



Town of Charlton

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DEPARTMENT of BUILDING
INSPECTIONAL SERVICES

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March 8, 2018

Board of Selectmen

Robin Craver, Town Administrator

Commercial solar farms

The Town of Charlton has significant interest in the development of properties for commercial solar farms, with corresponding citizen concerns regarding the impact to the community. Currently there are 20 existing, with 5 in the permitting stage as of this report.

This report will address the following questions and concerns;

- | | |
|---|---|
| 1) Is a moratorium allowed? | Maybe |
| 2) Green Community designation impacts? | Yes |
| 3) What tax value do we realize annually? | FY 18 \$371,500 FY 19 \$682,500 FY 20 \$951,500 |
| 4) What are the cost impacts to services and government? | Close to none |
| 5) Are neighboring property values impacted? | None substantiated |
| 6) How are wetlands impacted? | Regulated to prevent impacts |
| 7) How is storm water runoff impacted? | Regulated to no increase |
| 8) What happens at end of service life? | Decommissioned or replaced |
| 9) What zoning options do we have? | Potential changes |
| 10) Does maintenance of ground cover have offsite impact? | Should not be any impact |
| 11) Why is there so much development in Charlton? | Economically viable |

It is my understating that for a commercial solar field to be viable it needs to have a nameplate capacity of 250 kW DC or greater. The actual size is governed by the economics of development costs, regulatory issue and incentives. The average size solar field in town is 2MW, with the largest 5.2MW, the smallest 0.5 MW. A general rule by the industry is 5 acres for each megawatt generated, with additional area of clearing depending on the shading factors around the site.

A good overview of solar energy frequently asked questions was developed by the; Massachusetts Department of Energy Resources (DOER), Massachusetts Department of Environmental Protections (DEP) and the Massachusetts Clean Energy Center is linked here.
<http://www.mass.gov/eea/docs/doer/renewables/solar/solar-pv-guide.pdf>



Curtis Meskus - Building Commissioner/Zoning Enforcement Officer

Peter Starkus – Plumbing & Gas Inspector
Joseph Ostrowski – Inspector of Wires
Nancy Shields– Administrative Assistant

Moratorium ?

Under MGL c.40 § 5, the Zoning Act, moratoriums are a permissible growth management tool. From what I have read, the reason for the proposed moratorium must be clearly articulated, be limited in time, have a reasonable prospect of tangible benefit to the community, and the town must demonstrate that the activity being limited is likely to have a negative impact on the community. The purpose of the moratorium would be to conduct studies, to develop regulations and planning for future impacts to the community by solar farms.

Green Community designation impacts?

The Town of Charlton applied for and became a designated Green Community February 1, 2017. To obtain this designation, the community had to meet 5 criteria, the first is met by the municipality passing in zoning designated locations for the as-of-right siting of renewable or alternative energy generating facilities, research and development facilities, or manufacturing facilities. As-of-right development projects that are consistent with zoning bylaws and the locations must be feasible and practical. Additional information can be found at the Department of Energy Resources (DOER) website linked here.

<https://www.mass.gov/files/documents/2016/08/ta/criterion-1-guidance-for-all-3-methods.pdf>.

Discussions I have had with various people seem to indicate that we could have specific as-of-right zones or areas for solar farms and other facilities required by the first Green Community criterion, with the possibility of other areas where a special permit maybe required.

What tax value do we realize?

Data provided by the Assessors shows 9 solar fields with an assessed value of \$27.5 million dollars with annual taxable income of \$371,500. In addition there are 10 solar fields that have been recently completed with an estimated assessed value of \$23 million with annual taxable income of \$311,100. There is one field from which power is exclusively used by the property owner therefor it is not taxable.

Currently there are 5 more fields in the site plan review process with an estimated assessed value of \$19.9 million with annual taxable income of \$269,000.

How the degradation of output from the panels, the 20 to 25 life expectancy of a commercial solar field is going to impact taxable value and income is up for debate. From talking to installers there is the expectancy that panel technology will continue to improve, panels will be replaced as needed or the whole field may be refreshed with new panels.

What are the cost impacts to services and government?

Conversations with the department heads indicate at the onset and through construction; Planning, Conservation and Building Departments have considerable work primarily covered by application and permit fees. Once a solar project is completed, there is little impact on Highway, Police and Fire Services. The Assessors have to establish value and deal with appeals to assessments. The Accounting Department and Treasurer/Collector's office must maintain records for the required escrow accounts. There is no impact on Schools Districts or Board of Health.

Are neighboring property values impacted?

According to Deborah Ceccarini, Principal Assessor there is no data to support the assertion that property values are lower in the neighborhood where solar fields are erected. The data to date indicates 2 residential home sales in 2016 that directly abut solar fields on Bay Path Road, sold above the assessed values. For larger comparison, certified real estate appraisals were performed one year prior and one year after commercial operations commenced on the 360 MW Millennium Power Plant located in Charlton. At that time in 2001/2002 and currently in 2018, there is no data to prove residential values have been negatively impacted on residences within one mile or within site view of the power plant.

How are wetlands impacted?

Any project that is within a resource area or buffer zone of a wetland must file a Notice of Intent with the Conservation Commission who reviews the protection and mitigation plans for a project. The Conservation Agent monitors activities on the construction site during and after the project until the site has been stabilized. Todd Girard the Conservation Agent routinely monitors all projects with orders of conditions to ensure compliance with applicable regulations and regularly notifies responsible parties when there is the need for remediation.

How is storm water runoff impacted?

All projects have to comply with storm water management regulations, whose basic tenet is that the flow from a project post development must be at the same rate or less than pre-development. DEP regulations for solar fields encourage the use of Low Impact Development management practices contrasted with a subdivision that will have more retention basins, drains, manholes, piping and other drainage structures.

Does maintenance of ground cover have offsite impact?

Each project has an operations and maintenance manual for its ground cover and storm water management program submitted at the time of application to the Planning Board and Conservation Commission as applicable, who then review them for compliance and required revision. The Conservation Agent tells me the use of chemical treatment is not the norm. If chemicals were to be applied, a competent licensed professional would have to comply with any applicable DEP regulations.

What happens at end of service life?

The life expectancy of a solar field is 20 to 25 years; however there do not seem to be any fields in existence that long. From talking to installers, there is the expectancy that panel technology will continue to improve, panels will be replaced as needed or the whole field may be refreshed with new panels. The Planning Board may, as a condition of site plan approval, require a decommission bond in place that could be drawn upon to restore the site. Or one could view solar arrays as a temporary use that could lead to a more permanent use in the future.

What zoning options do we have?

Currently commercial solar farms are defined by the Zoning Bylaw as Large -Scale Ground Mounted Solar Photovoltaic Installation. A large photovoltaic system that is structurally mounted on the ground and is not roof-mounted, and has a minimum nameplate capacity of 250 kW DC. The Zoning Bylaw allows large scale solar in all zones with site plan approval by the Planning Board.

Site plan approval is outlined in § 200-7.1 (D) (1) excerpted below, with a long list of technical requirements for submittal and specific requirements for denial § 200-7.1 (D) (7) (b)

Purposes and thresholds. For the purpose of ensuring adequate storm water management, wastewater disposal, screening, parking and loading spaces, utilities, water supply and pressure, landscaping, protection of significant natural and man-made features, lighting, and erosion and sedimentation control, compatible site design, safe pedestrian and vehicular access, protection of the natural environment, and compliance with the provisions of this bylaw, a site plan shall be submitted for review and approval to the Planning Board, for the following uses:

(b) The Board may deny an application for site plan approval if:

- [1] The project does not comply with one or more of the criteria set forth in Subsection D (7) (a) and reasonable conditions cannot be imposed to ensure compliance with one (1) or more of these criteria; or
- [2] The applicant has not provided information sufficient for the Planning Board to determine compliance with one (1) or more of the criteria listed in Subsection D (7) (a).

Through the process prescribed in MGL c.40A § 5, the Zoning Act, changes can be promulgated to the existing Zoning Bylaws. The process for the proposed changes include writing then next, Planning Board public hearing and comment, recommendation to the Town Meeting members and a 2/3 affirmative vote of the body assembled at the town meeting.

The changes may include stricter requirements for large scale solar fields that might include; allowance or prohibition in different zones, phased growth, setback changes, buffers, reasonable screening requirements or others.

The community should be aware that any notice of a change or moratorium to the Zoning Bylaw often results in a flurry of applications and or other allowable actions to preserve the proponents right to construct a project under the existing regulations. Under the moratorium, the town should consider a study committee to review impact and draft new regulations to address identified concerns.

Why is there so much development in Charlton?

The Town of Charlton has large tracts of land that are difficult to develop into other uses such as subdivisions, prohibited from development as so called commercial uses and have economical access to 3 phase power lines. Land owners see income from lease agreements that potentially generate positive cash flow to pay the taxes on the land which had been vacant.

In 2008 the Commonwealth's Administration signed into law; The Global Warming Solutions Act (GWSA), whose goal is to reduce greenhouse emissions, between 10 and 25 percent by 2020 and 80 percent by 2050 from the 1990 baseline. From the GWSA a number of initiatives have come in to play; including the Green Communities Act, goals for power providers to use renewable energy source and incentives for solar and other low carbon foot print generation capacity. More information linked here. <https://www.mass.gov/service-details/global-warming-solutions-act-background>

While I have worked to make the report complete and while being a good guidance document, there are overlapping legal and regulatory issues that must be adhered to and should be considered carefully, before taking any action with the help of competent experts in their respective areas.

In closing I would like to thank all my colleagues that helped in creating, correcting and contributing to this report.

Respectfully,



Curtis Meskus
Building Commissioner
Zoning Enforcement Officer

Attachments:

Location and value spread sheet
Color map of locations

| # | Street | Owner | Value | Tax | MW | |
|-------|-----------------------|-----------------------|----------------|-----------|------|----------|
| 53 | City Depot Rd | Arthur Bellerieve | \$4,942,540.00 | 66,724 | 2.5 | |
| 157 | Worcester Rd | Doug Monson | \$1,223,356.00 | 16,515 | 0.8 | |
| 19 | Carpenter Hill Rd | East End LLC | \$5,957,370.00 | 80,424 | 4.5 | |
| 3 | Bay Path Rd | Bruce Forrestal | \$1,373,940.00 | 18,548 | 1 | |
| 5 | Bay Path Rd | Flair One | \$1,439,180.00 | 19,429 | 1 | |
| 29 | Oxford Rd | Borrego Solar | \$1,095,200.00 | 14,785 | 1.1 | |
| 28 | Curtis Hill Rd | Conergy Projects | \$5,362,540.00 | 72,394 | 5.2 | |
| 29 | Snake Hill Rd | New England Power | \$1,185,080.00 | 15,999 | 1 | |
| 18 | Sampson Rd | Kenneth Kaszowski | \$3,447,720.00 | 46,544 | 2.6 | |
| 40 | H Putnam Rd | Roman Catholic Bishop | \$1,487,090.00 | 20,076 | 1 | |
| | | | | | | |
| 17 | Griffin Rd | PCK Realty LLC | | 0 | | |
| 17 | Griffin Rd | PCK Realty LLC | \$4,943,564.00 | 66,738 | 2.6 | estimate |
| 152 | Center Depot Rd | Kevin Mardirosian | \$857,895.00 | 11,895 | 0.5 | estimate |
| 21 | Horne Homestead Rd | Gunter LLC | \$3,132,460.00 | 42,288 | 1.9 | estimate |
| 294 | Southbridge Rd | INCOM Inc | \$6,378,802.00 | 86,114 | 3.86 | estimate |
| 82(B) | Northside Rd | MCI | N/A | N/A | 1 | |
| 135 | Brookfield Rd | JMF & B Realty | \$857,895.00 | 11,895 | 0.5 | estimate |
| 140 | Brookfield Rd | Mark Mitchell | \$857,895.00 | 11,895 | 0.5 | estimate |
| 120B | N Sturbridge Rd | Jeffrey Marcel | \$1,487,090.00 | 20,075 | 1 | estimate |
| 126 | N Sturbridge Rd | Jeffrey Richardson | \$1,487,090.00 | 20,075 | 1 | estimate |
| 128 | N Sturbridge Rd | LSE ARA LLC | \$1,487,090.00 | 20,075 | 1 | estimate |
| 37 | Turner Rd | Leonard Smith | \$1,487,090.00 | 20,075 | 3 | estimate |
| | | | | | | |
| 5 | Osgood Rd | proposed | \$6,691,905.00 | 90,341 | 4.5 | estimate |
| 75 | Brookfield | proposed | \$3,832,075.00 | 51,733 | 2.4 | estimate |
| 49 | Carpenter Hill Rd | proposed | \$1,487,090.00 | 20,075 | 1 | estmate |
| 107 | Colburn/Partridge | proposed | \$2,974,180.00 | 40,151 | 2 | estimate |
| 17 | Griffin Rd | proposed | \$4,942,540.00 | 66,724 | 2.6 | estimate |
| | | | | | | |
| 231 | Stafford St | canceled | | | | |
| 44 | Old Worc. -Charlton O | canceled | | | | |
| 15 | Berry Corner | withdrawn | | | | |
| | | | | | | |
| | | FY 18 | \$27,514,016 | \$371,439 | | estimate |
| | | FY19 | \$22,976,871 | \$311,125 | | estimate |
| | | FY 20 | \$19,927,790 | \$269,023 | | estimate |
| | | | \$70,418,677 | \$951,587 | 2 | estimate |

Spencer

Leicester



Oxford

Sturbridge

Southbridge

Dudley



| LEGEND | |
|----------------|---------------------|
| Yellow outline | Proposed Solar Farm |
| Red outline | Existing Solar Farm |
| Blue outline | Other Solar |
| Black outline | Other |
| Blue square | Water |
| Black square | Highway |
| Black square | Other |

FOR PLANNING PURPOSES ONLY
THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY AND DOES NOT
CONSTITUTE A GUARANTEE OR WARRANTY

Solar Farms
TOWN OF OXFORD, MASSACHUSETTS