

Minutes of Pepperell Climate Change Committee – 2022-07-21

Meeting Recording: [Custus Recording - Climate Change Committee Meeting 2022-07-21](#)

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Committee Members in Attendance:

Ken Hartlage
Jessica Veysey-Powell
Beth Faxon
Jason Veysey
James Scarsdale

Guests:

Edward Galvin (Cadmus)
Erica Blevins (Cadmus)
Marlana Patton (MASS POWERChoice – Education and Outreach)
Kim Pare (MASS POWERChoice – Manages the Procurement Process)
Julie Harris (Community Outreach Manager – works with communities & w/Marlana)

Agenda for July 21 Meeting

1. Open meeting
2. Acceptance of minutes from prior meetings
3. New Business Discussion / Action Items
 - a. Community Solar project presentation by Cadmus
 - b. Municipal Aggregation kick off meeting with Peregrine
4. Any other business not reasonably foreseen by the Chair
5. Adjournment

1. Open meeting - Ken

2. Acceptance of minutes from prior meetings

Meeting Minutes from April 10, 2022 and June 9, 2022: one amendment from Ken.
Motion to approve as amended: Jim, Second: Jason, Vote: Unanimously approved

3. New Business Discussion / Action Items

3a. Community Solar Project Presentation by Cadmus Group

Introduction (Jason)

- Cadmus is carrying out a study of potential business models for the proposed *Community Solar Project* on our closed landfill.
- This meeting will be a presentation of the preliminary findings

Presentation

Cadmus Group is an energy consulting firm based in Waltham, MA.

Presenters: Edward Galvin and Erica Blevins are members of the Distributed Resources Team, which is involved in many solar projects in the Northeast and Massachusetts.

Presentation Document: in 7/21/2022 email from Ken: ***“Pepperell CCC - Cadmus Presentation.pptx”***

Presentation Outline:

Introduction

Ownership Structures

Modeling, Quantitative & Qualitative Results

Assumptions

Introduction / Study Overview (Edward)

- Cadmus is providing technical assistance for analysis of PV opportunities as part of the META grant program
- The Town of Pepperell is interested in exploring the opportunity to install an approximately 1 MW community solar array at the Town Landfill
- Various community solar ownership models were explored
 - Town-owned
 - Solar Developer-owned
 - Special Purpose Entity (SPE)-owned

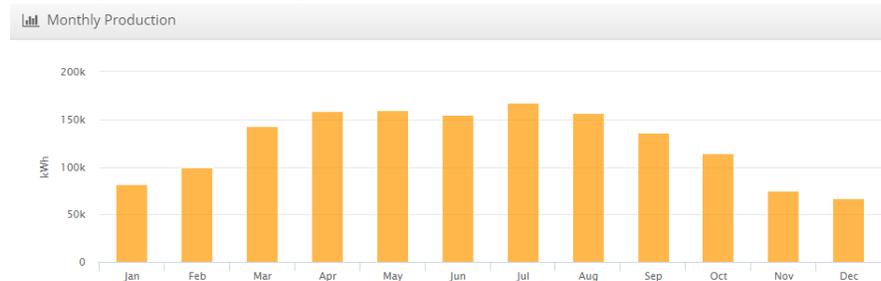
Community Solar Basics (Erica)

- Community solar allows subscribers to benefit from solar energy, even if they can't put panels on a rooftop
- Residents/Customers subscribe to a project and receive bill credits for their portion of the energy produced by the solar array
- Credits can be allocated to any electricity account in the same ISO-NE load zone as the project (the project is in the WCMA load zone).
- Projects typically offer some savings to subscribers, varying from project to project
- Massachusetts has been a leader in Community Solar for many years

Landfill Site Design

- 6-acre, closed landfill site
- Town-owned Property
- Developer proposed PV in 2014/2015 – used to guide Cadmus model
- Site would support about a 1 MW sized system
- Generate 1,500 MWh / Year
 - 200 households annual usage equivalent

Monthly Production Graph



Ownership Scenarios

The analysis investigates three ownership scenarios for solar PV development. Scenarios 1-3 employ the same sized system and energy production assumptions:

Town Owned

- Town pays a developer to build the system and funds with bonding
- Town hires subscription management organization to market the project to subscribers

- The subscribers pay the town for the bill credits generated by the system

Solar Developer Owned

- Developer owns and sells discounted power to subscribers
- Developer pays lease and payment in lieu of taxes to host customer (town) and monetizes tax credits
- Developer, or subscriber management organization, manages project subscription

Special Purpose Entity Owned

- Private entity or special purpose entity (e.g., LLC) is formed by organizing participants for the purposes of developing a Community Solar project
- Private entity owns or leases property on which the PV system will be installed
- Participants realize benefits from the state SMART incentive and any tax incentives
- If participants own “shares” then SEC regulations could kick-in
 - To avoid SEC regulations then project members need to be limited to:
 - Accredited investor (\$1 million net worth excluding non-investment properties)
 - Only 35 non-accredited investors are allowed
 - Very limited marketing of the program is allowed
 - Legal fees likely \$10k +
- Contracting and legal costs to sign-up participants
- Potential need / benefit for a tax equity partner
- Need enough tax appetite to monetize the Federal 22% tax credit
- Implications of using public property for the benefit of private individuals—will likely need Select Board approval

Both Developer-owned and SPE-owned models have been deployed in Massachusetts, with more Developer-owned recently deployed

Questions

(Jason) Is the SPE-owned model limited to 35 “non-accredited investors”?

(Edward) Yes

(Jim) Is “accredited” more than \$1 million

(Edward) Yes – more than \$1 million net worth

(Jason) Can SPE model have both investors and subscribers?

(Edward) Yes – it’s a flexible model

(Jim) It’s seems that characterizing it as “crowd-sourcing” when it’s only 35 regular investors and additional wealthy investors isn’t quite right.

(Edward)

(Jim) What’s the reason for the 35-regular investor limit?

(Edward) Limit is only for non-SEC registered project, to protect regular investors. If it’s larger, it must be registered and follow SEC processes.

(Jim) Have any towns used the SPE model and registered with the SEC?

(Edward) A town on the cape implemented a smaller project (about 1/3 the size of ours) using the SPE model – not sure if was registered or not.

Model Used: System Advisor Model

- Economic Modeling for analysis conducted in **System Advisory Model (SAM)**
 - Free and open National Renewable Energy Laboratory tool
 - Web-based
 - Combines performance analysis (informed by historic weather data) with financial analysis
- Performance Model: Photovoltaic (PVWatts)
- **SAM implements PVWatts to generate energy estimates** based on a few inputs
- More detailed model is available, but requires specific equipment information and is not necessary for the preliminary scoping analysis

Modelling Results Summary

- Model outputs net present values **savings by participant type (Town, Developer, Off-taker / Subscriber)** given various financial assumptions from the developer's perspective and recent cost data pertaining to landfill PV projects.
- The estimates are determined such that the **developer meets a target IRR of 7.5% in Year 25 after accounting for expenses** such as a land lease, O&M, payment in lieu of taxes, etc.

Economic Findings of 1 MW System by Ownership Scenario and Perspective

Perspective	Ownership Scenarios: 25-Year NPVs			
	Developer - No ESS[1]	Developer - ESS [2]	SPE - ESS [3]	Town - ESS
Town	\$ 581,095	\$ 581,095	\$ 581,095	\$ 438,571
Subscribers [4]	\$ -	\$ 621,195	\$ 641,212	\$ 815,406
Developer	\$ 555,685	\$ 382,235	\$ 251,484	\$ -
Total Project Value	\$ 1,136,779	\$ 1,584,525	\$ 1,473,791	\$ 1,253,977

Results assume a 4% discount rate

[1] Cadmus explored the economics of a large system without SMART incentive which would therefore not require energy storage. As the economics proved unfavorable comparatively to the equivalent scenario with the SMART system, all other ownership scenarios for the large sized system include storage and the SMART

[2] Excludes ESS revenues, resulting in a ~6% IRR

[3] SPE scenario represented includes 50% of subscribers with upfront expenditures and 50% with PPAs

[4] Assumes discount rates to subscribers' bill credits of 0% for "Developer - No SMART", 13% for "Developer - ESS", 10% for "SPE" non-investors, and 5% for "Town"

SPE model offers the town the highest value, but not all town administrative costs considered.

25 year Net Present Value – total value after costs of the 25-year lifetime, discounted to Year 0 dollars.

Key Takeaways

- **All ownership models shown are estimated to provide value** in the defined scenarios
- Maxing out the developable area **provides the most value to all parties involved**, however, this option requires the solar asset be paired with an on-site battery, which was included in our cost assessment.
- In the current SMART AOBC program, participants are limited to the WCMA ISO-NE Load Zone
- If the Town's primary motivation is to maximize economic benefits for the off-takers and Town, they may consider further investigating the SPE model; however;
- Note this project type may take longer to setup resulting in lower incentive levels
- This model will be more complicated to administer
- There are fewer off-takes eligible to participate in the project
- If Town wants to ensure LMI participation it may consider a \$0 down option which most developers feature

SPE Model might provide maximum value, but could take longer to develop, and could result in lower incentive rates (presumably due to changing incentives) and possibly exclude lower income residents.

Developer-owned, zero money down option for subscribers may be the best fit

Question:

(Jim) Lithium-Ion Battery is only a 10-year lifetime battery?

(Edward) That's correct but depends on usage rate – vehicle battery would be daily use, grid-scale battery proposed might be tapped only 1-2 times per week.

Next Steps

- Consider Town's overall goals for the project to inform decision making
- Assess the Town's appetite and resources for hosting the project
- Consider legal and implementation hurdles of various ownership models
- Collaborate with Cadmus on procurement documentation

Jason's Framing Comments

Goal is to create a recommendation of a particular business model that we can pursue with initial procurement documentation to support that model in the last stage of this consultancy.

Endorse the recommendation, take to Select Board.

Discussion

Jessica: For the SPE model, what are the averages costs for the non-accredited investor?

Edward: Yes – ran ball-park numbers. Key caveat is that one SPE-model benefit is that you can decide how much to invest. Ran an analysis assuming that each participant would purchase an amount sufficient to offset their annual usage: roughly \$18000 / participant.

Jessica: The SPE Model takes longest – how much longer on average?

Edward: The Cape community worked with a developer that already had a solar setup for enabling an LLC for each project.

Erica: Since SPE model is less common, it's hard to find good examples.

Jessica: For the SPE, you mentioned the need for a considerable amount of legal paperwork to be drawn up, and cost of \$10,000. Do organizations like Cadmus have paperwork in hand to facilitate efficient adoption of this model?

Edward: Yes – it's possible. There are some templates available, not from Cadmus, but perhaps the National Renewable Energy Laboratory (NREL) or another national entity or non-profit to ease that burden.

Jessica: Town-owned model management costs – is there an estimate? \$2.7 million to set it up was mentioned, and what's the annual cost to the town?

Edward: Assume town would partner with a developer on an operations and maintenance contract, typically \$27K

Jason: Revenue coming in should substantially exceed the costs.

Jim: At what size array is a battery required?

Edward: When you go above ½ megawatt.

Jim: What capacity and duration of battery did you model?

Edward: Cadmus modeled the minimum required battery capacity per the Massachusetts incentive – about ¼ of the power – 250 KW for a 1MW array, 2 hour duration is required, for a total of 500 KWh

Jim: Did you choose the minimum because it cuts into the overall value of the project?

Edward: Yes – battery is usually a cost, except for niche use cases.

Ken: One of the objectives is to make this project available principally to the residents of Pepperell. Are any of the opportunities preferable in targeting Pepperell residents vs the entire load zone?

Edward: The only consideration is that the SPE model limits the marketing, which is available in the Town- and Developer-owned models.

Ken: Under private placement, you can't do any marketing at all – only work-of-mouth allowed. Is there any model that allows us to focus on Pepperell, rather than opening up to the entire load zone?

Edward: Not with Community Solar – the entire load zone is allowed in. Smaller projects, "Neighbor net-metering" can be restricted to a certain area, but only small community solar like a single building.

Ken: Wanted to make sure committee understands that the project will be allow subscribers outside of Pepperell to participate.

Jason: Not really discussed thus far – in any of these models, is there a moment in which the town's costs are greater than the revenue the town is receiving?

Edward: Year 0 – Investment, and Inverter replacement – every 12 years is a significant investment. Decommissioning, typically in year 25, is a significant investment.

Jason: Would want to look at those costs.

Edward: Will return with a comment on that.

Jason: How are committee members leaning? Ken and Jason felt that the SPE was interesting, but required further follow-up. Not favoring Town-owned, since it requires town investment.

Jessica: Most interested in the SPE, but has lots of hurdles. Likes the idea of customers taking ownership and receiving the direct benefits. The limit on non-accredited investors is disappointing.

Jim: Agrees with Jessica's evaluation. Is there a model where it can just be registered with the SEC as a publicly-owned corporation? Was that considered? Presumably there would be taxes involved, but would those taxes be able to be abated by the tax rebate? Is that worth considering? That would satisfy the desire for town members to be able to participate by buying shares of stock.

Edward: Cadmus just looked at the LLC as a representative example. Did not look at public corporation option.

Ken: But you did consider the option where SEC registration was used, and that would open it up to a lot more people, but the legal and administrative hurdles might outweigh those options. Can't get a lot of information. Other communities just adopt the developer model for its simplicity.

Beth: Prefers the town-owned model. Why can't it take advantage of the tax benefits?

Edward: Towns are tax-empty, and hence there's no tax to defer, and the same with depreciation benefits.

Beth: Ability of residents to participate directly. Would not support a model in which didn't allow this.

Edward: Residents can participate in all three models. Marketing to the residents would be restricted because of SEC rules.

Jim: Can a battery project be shared between communities?

Edward: Waivers can be applied for. Not sure about sharing.

3b. Municipal Aggregation for Pepperell - Kick off meeting with Peregrine (1:06 in recording)

Introduction (Ken)

Municipal Aggregation has passed Town Meeting. The next step is to begin the process for creating an aggregation plan to submit to the DOER and DPU for approval and begin community outreach. Presenters from MASS POWERChoice walk us through the process.

MASS POWERChoice Agenda

- Introductions
- Typical program timeline
- Reaching the first milestone
- Where we need input (list of decisions to make)
- Next steps

MASS POWERChoice Introductions

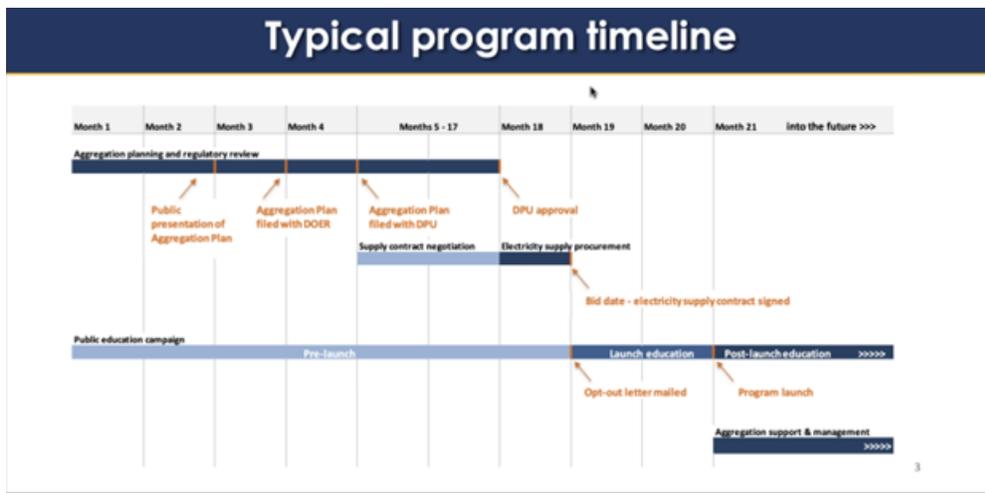
Marlana Patton - Education and Outreach, Customer Support, and Day to Day Program Operations

Kim Pare - Procurement Process for Aggregation and helps secure pricing for the program

Julie Harris –Community Outreach and Day to Day Operations

Paul Gromer – CEO, would normally be presenter, but was unable to attend

Typical Program Timeline



Consists of overlapping phases:

- Aggregation planning and regulatory review (months 1-18)
 - Public presentation of Aggregation Plan (end of month 2)
 - Aggregation Plan filed with DOER (end of month 3)
 - Aggregation Plan filed with DPU (end of month 4)
 - DPU approval (end of month 17)

- Supply Contract Negotiation (months 5 – 17) – starts after plan is filed with DPU
- Electricity Supply procurement (month 18) – starts after DPU approval
 - Bid date – electricity supply contract signed (end of month 18)
- Aggregation support & management (months 21 and beyond)
- Public education campaign (months 1 – 21 and beyond)
 - Pre-launch (months 1 – 18)
 - Launch education (months 19 – 20) – starts after supply procurement
 - Opt-out letter mailed (month 19)
 - Post-launch education (months 21 and beyond)
 - Program launch (month 21)

DPU Review Period (typically months 5 – 17) can be quite lengthy – time to complete is unpredictable. Most of the time is spent developing an Aggregation Plan. DPU is most concerned with the “Launch education” phase.

First milestone

Public review of these key documents, all reviewed by DOER & DPU:

- Pepperell’s Aggregation Plan (governing document, mostly prescribed by DPU)
- Education and Outreach plan (**requires the most work from the CCC**)
- Enrollment notification mailing materials (everyone eligible for automatic enrollment must receive a notification letter and reply/opt-out card)
- Model electricity supply contract (template version of contract between supplier & town)

Prerequisites to reaching this milestone:

1. MASS POWERChoice drafts initial documents
2. Pepperell provides input
3. Pepperell approves the documents
4. Public presentation is scheduled.

Delivered by MASS PowerChoice. Kicks off a 30-day public comment period.

After step 4, MASS POWERChoice will schedule a consultation meeting with DOER. DOER works only in an advisory capacity, not as an approver. Purpose of meeting is to confirm that the plan is set up in a way that will get DPU approval. Letter from DOER stating that meeting occurs is sent within about a month, and then submission to DPU can occur.

Input needed from CCC

1. Program name and logo (if desired)
2. Program options and option names – typically “Standard”, “100% renewable”, “Budget”
3. Funding for the Town
 - an optional Adder – typically 0.1 ¢ per kilowatt-hour, 65 ¢ per month for average customer, \$30,000 per year for Pepperell
 - *Must benefit program participants*. Can provide salary for town energy/sustainability manager or funding for renewable energy projects. Adders are currently only being

approved for salaries of personnel. Other uses not currently common, requires more detail.

- DPU requires details on how the funds will be spent.
 - What is in the plan is *only a request for authorization from DPU to collect an adder. It is NOT a commitment to collect an adder.* Town would decide whether or not to collect it.
4. Outreach efforts – content for “Education & Outreach Plan”
 5. Supply contract review

Education and Outreach Plan

Reflects phases of the program. Whatever is in these documents is what DPU approves, and what we’re committed to and all that we’re allowed to do. Get it right to avoid requesting amendments from DPU.

1. Program planning and regulatory approval – laying groundwork
 - Aggregation Plan presentation
 - Electricity bill /supplier education
 - Intro to aggregation and program name
2. Program launch – communicating details
 - Formal announcement
 - Enrollment notification mailing
 - Public information sessions
 - Robust campaign
3. After program launch
 - Program reminders
 - Continued electricity bill / supplier education
 - Opt-up campaign efforts

Support for Outreach and Education provided by MASS POWERChoice

- Logo development
- Drafting announcements/media releases
- Building and managing the program website
(there is a regulatory requirement to have one with specific content)
- Developing, designing, and covering the cost of printing or fabricating materials, such as flyers and handouts, social media graphics, ads, signs, and banners

Electricity supply contract review

- Must be reviewed by Town Counsel before submitting to DOER and DPU
- We probably want to stick closely to the *model electricity supply contract* that has already been reviewed and approved by DPU and is widely used by other towns.

Next Steps

What is the best way to work together going forward? Work with the CCC, a subcommittee or someone else?

Questions and Answers

Jim: Is there a synergy with Pepperell Community Solar or would it just be a potential vendor?

Marlana: There is the idea of using Community Solar with Aggregation that DOER established specifically as a way to provide a benefit to low-income customers through aggregation. Conflict between DOER and DPU over who decides whether this allowed. DPU decision was expected mid-year, but is late. The plan specifically provides reduced prices for low-income customers.

Jim: Do you know in the communities that are trying to do that, did they pick a particular ownership model for the Community Solar?

Marlana: Nobody is doing it yet because DPU hasn't approved it and there aren't specific requirements. Not sure what ownership model they're using.

Jason: Reflections on 3 issues:

Name: Liked "Cambridge Community Electricity Program". Doesn't like "Choice" (what people opt out of)

Default Offering: Offers a greater % of renewable content than standard

Operational Adder: Counsel us not to pursue that – might inspire opposition from town.

Jessica: Agrees on Jason's comment on Default Offering, called "Pepperell Standard"

Jessica: If we piggyback on the adder, what are the cost of paying some to maintain the program within the town.

Marlana: MASS POWERChoice's fee is embedded in the price for electricity. No cost to Town. Not paid until the program launches. Electricity provider pays them. Phone number for questions is MASS POWERChoice's number, but there will be calls fielded by the town.

Ken: 0 to 10 or 20 hours per year mentioned by talks with other towns. Would like get input from other communities about whether or not to have the Adder.

Begin: Is there any way to review the Education and Outreach Plan from another community?

Marlana: Yes – most recent programs sent through are online due to regulatory requirements. Will send links to Ken.

Jim: The Adder decision only applies to whether the town is allowed to have an Adder. The Town still decides whether or not to have it.

Jim: Do customers make their choice of model at the time of the initial notification letter?

Mariana: Letter tells them that if they do nothing, they're automatically enrolled in the default program, and that they have other choices. They have 30 days to make that choice for it to be in effect at the time the program launches. They retain the right to make those program decisions after the program launches.

Jim: With regard to the program website, could it be part of greenpepperell website, or would a dedicated site required?

Mariana: Website includes ability to enroll, change options, opt out, submit customer support. Machine translation support required by DPU. Small number of communities manage their own websites, but most use MASS POWERChoice to avoid mandatory update requirements, etc. Can match branding.

Jim: It seems that there is an advantage to have it separate. However, it would be a big draw to our site that nothing else could provide.

Mariana: Required to be visible from Town Website. Salem uses redirect that links to the website. Could create a landing page. More layers may mean more frustration.

Jim: Is it possible to ask people if they want to opt out of the Adder?

Mariana & Kim: Can't do on a case by case basis, but can be for a specific option. If only not on default option, would reduce the \$30,000 collected to a small amount.

Ken: There seems to be agreement on the default being regular + some % of renewable, and a 100% renewable option, and a third option TBD.

Ken: Is there a suggestion we'll put out the options in a public outreach program?

Mariana: There is a public feedback requirement, public and transparent. However, the town's designated representative will decide on the options. Here's what the town is planning to do – please give us feedback. Town decides what it will do.

Kim: Exact percentage doesn't have to be submitted, just that there would be a percentage above the regular.

Ken: Town Administrator will have conversation and choose the final %.

Kim: CCC can provide guidance on how to make the choice.

Ken: What are the top items that input is required for?

Mariana: Logo, Options, Option Names, and Funding for the Town (Adder)

Ken: CCC handle on its own vs facilitated session.

Committee members agree.

Ken: We'll notify them of our decision. Once we've made our decisions, what's next?

Mariana: Plug data into Aggregation Plan (easy). Also get started on Education and Outreach Plan. Can create a template version, but takes some time, since it must include census data. Then proceed with reviews in parallel.

Ken: Is there an Excel spreadsheet for project tracking and delivery dates?

Mariana: No project tracking sheet. Can make into a linear document.

Ken: That's ok – we can translate into required form.

Marlana: Education and Outreach Plan.

Typically an annotated document that explains everything.

Need to send to an official town employee.

Mariana: Will send links and list of steps.

4. Any other business not reasonably foreseen by the Chair

Follow-up on Cadmus Presentation

Have decision available by Aug Meeting. May want to call an extra meeting so that we can be prepared to vote on a decision and send to the Select Board.

Jim: Will we recommend one option, or take the list of recommendations to the Select Board?

Ken: Will take recommendation and explain the three options.

Follow-up on MASS POWERChoice Presentation

Need an additional meeting for community aggregation decisions.

Follow-up on 40R Zoning Proposal

Being discussed at Planning Board Meeting tonight, with additional discussion July 26.

Is there a sense that the CCC would like to provide a formal statement on the 40R proposal?

Jessica: Yes – makes sense, since there's a substantial environmental impact on the town.

Jason: Ken's doc is a good starting point.

Ken: Shouldn't be a recommendation to Planning Board as to what they ought to be doing, but there were significant unanswered questions. Those questions could help frame our questions.

Department of Housing and Community Development also receives input from the public. Might also be an audience for some statement.

Jessica: Is it the Planning Board's intention to bring this to Fall Town Meeting?

Ken: Yes – process requires that it be reviewed by DHCD before taking to Town Meeting.

Will have a combined meeting for Municipal Aggregation and 40R?

Group: Yes

5. Adjournment

Motion to adjourn: Jim Second: Jason Vote: Approved Unanimously