014 – Solar installer solicitation completed
- December 18th, 2014 – Approved by ACC
- February, 2015 – Selected Installers and Equipment Suppliers
- April 1, 2015 – Soft Roll out of 25 employees & interested parties
- July 1, 2015 – Program went “Live” with 300 spots available. Over 500 applications were received in less than 3 minutes
- November 30th, 2016 – program was closed to new applications

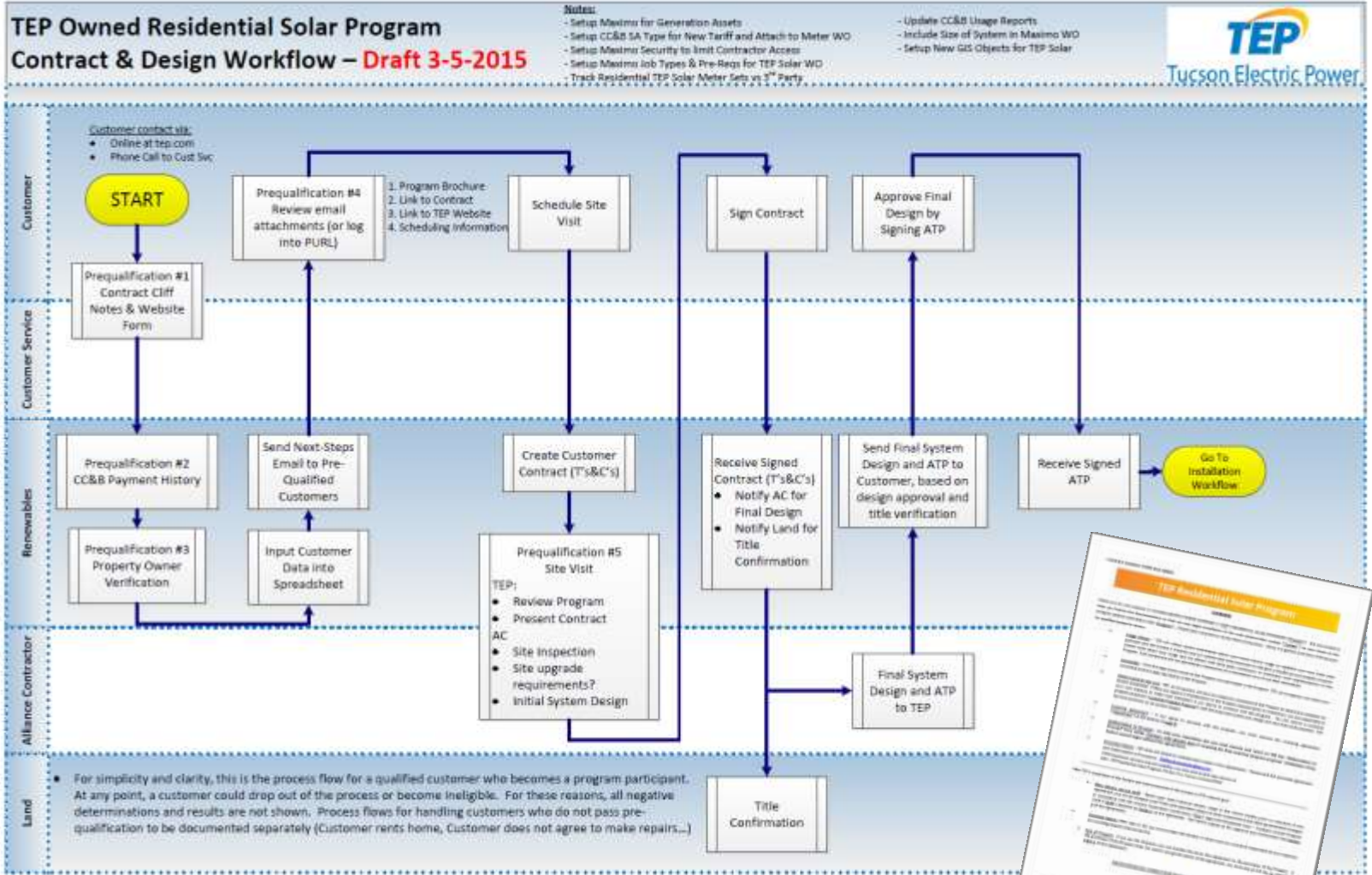
What We Learned?

- Some contractors over promised.
- Plan for all scenarios no matter how far off they may seem.
- Have multiple people trained on explaining bill changes
- Communicate as frequently as possible with your CSR group
- Understand you can't make everyone happy
- Kill them with kindness
- Estimated total cost of the program \$6.7M, \$2.26 per Watt
- 480 Total Contracts

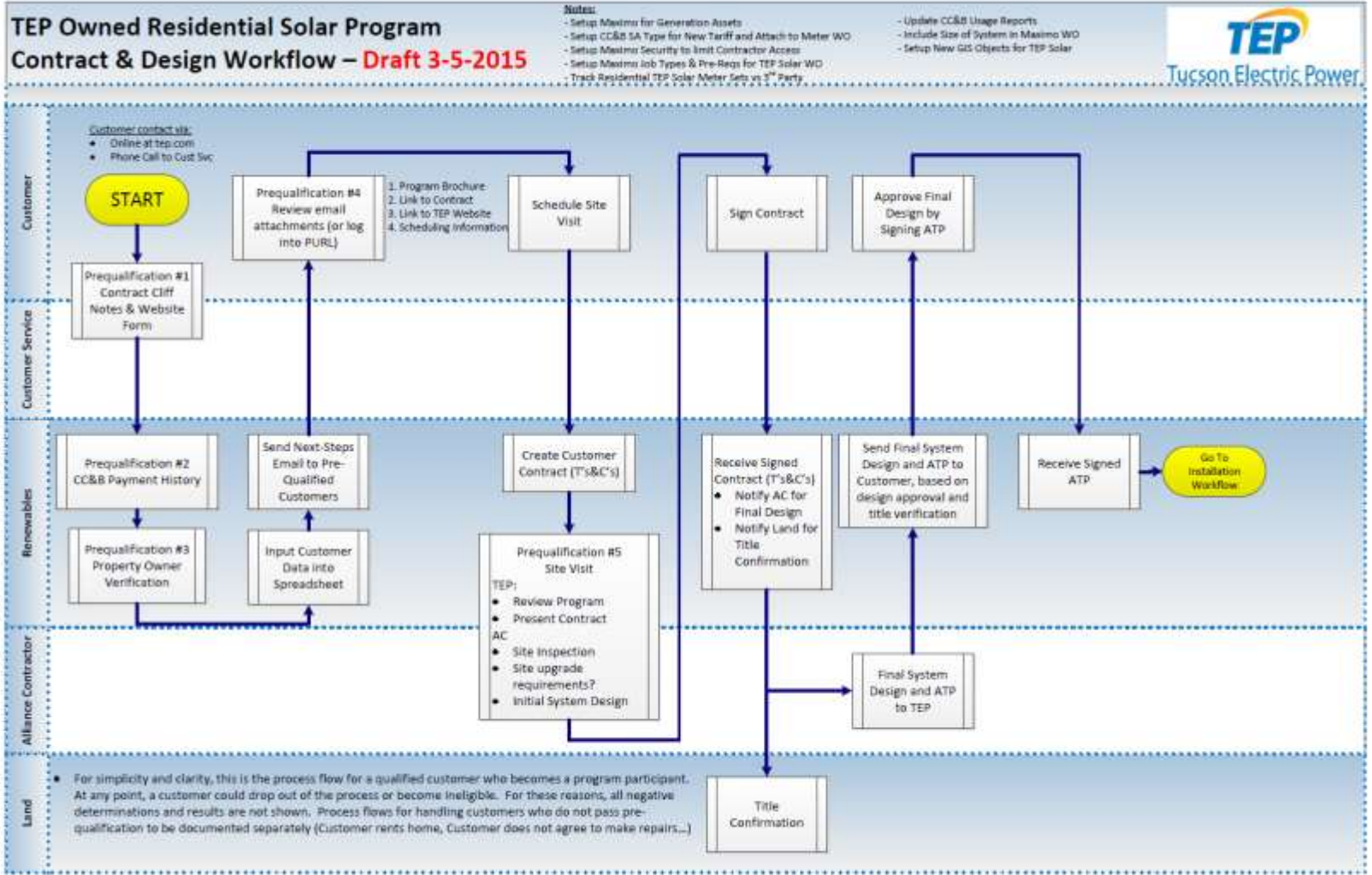
What's Next?

- Currently TORS still has 23 outstanding installations left
- TEP requested to expand the program to 1,500 homes in our 2016 REST Plan.
 - The Commission postponed any decision on TORS until TEP submits a technical review report
 - The Program is currently suspended
- TEP for now has no plans to request to expand the program until 2019, at the earliest.

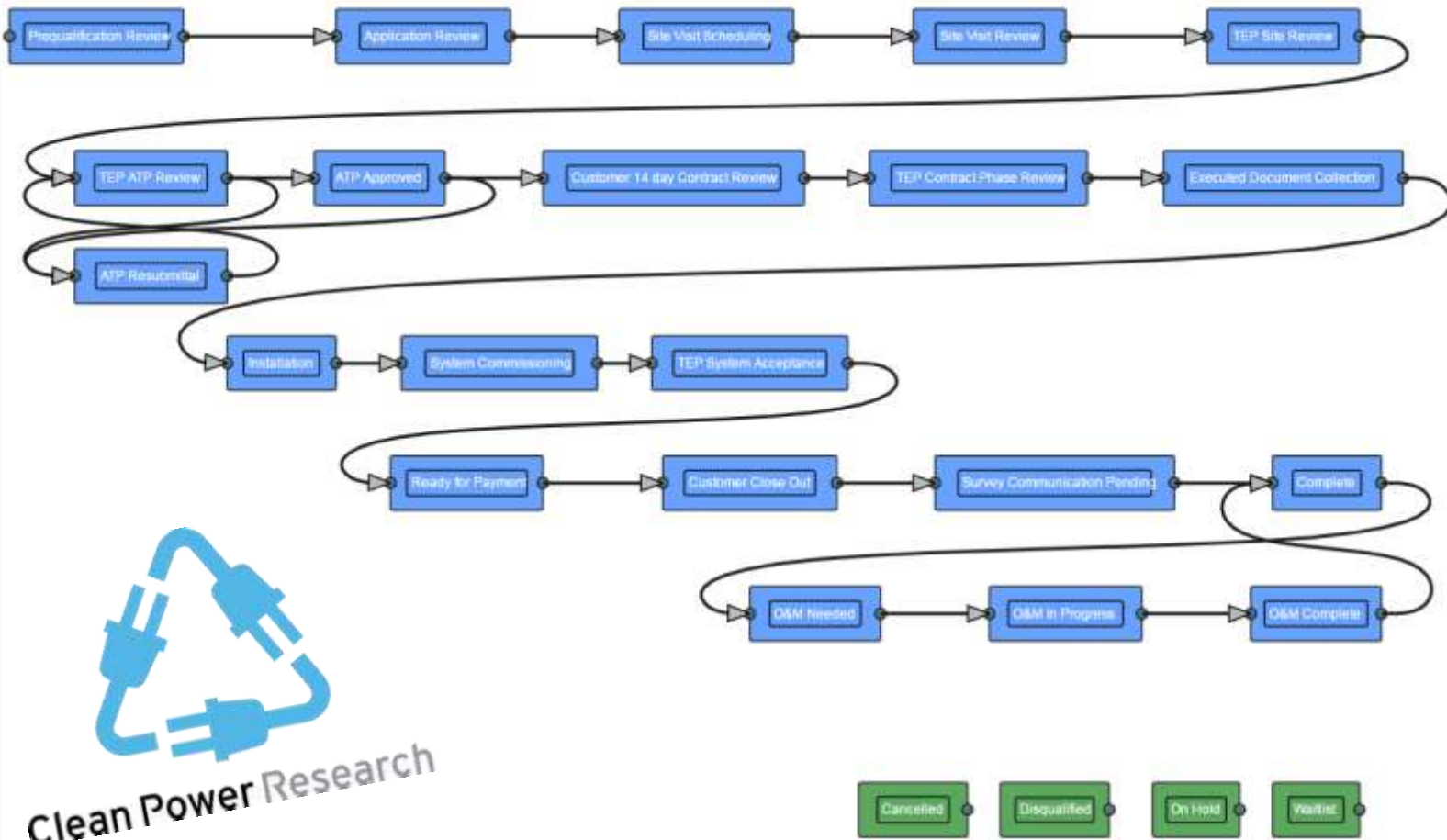
Contract Workflow



Installation Workflow



TORS PowerClerk Workflow



Clean Power Research



Thank You

