ASO Study Customer Update Meeting

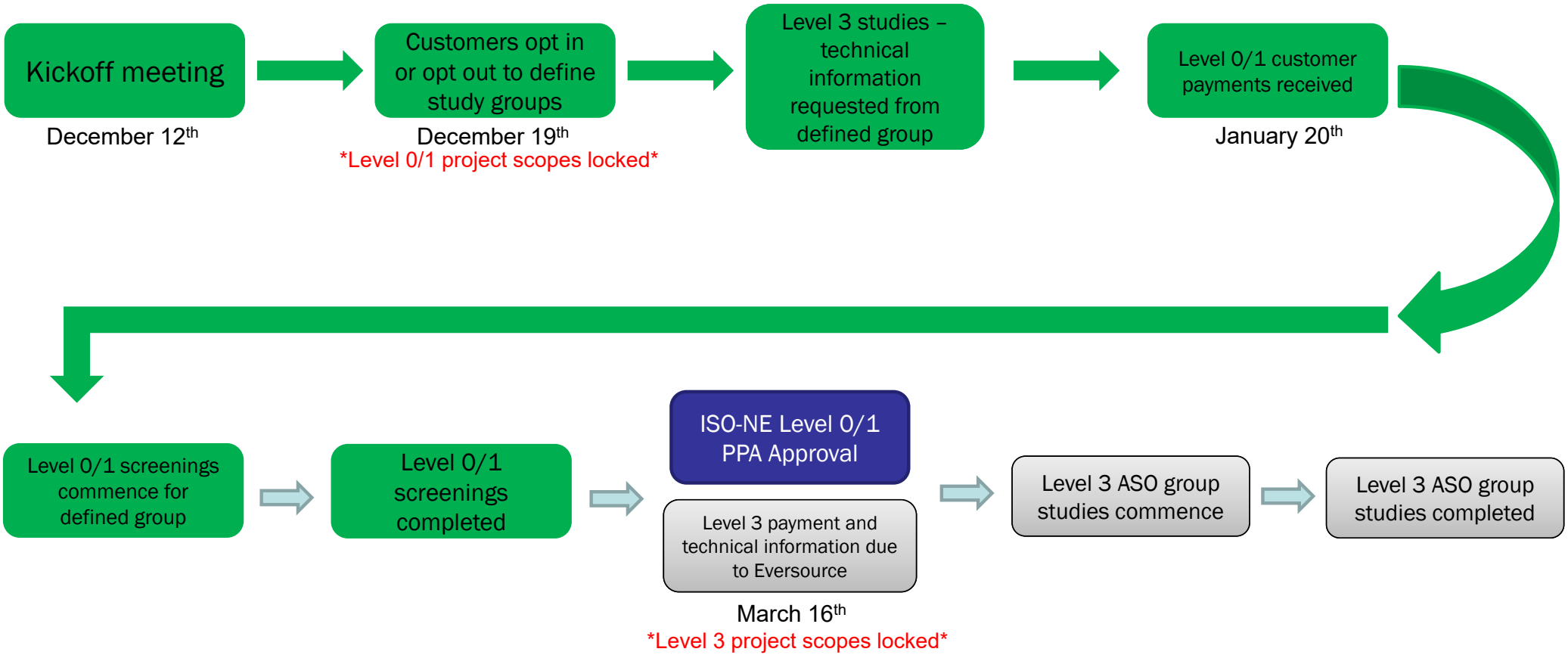
February 24, 2020

Westwood, MA

Agenda

- Eversource introductions
- Overall ASO study process update
- Post ISA projects update
- Level 0/1 results
- Level 3 update
- Feedback from ASO stakeholders
- Next steps
- Q&A

Update on Process & Key Dates



Post ISA Projects

- Varying statuses by individual project

- Level 0s

Eastern MA – 5	Western MA – 28
1 – approved	8 – approved
1 – to be approved in Feb RC	1 – approved in Jan RC, but has chosen to withdraw
1 – to be approved in April RC	5 – to be approved in Feb RC
2 – waiting on customer data	14 – to be approved in April RC

Post ISA Projects

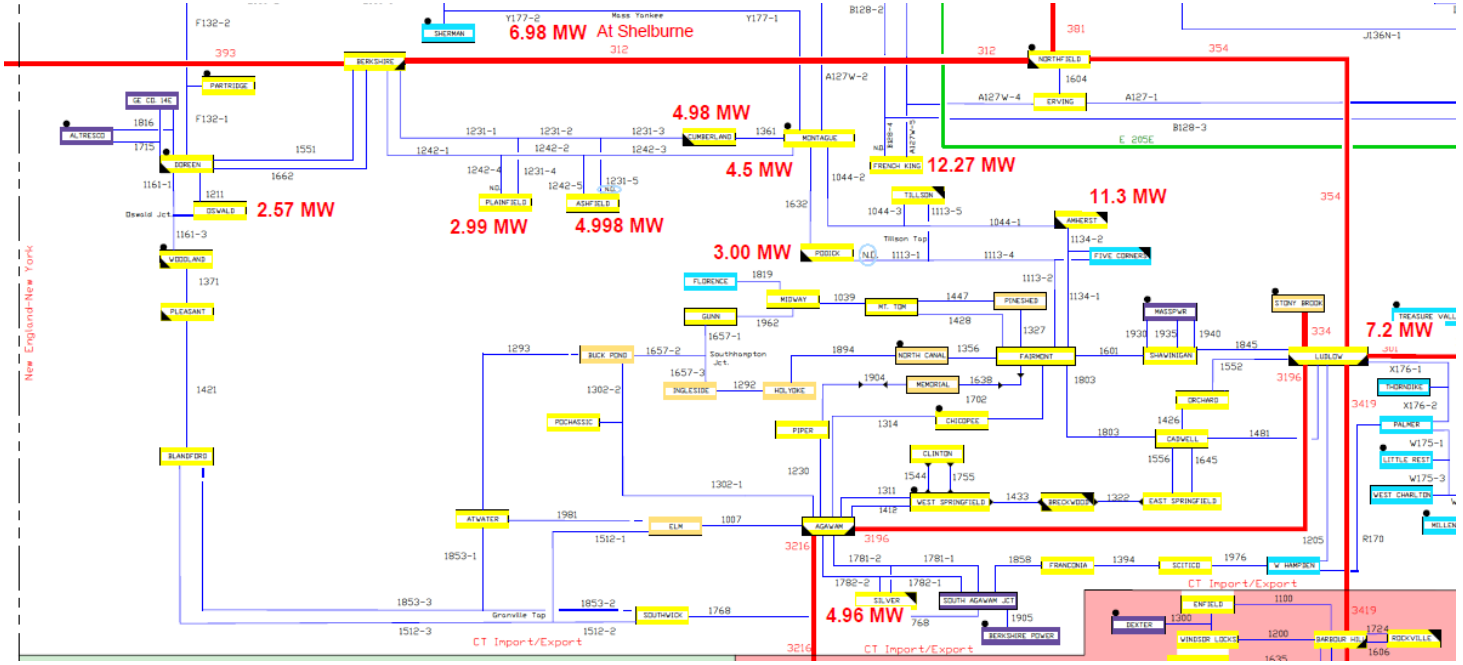
- Level 3s

Eastern MA – 24	Western MA – 1
3 – on March RC agenda	1 – withdrawn
21* – anticipating May RC agenda	

*4 projects at Wing Lane need correct models

Level 0/1 Screening Results – WMA

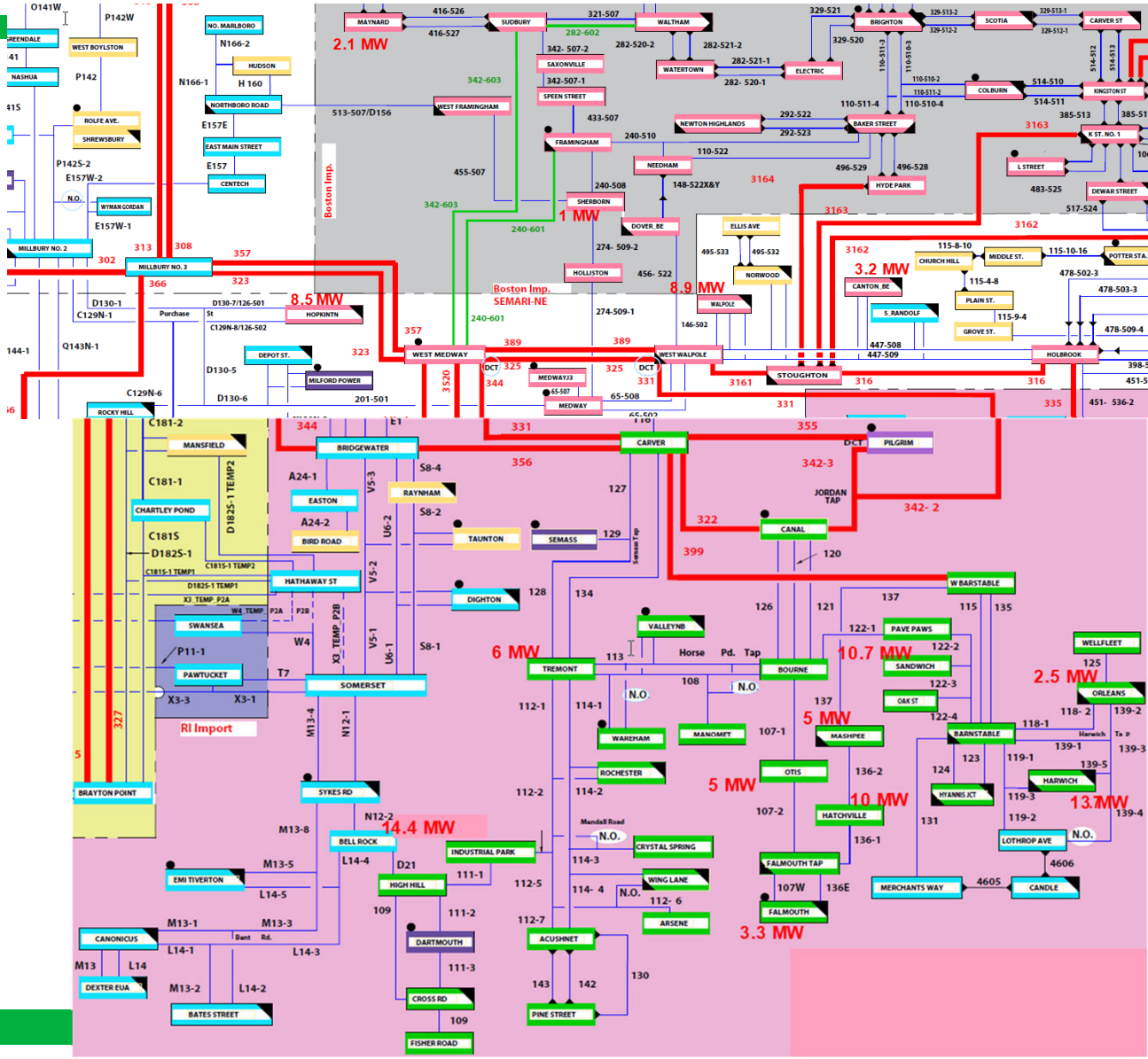
- 17 projects total of 65.8 MW
  - 15 projects totaling 58.6 MW in Pittsfield area
  - 2 projects total of 7.2 MW in Springfield area
- Transfer limit screening findings/results
  - Post contingent flow on a transmission line in the Pittsfield Area was slightly above 100% of rating, but did not exceed the threshold for significant adverse impact per ISO-NE definition*
  - No application will be move from Level 0/1 Transfer Screening to Level 3 studies
  - All projects in the Level 0/1 will secure their position in the ASO queue



*See definition of Significant Adverse Impact in ISO-NE's *Transmission Planning Technical Guide*: https://www.iso-ne.com/static-assets/documents/2017/03/transmission_planning_techincal_guide_rev6.pdf

Level 0/1 Screening Results – EMA

- 26 projects total of 94.2 MW
  - 4 projects total of 11.7 MW in Greater Boston
  - 8 projects total of 32.5 MW in Upper SEMA
  - 14 projects total of 50 MW in Cape
- Transfer limit screening findings/results
  - No transmission upgrades required
  - No applications will be moved from Level 0/1 Screening to Level 3 studies
  - All projects in the Level 0/1 will secure their position in the ASO queue



Level 0/1 Next Steps

- Level 0/1 PPAs to ISO-NE
  - Notification emails to customers last week for project size verification (prior to PPA submittal)
  - Awaiting customer responses
    - Response timeframe may impact ISO deadline for next agenda
- Submittal of PPAs to the RC by March 3rd
- RC review and approval on March 17th
- Distribution study completion
- ISA issuance

Level 3 Studies Update

- Level 3 studies
  - Conduct thermal and voltage steady state, transient, short circuit, stability analysis
  - Technical data requested from projects and is required to start studies

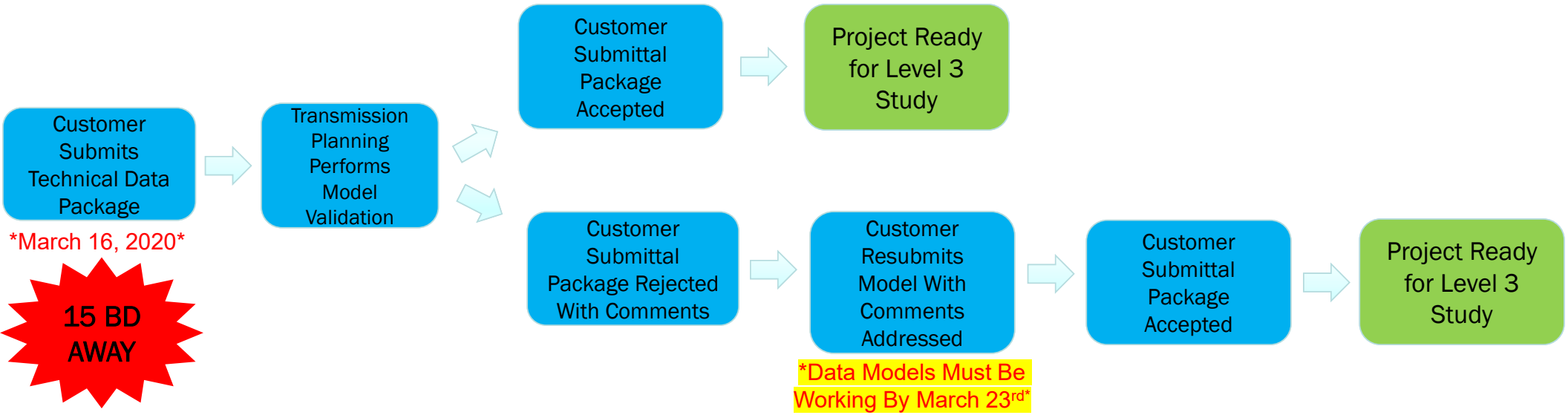
- Technical data list provided via email on January 16th (also posted to ASO website)
  - To date, not many applicants have provided required data

- Applications deemed complete after 10/24/19 that will require a Level 3 analysis will be invited to join this ASO study as long as technical data and payment submitted by the deadline

Level 3 Studies - Technical Data Needed

- Conductor types and distance
  - Between Project and inverters/GSUs
  - Project's tie line to the point of interconnection (POI)
- Generator step-up (GSU) transformer size (MVA), impedance (%Z), and X/R ratio
- GSU transformer number of taps and per unit size of each (typical is +/-2 steps, each at 2.5% or, 0.95, 0.975, 1.0,1.025, 1.05 per unit)
- Stamped project one line (must include inverters)
- Project inverter modeling information (>1MW and <5MW)
  - Eversource to use DER_A inverter stability models
  - Developers to provide parameters
- Project inverter modeling information (>=5MW)
  - Datasheet and manual
  - Reactive capability curve and/or data tables necessary to create the capability curve when the project output is a maximum (Pmax)
  - Stability model in PSS/E standard library format. **Note ISO-NE does not accept user developed models.**
- All projects' inverter modeling information
  - Protective voltage and frequency trip set points
    - Ride through capabilities need to meet ISO-NE SRD requirements.
  - PSCAD models for a potential frequency response study

Level 3 Data Validation & Approval Process



When data is submitted **earlier than the deadline**, customers will have more time to address any comments that come back during the Validation Review

Level 3 Studies – Milestone Dates

Date	Milestone
This Week	email to customers with payment information and request to opt in or out
March 16th	Customers opt in/out, provide payment and technical data due
March 16th - March 23rd	<u>Cure Period</u> timeframe to get project's modeling rectified and any missed requirements as part of good faith effort to meet deadlines
March 23rd COB	customer data models must be fully functioning, otherwise project will not be able to participate in this Level 3 ASO study and withdrawn
March 24th - April 2020	Eversource consolidates all Level 3 customer modeling data into study base case
May 2020	Level 3 studies commence

Feedback from ASO Stakeholders

- Communications to date

- Level 3 study cost
  - If deeper dive analysis required in any of the 5 geographic areas, additional payment may be requested for projects in only those areas

Next Steps

- Level 3 customers
  - Look for an email from ASOStudyInquiry@eversource.com requesting that you opt in or out of the study alongside payment information
  - To opt in, please respond in writing via email
  - No response will indicate an “opt out”

- Level 3s to submit payment and all technical data by March 16th

Customer Questions Received

- What will be the effect of changing inverter type on the transmission level study? We are considering changing inverters on some of our projects from a central to string inverter - we are not contemplating a change in A/C capacity, just inverter type / manufacturer. Since we submitted the interconnection application for these projects more than two years ago, the inverter availability / economics has changed significantly, necessitating the change.

OPEN Q&A