STATE OF MAINE
PUBLIC UTILITIES COMMISSION

CENTRAL MAINE POWER COMPANY and
PUBLIC SERICE OF NEW HAMPSHIRE

Request for Certificate of Public Convenience and Necessity for the Maine Power Reliability Program Consisting of the Construction of Approximately 350 Miles of 345 kV and 115 kV Transmission Lines ("MPRP")

Docket No. 2008-255

REPLY BRIEF OF GRIDSOLAR, LLC

March 23, 2010

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Appendices:

1. CMP May Not Now Raise Concerns Over Shoulder Season Light Loading Since It Has Provided No Evidence of Reliability Issues During This Period

The record is very clear with respect to whether the GridSolar Project will meet grid reliability requirements – it will. No reasonable reading of the record, which includes the concurrence of all parties on this point, can lead to any other conclusion. (GridSolar Brief at page 7, and Section 5.2.) This is undoubtedly why, in its brief, CMP has now sought to muddy the waters by asserting that times of peak load are not the times when the most severe reliability problems arise: "In fact, some of the most difficult conditions on the CMP system occur during shoulder periods when transmission and generator maintenance occur." (CMP Brief at page 94.) CMP only now makes this assertion, and yet did no studies – not a single one – of the how the MPRP would address reliability in such situations.

Let's look at one case – the most recent example of a potential grid reliability problem in New England. As described in the memo from Steve Weaver, Manager, Control Room Operations, attached hereto as Appendix A, on Sunday March 14th of this year, ISO-NE implemented Operating Procedure #4 for precisely the reasons noted by CMP. During a period of tight supply conditions on the grid, New England lost 637 MW of generation to forced outage creating a deficiency of generation that necessitated implementing OP 4, Actions 1 & 6, as noted in the memo. What is very interesting is that, during this time, there was no real-time congestion in Maine or New Hampshire. Further. New England was importing only 452 MW across the tie from New Brunswick. In short, during this shoulder season event, as is generally the case, the existing bulk power system in Maine was not utilized to its full capacity. Therefore, the new capacity, and especially full build out of the MPRP, would not provide any additional reliability to the grid.

What would have provided additional reliability is quick start in-region generation and demand response – two of three types of resources in the GridSolar Project. In fact, had the GridSolar Project been fully built-out as originally proposed to meet higher projected loads, the shortfall of 427 MW may have been covered completely by the GridSolar Project, and there would have been no need to implement OP 4. During this low load condition – and, we hasten to add – many other situations like this, the MPRP would provide no reliability benefits, while the GridSolar Project would stabilize and secure the grid. Perhaps this is why CMP did not study these conditions. By way of comparison, during the four years when the GAP RFP non-transmission alternative was implemented in SW Connecticut, it successfully met regional reliability requirements at all times and under all system conditions – during periods of high peak loads, average loads, and light loads, , during periods of forced generator outages, and during periods of generator and transmission maintenance outages. (Tr., 2/3/10, pages 237-238.)

After spending in excess of $90 million, conducting a myriad of stress tests, and devoting thousands of hours of work and testimony by all parties, CMP now asserts that the need for the MPRP is not to meet peak load growth but rather is to address light loading conditions or perhaps to meet load growth and light loading at the same time. The problem, according to CMP, is that "it is not possible to test every conceivable future condition, including all those at system peak as well as during light load shoulder months…" (CMP Brief at page 9.) We agree that it is not possible to test every conceivable future condition, but this fact hardly provides an excuse for never testing any light loading conditions if CMP in fact believes that such conditions present a serious challenge to its system.

CMP's assertion is based upon no stress tests, no evidence, and only minimal discussion of light loading conditions over the more than two years that this case has been

ongoing.[1] To suggest at this point in the case, as CMP has now done, that we have been discussing the wrong issue from the outset, transcends imprudence and warrants recovery from shareholders not just of the money that CMP has spent, but also the expenditure in dollars and time of all the parties. If CMP would like to bring an MPRP case on the basis of light loading, its shareholders should be required to make all parties whole for their expenditures to date and then start the case afresh.

If CMP were to bring such a case and the stress tests revealed reliability issues under certain light loading conditions, we have every confidence that global solutions involving the full range of NTAs, energy efficiency, demand response, and smart grid applications could be found that would prove superior to the MPRP approach. However, at this point in this case it is impossible to say what such solutions might be because CMP has not stated what the problem is. No party can provide a response to assertions made at the briefing stage of a proceeding. Parties can only respond to evidence presented during the proceeding. That is the point of conducting a proceeding.

2. CMP May Not Rely on LaCapra's Flawed Financial Assessment of the GridSolar Project

The record is equally clear with respect to CMP's reliance on criticisms brought by LaCapra regarding the cost of the GridSolar Project and its financial viability. LaCapra is wrong on each count: (a) The capacity factor is not overstated; (b) The tax and depreciation conditions are accurately reflected in the financial model; (c) The values assigned to energy,

[1] Discussion primarily between Brian Conroy of CMP and Mark Isaacson of GridSolar regarding the interaction of intermittent generation and light loading rather than light loading per se. In addition the arguments by Mr. Conroy were assertion rather than evidence based. No supporting evidence was ever provided in support of Mr. Conroy's assertions regarding issues of light loading. In fact, when pressed, Mr. Conroy indicated that he was no longer in transmission system planning, and that issues of light loading and renewable generation would require further study. (Tr., 2/5/10, at pages 217-220.)

capacity and REC products are reasonable in light of current market and regulatory conditions; and, most importantly, (d) The cost of solar PV is not understated compared to what is actually being realized in the industry today.

The LaCapra approach to cost estimation has not one ounce of validity. Indeed, we trust that CMP has not used the same methodology or the same standards for developing its cost estimates for building the MPRP:

- We certainly hope that CMP actually solicited price quotes from real companies engaged in building transmission lines that are similar to those proposed under the MPRP, and unlike LaCapra did not rely on studies of what it cost to build prior transmission line projects that look nothing like the lines proposed by CMP in the MPRP. (Tr., 2/4/10, page 37.)
- We certainly hope that CMP, when reviewing the price quotes it did receive, did not disregard the low bids, at least not without a full investigation of why they were low and a factual determination that they were not reasonable, unlike LaCapra, which never talked to the owner or developer of a single project that reported lower than average costs. (GridSolar Brief, at page 38.)
- We certainly hope that CMP did not choose midpoints in the range of price quotes they did receive, as LaCapra did with respect to the information contained in the cost tables in the studies LaCapra indicated it evaluated.
- We certainly hope that CMP looked beyond the experience of two Massachusetts utilities, perhaps to include utilities in Vermont, for example, unlike LaCapra, which did not even examine the results of the bid process conducted by Vermont under its recently enacted Feed-In-Tariff. (Tr., 12/21/09, at pages 152-153.)

In short, we certainly hope that CMP did not retain LaCapra to do its cost estimates for the MPRP. Further, we are certain that, were the cost estimates for the MPRP done on the same basis as the LaCapra estimates of the GridSolar Project, the Commission would dismiss them out-of-hand. It serves no useful purpose to argue these points any further. We are confident that the Commission Staff will sift through the evidence presented and will reach the same conclusions as those reached by GridSolar and affirmed by the Office of Public Advocate in its Brief. (OPA Brief, at page 25.)

Instead, we turn our attention to the implementation of any decision reached by the Commission in which a CPCN is granted for one or more transmission components of the MPRP. In doing so, we strongly urge the Commission to give this matter very careful consideration as it decides the MPRP.

3. No action by ISO-NE or CMP can Preempt This Commission's Right and Obligation to Review ISO-NE's Planning Assumptions.

CMP argues that under the Federal Power Act ("FPA"), the Commission is preempted from reconsidering the MPRP transmission needs analysis ("TNA") approved by ISO-NE, and specifically, that the Commission is forbidden to even look behind the curtain at the assumptions used by ISO-NE and CMP planners. *See* CMP Brief, App. C. CMP even goes so far as to threaten to sue the Commission, not just under preemption principles but also – incredibly – for violation of CMP's civil rights pursuant to 42 U.S.C. § 1983, with attorney fees available as costs under 42 U.S.C. § 1988. *See* CMP Brief, App. C at C-32.

CMP's overt hostility to the Maine Public Utilities Commission is simply astounding, particularly as its legal threats have absolutely no grounding in either law or fact. There are four fundamental problems with CMP's assertion of preemption. First, the MPRP includes proposed new capacity on both the bulk power system ("BPS"), which may fall within the

Federal Energy and Regulatory Commission ("FERC") jurisdiction, and the non-bulk power system, which is expressly outside FERC jurisdiction. *See* 16 U.S.C. § 8240(b)(1). The Commission has exclusive jurisdiction over the non-BPS elements of the MPRP and is obligated by state law to make specific findings on the public need for new transmission capacity. 35-A M.R.S.A § 3132(6). Thus, the Staff and Commission's review of flaws in the TNA is not just appropriate – it is mandatory.

Second, even regarding the BPS portions of the MPRP, CMP's preemption claim is ludicrous. It's black letter law that the Supremacy Clause applies only to actions of Congress or a federal agency: private utilities such as ISO-NE have no power to preempt the states. Moreover, the FPA expressly preserves state permitting and siting authority for power lines, 16 U.S.C. § 824o(i)(3), and forbids the FERC or a designated electric reliability organization (here, NERC) from ordering or requiring new transmission capacity. *Id*. at §§ 824o(a)(3), 824o(i)(2). Thus, not even FERC – let alone ISO-NE – has authority to preempt state determinations of need for new transmission capacity (excepting designated national corridors). *See Atlantic City Elec. Co. v. FERC*, 295 F. 3d 1 (D.C. Cir. 2002) (FERC's jurisdiction is strictly limited to powers expressly granted by Congress).

Even if the MPRP transmission needs analysis could be considered the equivalent of a reliability standard – and, as described below, it is most certainly not -- when a decision of a state permitting authority is inconsistent with a *FERC-approved*[2] reliability standard, *Id*. at § 824o(a)(3), the FPA provides that a utility must file a complaint with FERC and then, after notice and an opportunity to be heard, *FERC shall issue* an order determining compliance. *Id*. at 16 U.S.C. § 824o(i)(4). Thus, it is FERC and not the privately owned regional transmission

[2] As described in the Staff Bench Analysis, as well as in the briefs of GridSolar, the IECG, and the Office of the Public Advocate, ISO-NE's selective, unprecedented, extreme, and often arbitrary assumptions in the TNA are not "FERC-approved" reliability standards.

organization ("RTO" here, ISO-NE) that is the final arbiter of disputes regarding reliability standards. That Congress overtly preserved state regulatory powers and established detailed provisions for FERC to resolve disputes over reliability standards is manifest evidence of its intent that RTOs such as ISO-NE cannot preempt state action. *See, e.g., Florida Lime & Avocado Growers, Inc. v. Paul*, 373 U.S. 132, 147 (1963) (to demonstrate preemption requires "an unambiguous congressional mandate to that effect").[3]

Further, the filed tariff doctrine is of no consequence here because ISO-NE's Open Access Transmission Tariff ("OATT"), as it must, expressly conforms to these statutory facts of life by also providing for FERC review of state decisions:

> In the event that a PTO ... demonstrates that it has failed (after making a good faith effort) to obtain necessary approvals or property rights under applicable law, the ISO-NE shall promptly file with *the Commission* [FERC] a report on the results of the planning process, which report shall include a report from the PTO responsible for the planning, design or construction of such Transmission Upgrade, in order *to permit the Commission to determine what action, if any, it should take*.

OATT, Attachment K, § 12 (emphasis added).[4] *See also* ISO-NE Transmission Operating Agreement ("TOA"), Sched. 3.09(a) § 1.1(a) (ISO-NE's determinations with regard to reliability standards are "[s]ubject to the requirements of applicable law, government regulations and approvals, including requirements to obtain any necessary federal, state or local siting, construction and operating permits"). Nothing in the filed tariff doctrine prevents the Commission from revisiting the needs analysis. If CMP does not like the result, its remedy under the OATT is to seek FERC review of the conflict, not to claim for itself FERC's powers of preemption.

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[3] An RTO's enforcement authority under 16 U.S.C. § 8240(e)(4), by its plain language, extends only to utilities and owners of transmission systems, and not to actions of a state agency, such as the Commission's CPCN review.

[4] Notably, as CMP concedes, even the "binding arbitration" process established under Attachment K is subject to FERC review and does not restrict any party's rights under the FPA. CMP Brief, App. C at C-11 to C-12.

The third fatal error in CMP's preemption argument is to conflate the *assumptions* in its needs analysis with federal *reliability standards*. Under the FPA, the "term 'reliability standard' means a requirement, approved by [FERC], to provide for reliable operation of the bulk-power system" and "and the design of planned additions or modifications to such facilities to the extent necessary to provide for reliable operation of the bulk-power system," 16 U.S.C. § 824o(a)(3). "The term 'reliable operation' means operating *the elements* of the bulk-power system within equipment and electric system thermal, voltage, and stability limits. . . ." *Id.* § 824o(a)(4) (emphasis added).

Thus, reliability standards are the specific criteria necessary to ensure reliable operation and design of the physical elements of the grid – not the assumptions used in planning studies. Indeed, ISO-NE's written reliability standards do not even specify specific planning assumptions, but rather require only that planning studies incorporate "*reasonable assumptions* for certain amounts of forecasted load growth, and generation and transmission facility availability (due to maintenance, forced outages, or other unavailability)." ISO-NE OATT, Attachment N § II.A (emphasis added).

Consistent with Congressional intent in the FPA to ensure the reliability of the interstate BPS, the assumptions used to determine compliance with reliability standards should be generally uniform and consistent nationally, and particularly within a planning region, and should prevent disparate treatment among stakeholders. Here, it has been well documented that ISO-NE and CMP's reliability planning assumptions are anything but reasonable, uniform, consistent or fair. We will not repeat the list of errors again here, but rather note that the Staff and parties have provided clear and convincing evidence that the TNA applies wholly ad-hoc, arbitrary, inaccurate, biased, and unprecedented assumptions – both within the ISO-NE region and as compared to other RTOs nationally. (*See, e.g.,* Staff Bench Analysis

(Oct. 26, 2009); Brief of IEGC (March 16, 2010); OPA Brief at Section D, pages 9-20.) Accordingly, CMP's transmission needs analysis can have no pre-emptive force. Rather, it is ineffective, as it violates the FPA and ISO-NE's own rules requiring "reasonable assumptions." ISO-NE OATT, Attachment N § II.A.

Fourth and finally, CMP's contention that the Commission is preempted from revisiting ISO-NE's planning study assumptions impermissibly infringes upon the State's exclusive authority to determine how to meet reliability needs. Under the FPA reliability standards cannot "include any requirement to enlarge . . . or to construct new transmission capacity . . . ." 16 U.S.C. § 824o(a)(3), and an RTO may not "order the construction of additional . . . transmission capacity." *Id*. §§ 824o(i)(2)-(3).

Inherent in the power to determine how to meet reliability needs is the power to implement solutions that are dynamic, modular and adaptive – i.e. that are "smart" – so as to avoid unnecessary, premature or stranded transmission costs. Thus, it is clearly within the Commission's power to correct for known errors, omissions, and outdated assumptions in planning studies, and to meet reliability needs through dynamic, "smart grid" solutions such as the GridSolar Project that implement reliability projects in phases if and when needed based on metering of *actual* grid conditions rather than on easily manipulated models. Indeed, this adaptability is the fundamental premise of the smart grid as recently endorsed by Congress, *see* 42 U.S.C. § 17381 *et seq*., and the FPA specifically empowers states to chose such solutions. CMP cannot cut off this option by claiming that the Commission is preempted from reviewing, correcting, updating, and revising what are clearly false and increasingly stale planning assumptions.[5]

[5] As an example of stale planning assumptions, GridSolar notes that the new ISO-NE load assumptions are available for the Regional System Plan for 2010 and contained in "ISO New England and States RSP10 Long-run Forecasts of Energy and Seasonal Peaks", dated March 18, 2010. GridSolar has attached this document as Appendix C and requests that the Commission take administrative notice of this document in this case. These

Therefore, for the reasons stated above, the Commission is not preempted from revisiting the assumptions used in CMP's transmission needs analysis. To the contrary, the Commission must carefully evaluate the public need for the proposed project and issue specific findings as part of its decision.

4. Because the MPRP is Ineligible for a Section 404 Wetlands Permit, the Commission Should Approve the GridSolar Project to Address Pending Reliability Needs

As discussed in the preceding paragraphs, and as CMP concedes, FERC has jurisdiction to establish reliability standards, but it may not determine how to meet those standards, e.g., whether to build more transmission or address needs through non-transmission alternatives. 16 U.S.C. § 824o(a)(3); see also CMP Brief, App. C at C-2.

FERC's limited authority under the FPA is entirely consistent with separate federal siting requirements under Section 404 of the Clean Water Act that require the Army Corps of Engineers to evaluate less environmentally damaging practicable alternatives ("LEDPA") to proposed projects and to deny a wetlands dredge and fill permit whenever a LEDPA is available. 33 U.S.C. § 1344; *see also* 40 C.F.R. § 230.10(a).[6] Both ISO-NE and CMP also fully acknowledge the supremacy of such permitting and siting requirements. *See, e.g.,* TOA, Sched. 3.09(a) § 1.1(a) and CMP Brief, App. C, at C-16.

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new forecasts show continued reductions in forecasted peak loads in the region and provide additional support to the load forecasts presented by the Staff in its Staff Bench Analysis.

[6] Because the Federal Power Act does not purport to govern siting determinations or even the selection of alternatives to meet reliability requirements, there is no conflict between the FPA and other federal statutes such as the Clean Water Act that do impose siting requirements or that require application of the least environmentally damaging alternatives. *See, e.g., Morton v. Mancari*, 417 U.S. 535, 551 (1974) ("The courts are not at liberty to pick and choose among congressional enactments, and when two statutes are capable of co-existence, it is the duty of the courts, absent a clearly expressed congressional intention to the contrary, to regard each as effective."). *See also* 16 U.S.C. §§ 824p(h), (j) (requiring that national transmission corridors comply with the Clean Water Act).

CMP states that it expects to obtain the required 404 permit this spring (CMP Brief at page 114), however, as noted in our primary brief, the Commission should not give credence to this rosy prediction. Pursuant to the Corps' 404(b)(1) Guidelines, it is CMP's burden to "clearly demonstrate" that non-transmission alternatives are impracticable to meet the MPRP's reliability purpose. 40 C.F.R. § 230.10(a)(3). Here, CMP has conceded and clearly demonstrated that non-transmission alternatives are in fact available and will meet its reliability goals. (GridSolar Brief, Section 6.5 at pages 59-61.)

While CMP and its consultants attempted to discredit those alternatives as too costly,[7] their use of socialized cost – i.e., cost to Maine ratepayers -- as a screening criterion is neither accurate as a factual matter,[8] nor relevant as a legal matter under the Clean Water Act. Instead, the Corps must look at the MPRP in terms of "overall" cost. *See* 40 C.F.R. § 230.10(a)(2) ("An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of *overall* project purposes.") (emphasis added); Environmental Protection Agency, *Guidelines for Specification of Disposal Sites for Dredged or Fill Material*, 45 Fed Reg. 85336 (Dec. 24, 1980) (the cost factor requires consideration of the "*overall* scope/cost of the proposed project")(emphasis added). Indeed, consideration of anything less would be to cede federal wetlands jurisdiction to the states, which the Corps may not do. Moreover, the 404(b)(1) Guidelines do not require that a project be least cost to be practicable, but rather that an alternative be reasonably

[7] See CMP Brief at page 6 ("CMP presented a comprehensive examination of non-transmission alternatives (NTAs) to MPRP. That analysis shows that even the cheapest NTAs are more expensive *for Maine* than MPRP",) (emphasis added).

[8] As noted by GridSolar in its Brief at page 48, "… at the lower needs levels resulting from the Staff Needs Assessment, the GridSolar Project will cost Maine ratepayers less than the MPRP, even if Mainers pay only 8.5% of the total costs of the MPRP. When savings from the avoided costs of non-PTF and distribution level investments that would otherwise be needed over the next 10 years are included, costs that are paid 100% by Maine ratepayers, the GridSolar Project costs less than half of the cost of the MPRP and will save Maine ratepayers more than $300 million of net present value over the next ten years."

obtainable. 40 C.F.R. § 230.10(a)(2). Here, based on the sworn testimony in this case, the non-transmission alternatives analyzed by both LaCapra and GridSolar meet that cost test. Accordingly, there is no reason to presume that the MPRP will meet the LEDPA standard or that it will obtain a 404 permit.

In light of the above discussion and the letter recently filed by The Sierra Club – Maine Chapter opposing a 404 permit for the MPRP (*see* Appendix B), we believe that it is prudent for the Commission to recognize that the MPRP application under Section 404 is likely to be denied or, at a minimum, the in-service date could be delayed three or four years due to legal challenges to the Section 404 permit in the unlikely event one is ever issued. In either case, the reliability requirements of the CMP bulk power system will remain and must be addressed.

This situation would not be without precedent. As ISO-NE noted during the hearings, when the in-service date of transmission lines in Connecticut was delayed due to issues that arose during site permitting, ISO-NE initiated a so-called "Gap RFP" to secure in-region generation and demand response resources under four to five year contracts to meet the grid reliability requirements during the period of delay. (Tr., 2/2/10, page 71 and page 208.) As we noted earlier in this Reply Brief, this approach worked well by all accounts, although it was not favored by existing generators and had localized impacts on costs that were different from those that would have resulted from building the transmission lines.

When asked about a similar situation in Maine, that is, a denial of a CPCN or a delay in the in-service date of one or more components of the MPRP, ISO-NE indicated that a Gap RFP was a possibility, but it would be a last resort. (*See* Tr., 2/2/10, at page 211 ("[T]his is actually in the market rules right now, the gap RFP is a last resort, which we would hope not

to get there. If we got there, then that's the path ultimately we may have to go down.").)

Following up on Mr. Rourke's comments, Mr. Brandien, also from ISO-NE, noted:

> MR. BRANDIEN: I think one of the first things that we would need to do is I would be running the Yarmouth units around the clock because I think the need that's left is the Maine import in the Portland area. You only have two 345 lines. You take one line out, the import capability into -- into Maine is around 200, sometimes less, sometimes a little bit more, and then you look at some of the contingencies that could take place in the Portland area. So the first thing that I think you would see happen is a significant run time and the uplift costs associated with the Yarmouth units, and I would have to be pre-committing them every day. And then if that's not enough -- or when that's not enough, you would need to go out for the gap RFP to bring in additional resources that those units don't, so you would first be running the units quite often and then going out and getting additional resources with the gap RFP.
>
> DR. SILKMAN: Why would you assume that it would be cheaper to do an RMR contract with Wyman than to do the gap RFP? Wouldn't you look for the cheapest way of solving this problem?
>
> MR. BRANDIEN: The Yarmouth units are in the market before -- before, you know, we would go out and utilize a gap RFP. And, Steve, I think we had to go to FERC -- I was down at Northeast Utilities at the time but I think to do the gap RFP, I think we would have to go to FERC to get authorization for the gap RFP but I'm not a hundred percent sure on that. Maybe there's something in the tariff that allows us to do it. But we would use all the resources that are in the market. And then if those aren't enough, then we would have to go out, and, as Steve said, it's more of a last-ditch effort to maintain reliability to go out and get the gap RFP to meet the needs.

(Tr., 2/2/10, at page 212.)

Based on these comments, it would appear that ISO-NE rules require it to secure reliability services from resources that are "in the market" prior to issuing a Gap RFP, regardless of whether reliance on such resources would cost more than alternative options. As has been made very clear on a number of occasions during this case, any "solution" that requires making Reliability Must-Run ("RMR") payments to the Wyman Units in Yarmouth is likely to be very expensive due to its slow ramp rate and the fact that it burns oil. (Tr., 2/2/10, at pages 205-206 and pages 218-219.) It is certainly going to be much more expensive than an alternative that includes in-region distributed solar PV generation, fast-start generation resources and demand resources.

To avoid a situation in which ISO-NE takes any unilateral actions to secure an RMR contract with the Wyman Units, the Commission should instead direct CMP to enter into a contract with GridSolar to initiate the GridSolar Project as a non-transmission alternative to the MPRP.[9] This contract should specify an obligation to build out the GridSolar Project only to the extent necessary to meet reliability requirements as these have been determined in the Staff Needs Assessment,[10] specifically with respect to the amount of in-region resources required and the year-of-need of such resources. In addition, the directive should specify that the contract should be on terms and conditions as generally set forth in the GridSolar filings in this docket. Further, to the maximum extent possible, GridSolar should be directed to locate generation and demand response resources in the Portland – South Portland region and the Mid-Coast region consistent with the recommendations of the Office of Public Advocate ("OPA") (OPA Brief, at Section G, pages 25-26), the Industrial Energy Consumer Group ("IECG") (IECG Brief at page 6) and the Conservation Law Foundation ("CLF") (CLF Brief, at page 6), and if additional resources are required, in the Western Mountain region. The Commission should direct CMP to work with GridSolar to ensure that the location of these resources will offset to the greatest extent feasible any future upgrades to CMP's non-bulk power, non-PTF and distribution systems. Finally, consistent with the recommendation of the OPA, "the Commission [should] retain oversight of these pilots, with frequent reports on the progress and results." (OPA Brief at page 26.)

By unilaterally and rapidly initiating this action, the Commission can preempt actions that ISO-NE may otherwise be forced to take under its tariff: actions that will cost Maine

[9] GridSolar described in detail the statutory authorities that the Commission may rely upon to enter into such a contract in its Brief at pages 49-52.

[10] Maine Public Utilities Commission Staff Requested Needs Analysis, (CONFIDENTIAL), prepared by RLC Engineering, May 29, 2009.

ratepayers significant amounts of money.[11] ISO-NE has stated very clearly that, in conducting any needs assessments for reliability purposes, it includes in its modeling all state-approved contracts for reliability resources in accordance with Attachment K. (Tr., 2/2/10 at page 88.)

5. GridSolar Should Be Accorded the First Opportunity to Develop Non-Transmission Alternatives to the MPRP, Whether as a Pilot Project or to Address Delays in CMP's Ability to Bring Portions of the MPRP On-Line

The OPA, IECG and CLF have each recommended that the Commission's Order in this case include the establishment of GridSolar Pilot Projects in the Portland – South Portland region and in the Mid-Coast region. As noted by the OPA in its Brief:

> GridSolar has made a credible case for solar distributed generation, with fossil-fired back-up generation and demand response, as an alternative to transmission. (Fagan Surrebuttal, pp. 51-56.) In addition, GridSolar's smart grid proposal to monitor, through metering and communication devices, the entire grid for the purposes of manipulating the loadings on the high voltage lines deserves to be tested in Maine. The concept is simple: monitor loads at low voltage substations, and dispatch distributed generation to satisfy demand before the demand appears the PTF system. CMP has indicated that this approach has the same reliability as the MPRP. This smart grid proposal would have the added benefit of providing to the Commission and other stakeholders precise loading and load growth information on individual circuits and in discreet load pockets. Such information, coming from a third party whose interest is not in maximizing the amount of utility transmission plant could be extremely valuable in transmission planning, particularly for the non-PTF system where this Commission has primary authority … We believe that the Commission should consider GridSolar for a distributed solar generation pilot in each of these areas. To the extent possible, we also recommend that GridSolar's smart grid idea be a part of these pilots."

(OPA Brief, at pages 25-26.)

[11] GridSolar points out that, upon the completion of the LaCapra study by July 2008, CMP knew or at least should have realized that the MPRP was unlikely to meet the LEDPA standard of the Clean Water Act, and that at best, CMP had a very difficult burden of proof. CMP's failure to act upon this knowledge and expedite the Army Corps of Engineers process rather than leaving its filing to the end of the PUC case in 2010, is yet another example of CMP's arrogance and imprudence that is leading the Commission and Maine ratepayers into some very difficult waters. It is not GridSolar that has created the necessity for the Commission to act now to prevent an expensive RMR contract for the Wyman Units in Yarmouth, but rather CMP. It is GridSolar that has provided a reasonable alternative to the RMR contract and a path out of this unfortunate situation for the Commission.

CLF concurs, stating "The Grid Solar model, deploying Smart Grid technology to manage and dispatch demand resources and clean, renewable distributed generation, should be used to supplant the components of CMP's transmission solution in at least the Mid-Coast area and should serve to address reliability problems in the South Portland area." (CLF Brief at page 6.)

The OPA and CLF recommendations are based on the recognition of the role GridSolar has played in this case. The OPA states, "We believe it is appropriate to allow GridSolar participate in these two pilots. The MPRP docket has been open for many months, and was preceded by many meetings open to all stakeholders, such that notice of the MPPR has widespread. GridSolar is the only alternative provider that has come forward and offered a solution." (OPA Brief, note 20 at page 25.)

CLF is equally laudatory of the GridSolar efforts. "Despite a CPCN review process that affords no clear opportunity for third parties to analyze the transmission proposal and to offer alternatives, this proceeding has benefited from the aggressive and steadfast advocacy of the Grid Solar intervenors. Grid Solar has helped demonstrate the role that non-transmission alternatives can serve in addressing peak load problems." (CLF Brief at page 6.)

There has been some suggestion that the Commission should conduct an RFP if it determines that a non-transmission alternative is appropriate. GridSolar rejects this approach. GridSolar has participated in this case at considerable expense, both in terms of out-of-pocket costs and the time commitment of its two principals, Dr. Silkman and Mr. Isaacson. As noted by the OPA and CLF, GridSolar has been instrumental in demonstrating the ability of NTAs to address the reliability issues on the CMP grid and its participation has benefited the process. During the more than 18 months that have transpired since this case was initially filed in July

2008, no other party has come forward with a non-transmission alternative proposal. In fact, no other NTA proponent has come forward to even participate in the case.

GridSolar has presented a fully developed non-transmission alternative to the MPRP that it has shown to be as or more effective in meeting CMP's grid reliability needs, less costly overall and, at the Staff Needs Assessment levels, less costly to Maine ratepayers. GridSolar also creates more long-term job opportunities for Maine residents and is supportive of Maine's energy policies and laws. GridSolar has indicated that it would develop the GridSolar Project as a regulated public utility, an offer that was rejected by the Commission in its decision in Docket 2009-152, where it found that GridSolar did not meet the requirements of a transmission and distribution utility. As an alternative, GridSolar has offered to enter into a contract with CMP for "grid reliability services" in which the contract would be subject to full Commission oversight comparable to that the Commission would give to a regulated utility. This is a degree of oversight that goes beyond even that recommended by the OPA.

GridSolar submits that the status of the GridSolar Project and the MPRP at this point in the case are comparable. Both are proposals brought before the Commission under 35-A M.R.S.A § 3132(6) and Chapter 330(9) for meeting a reliability need that exists on CMP's transmission grid. Both are presented to the Commission in forms that permit comparable Commission oversight and regulation. The Commission should no more choose the GridSolar Project but seek bids through an RFP for its ownership, construction and operation, than it should choose components of the MPRP but seek competitive bids through an RFP for its ownership, construction and operation.[12] Such actions in either case would have a chilling

[12] We note in this regard that the Legislature has established a procedure that permits an entity that is not a transmission and distribution utility to develop transmission lines in energy infrastructure corridors. Were the Commission to designate the MPRP locations as energy infrastructure corridors, the Commission could seek competitive bids to construct the transmission lines. 35-A M.R.S.A § 122. It may also be possible to achieve the same result under § 3132 in a manner that is now before the Commission in the form of the petition filed on December 21, 2009, by Algonquin Power Fund (America) Inc. in Docket No. 2009-421.

effect on any party's willingness bring beneficial concepts, projects or opportunities before this Commission in future proceedings.

6. Contrary to CMP's Assertion, the Ability of the GridSolar Project to Change and Adapt to New Technologies and Opportunities is a Strength and not a Weakness and is Yet Another Characteristic that Distinguishes the GridSolar Project from the MPRP

CMP characterizes the GridSolar Project as "evolving"[13] as if this were a weakness. In fact, the GridSolar Project, with its incremental build-out in response to peak load growth and system reliability requirements and its flexibility to adapt to changes in technology and the regulatory environment, is far superior to the $1.5 billion immutable, unalterable and sunk cost of the MPRP.

The MPRP must be built in full and in advance of load growth. This exposes Maine ratepayers to financial risks should anticipated load not materialize or be delayed. In fact, looking out over the ten-year planning horizon of the CMP Transmission Needs Assessment through 2017, it now appears that peak load will actually drop: the 2017 forecasted load is less than the load forecasted by CMP for 2007. (Staff Bench Analysis, Oct. 2009, Figure 4 at page 17.) The MPRP cannot respond to this changed situation gracefully.

The MPRP is similarly unable to respond to changes in technology or in the regulatory environment that can lower the costs of meeting grid reliability requirements. Regardless of whether or not LaCapra failed to carefully examine new battery technologies as a non-transmission solution when it performed its NTA study in 2007 and 2008, the fact is conditions have changed. The Western Grid case has shown battery storage to be a very

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[13] " "… Since its initial filing, the GridSolar proposal has evolved, adding "smart grid" components, batteries, and additional demand response …" (CMP Brief at page 93.)

viable alternative to transmission and one that FERC has deemed to be "transmission" and therefore subject to the same cost treatment as transmission investments.[14] GridSolar has responded to this new situation by indicating that it would carefully consider integrating battery storage options into the GridSolar Project solution to determine whether doing so could lower the costs of meeting reliability requirements. (Tr., 2/12/10 at pages 45-48.) In contrast, CMP completely ignored the Western Grid case and its implications for Maine ratepayers until it was introduced into this case by GridSolar. And at that point, rather than looking carefully to see whether or not its NTA study should be revisited to determine whether the FERC decision could provide benefits to Maine ratepayers, CMP has sought only to prove that distributed solar generation is generation and not transmission – a fact GridSolar readily acknowledges. (CMP Brief at pages 87, 95.)

The GridSolar Project suffers no such infirmities. If load does not grow as rapidly as forecasted, GridSolar will slow the build-out of the GridSolar Project and save ratepayers money.[15] Since the costs of distributed solar generation and battery storage options are falling, GridSolar will promote the use of energy efficiency and demand response to delay the year in which distributed solar generation and battery storage devices must be deployed.[16] This will also save Maine ratepayers money. GridSolar will continue to evaluate new technology options for meeting grid reliability requirements, including smart grid technologies, advances in solar PV generation and new storage devices such as plug-in

[14] Federal Energy Regulatory Commission, Order on Petition for Declaratory Order, Docket No. EL10-19-000, 130 FERC 61,056, Jan. 21, 2010.

[15] Astoundingly, CMP has argued that it is better to build the MPRP sooner rather than later, regardless of whether it is necessary, since it believes the cost of building transmission will increase faster than the rate of inflation and presumably faster than the time value of money to Maine ratepayers.

[16] In contrast, CMP has received approval to deploy AMI technology throughout its service territory but has absolutely no plan in place to utilize that technology to reduce peak loads to delay the year-of-need for the MPRP. (Tr., 2/3/10, pages 198-199.)

vehicles, searching for options that can lower the costs of grid reliability and save Maine ratepayers money.[17]

Evolution, adaptation, responsiveness, change – these are the characteristics of solutions to meeting grid reliability requirements that are going to save Maine ratepayers money. The GridSolar Project is the embodiment of these characteristics. The MPRP is the antithesis. This fact goes a long way toward explaining the incompleteness, inadequacies, arbitrariness and biases in CMP's presentation, scope of analysis, argument and defense of its petition for a CPCN for the MPRP.

[17] "FERC has determined that batteries, when deployed and operated in a manner that provides grid reliability services, are wholesale transmission equipment and must be treated as such for cost recovery and other related purposes. If this ruling means that Maine ratepayers are better off with batteries than with back-up generation or with demand response resources, since the costs of batteries can be socialized, then GridSolar will deploy batteries in place of back-up generation and demand response. The ability to change back-up systems as opportunities arise is a crucial distinction between the GridSolar approach and the classic transmission solution. It does not matter if the distinction is driven by the cost of solar generation or the decisions of a governmental body. The flexibility afforded by the GridSolar Project yields substantial dividends in an environment in which technology, government policies and the rules and regulations governing the organization and operation of the electric grid are changing." (GridSolar Surrebuttal Testimony, at page 43.)

APPENDIX A ISO-NE Notification of OP 4 Event on March 14, 2010

Rich Silkman

From: Kuznecow, Alex [akuznecow@iso-ne.com]
Sent: Tuesday, March 16, 2010 8:21 AM
To: NEPOOL Market Committee List
Subject: FW: Implementation of OP#4 Actions System Wide on March 14, 2010
This message is being sent on behalf of Steve Weaver (ISO New England).

From: Weaver, Steve [mailto:sweaver@iso-ne.com]
Sent: Monday, March 15, 2010 11:14 AM
To: NEPOOL Market Committee List; NEPOOL Reliability Committee
Cc: M S Heads Full Distribution List; Goodman, Kathleen; Babula, Mark; Operational Update
Subject: Implementation of OP#4 Actions System Wide on March 14, 2010

Please see the attached information on the March 14th implementation of ISO New England Operating Procedure #4.

<<op4actions 031410.doc>>

Steve Weaver
Manager, Control Room Operations
ISO New England Inc.
(413) - 535 - 4352

Steve Weaver
Manager, Control Room Operations

March 14, 2010

TO: NEPOOL Market Committee, NEPOOL Reliability Committee

SUBJECT: Implementation of ISO Operating Procedure #4 on Sunday, March 14, 2010

On Sunday, March 14, 2010 ISO New England implemented Operating Procedure #4 system-wide in New England due to generator forced outages in the hour following the evening peak. New England came into the operating day with 205 megawatts of generation above operating reserve requirements. The peak hour demand was 15,968 megawatts for hour-ending 20:00, within 20 megawatts of the forecast. ISO New England implemented M/LCC Procedure #2 at 19:00 for the purpose of curtailing real-time dispatchable export transactions over the peak hour. Between 20:05 and 20:15 New England unexpectedly lost 637 megawatts to forced outage, resulting in a 400 megawatt deficiency in thirty minute reserves. New England entered OP#4 Actions 1 & 6 at 20:30 allowing depletion of thirty minute reserves. Thirty minute reserves were restored just after 21:00. New England remained in OP4 until 22:00 allowing the shutdown and timeout of fast start generation. M/LCC#2 was cancelled at 23:00. The capacity analysis below reflects conditions during the 21:00 peak hour.

Action(s)	Implemented	Canceled
M/LCC#2	19:00	23:00
OP#4 Actions 1 & 6	20:30	22:00

The capacity analysis for the peak hour is as follows:

1	Seasonal Claimed Capability		34139
1a	Capacity additions > ECOMAX		115
2	Dispatchable Loads		0
3	Outages and Reductions		5226
4	Generation Unavailable Due to Start Time		13078
5a	NYISO Sales		-747
5b	NBSO Purchases		452
5c	TE Purchases		1608
5	Total Available Capacity		**17263**
7	Load at Peak Hour		15,610
8	Operating Reserve Requirement		2080
9	Net Capability Required (7 + 8)		**17,690**
10	Capacity Margin (6 - 9)		**-427**
11	OP 4 Actions Implemented		
	Actions 1&6	Relief Estimate	427

CC: Operational Update
Master Local Control Center Heads
Kathleen Goodman
Mark Babula

APPENDIX B Letter from The Sierra Club - Maine Chapter to the U.S. Army Corps of Engineers

SIERRA CLUB
FOUNDED 1892

Maine Chapter
44 Oak St, Suite 301, Portland, ME 04101
Phone: (207) 761-5616
Fax: (207) 773-6690
www.maine.sierraclub.org

March 15, 2010

Jay Clement
Maine Project Office
US Army Corps of Engineers
675 Western Ave.
Manchester, ME 04351

Re: NAE-2008-03017, Maine Power Reliability Program

Dear Mr. Clement,

We would like to provide the following comments regarding Central Maine Power's ("CMP") proposed Maine Power Reliability Program ("MPRP"), project number NAE-2008-03017.

The Maine Chapter of the Sierra Club ("Maine Chapter") represents over 5,000 members and supporters. For over a century the Sierra Club has been devoted to the conservation of our forests, mountains, rivers, coasts and other natural areas. The Maine Chapter, a grassroots organization, managed by a volunteer board, advocates for and works to protect Maine's wilderness heritage, fight global warming & promote smart growth, promote clean air and energy efficiency and hold public officials accountable

The Maine Chapter is dedicated to protecting Maine's wetlands and water quality and to the development of a progressive energy policy that will help our state reduce its emissions of greenhouse gasses and other pollutants, increase use of zero-emission renewable energy, and use energy more efficiently. In keeping with these objectives, the Maine Chapter urges the Corps to reject the proposed MPRP permit application, on grounds that there are available practicable less environmentally damaging non-transmission alternatives – including energy efficiency, demand resources, smart grid management, battery storage, distributed renewable generation, and various hybrid combinations of all of these. These alternatives will have minimal or no wetlands impacts, cost less, and will help our state meet its energy and climate goals. In comparison, the MPRP would have severe wetlands impacts - including permanently filling about 385 acres of wetlands, damaging 1,200 linear feet of stream banks, and temporarily impacting another 113 acres of wetlands - costing far more and would do nothing to help resolve the energy and climate crises.

Pursuant to Section 404 of the Clean Water Act, 33 U.S.C. § 1344, before issuing permits for the discharge of dredged and fill materials at specified disposal sites, the Corps must insure that the proposed action complies with the strict mandate in its section 404(b)(1) Guidelines that

> no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.

40 C.F.R. § 230.10(a) (the less environmentally damaging practicable alternative, or "LEDPA", standard). For activities that involve filling of special aquatic sites such as wetlands but which are not water dependent, practicable alternatives that do not impact special aquatic sites are presumed to be available unless clearly demonstrated otherwise." *Id*. at 230.10(a)(3). In addition, in such cases, "all practicable alternatives to the proposed discharge which do not involve a discharge to a special aquatic site are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise." *Id.* An alternative is deemed practicable "if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." *Id*. § 230.10(a)(2).

The purpose of the MPRP is to ensure the "reliability" of Maine's electric grid. This is categorically a non-water dependent activity. Therefore, "the Corps may not issue a § 404 permit unless the applicant, 'with independent verification by the Corps, provides detailed, clear and convincing evidence *proving'* that an alternative with less adverse impact is 'impracticable'". *Greater Yellowstone Coal. v. Flowers*, 359 F.3d 1257, 1269 (10th Cir. 2004) (emphasis in original). *See also Guidelines for Specification of Disposal Sites for Dredged or Fill Material*, 45 Fed. Reg. 85336 (Dec. 24, 1980) (responsibility is on the applicant " to persuade the permitting authority that both of [the § 230.10(a)(3)] presumptions have clearly been rebutted in order to pass the alternatives portion of these guidelines").

In the case of the MPRP, the Corps must first verify that there is a legitimate need for the MPRP as proposed. According to CMP's webpage, the purpose of the MPRP is to maintain and improve reliability of the electric grid in the CMP service territory through 2017. The project would include almost 500 miles of new or expanded transmission lines and substation upgrades at a total estimated cost of $1.6 billion

It is well known, however, that in the Maine Public Utilities Commission ("MPUC") proceedings on this same matter, *see* MPUC Docket # 2008-255,[1] the MPUC staff determined that the CMP's transmission needs analysis significantly overstates and accelerates the need for transmission system investment. *See* MPUC Staff, Redacted Bench Analysis at 1 (Oct. 26, 2009). MPUC staff analysis noted that CMP used exaggerated peak demand forecasts and extreme worst case planning scenarios. As a result, the MPUC staff determined that roughly half of the proposed MPRP is "not needed with a reasonable planning horizon." *See id.* at 3-5 and Tables 1-2.

Pursuant to the Clean Water Act ("CWA"), as well as the National Environmental Protection Act ("NEPA"), the Corps must take a "hard look" at the applicant's proposed purpose and need. 45 Fed. Reg. 85336. Where the project purpose and needs cannot be justified using appropriate planning criteria, accurate data, and reasonable planning horizons, the Corps must reject the application, or, at a minimum, require CMP to rescale and resubmit its 404 application.

Second, the Corps must determine that CMP has met its burden to provide "detailed, clear and convincing evidence proving" that non-transmission alternatives ("NTA") are impracticable to meet the project's reliability purposes. As exposed by the Office of the Public Advocate and other intervenors in the MPUC proceedings on the MPRP, CMP's analysis of NTAs falls short of this mark and is fatally flawed due to a host of errors, including that it:

- Severely overestimated peak electric demand forecasts and reliability needs, resulting in both an exaggerated and accelerated list of needed transmission upgrades;
- Analyzed non-transmission alternatives based solely upon these inflated and accelerated needs criteria, which caused it to prematurely discard practicable NTAs;
- Arbitrarily limited its review of NTAs based on costs to Maine ratepayers instead of overall project cost;
- Failed to review practicable alternatives, including demand response resources, battery storage and hybrid solutions;
- Greatly exaggerated the cost of photo-voltaic solar distributed generation; and
- Failed to consider the full range of avoided costs and transmission savings that would be generated by NTAs.

See MPUC Docket No. 2008-255 (testimony, briefs and other filings of the Office of the Public Advocate and GridSolar, LLC.). Accordingly, the Corps should deny CMP's permit application for failure to meet its burden under 40 C.F.R. § 230.10(a)(3) to prove that there are not less environmentally damaging practicable alternatives.

Third, even if CMP were to revise its NTA analysis, the Maine Chapter would not support issuance of a 404 permit because there are clearly non-transmission alternatives that are available and capable of being done taking into consideration cost, existing technology, and logistics in light of overall project purposes. *Id* § 230.10(a)(2). The global energy sector is undergoing rapid and phenomenal change. Technologies, efficiencies and economics are available that are transforming how we generate, transmit, monitor, and use electricity. The old way of doing business – generating electricity from remote power stations and transmitting it over long-distance high voltage lines to factories and urban load centers – is no longer applicable.

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[1] The complete docket (except confidential materials) is available online through MPUC's virtual case file at http://mpuc.informe.org/easyfile/easyweb.php?func=easyweb_splashpage.

Instead, examples abound in the U.S. and around the world where we are now able to use energy more efficiently, manage demand to avoid peak capacity limitations, and generate energy locally – close to where it is needed. This combination of alternatives not only avoids damage to our priceless wetland resources, but also provides critical tools to help us attack and solve the problems of global warming, regional haze, ozone pollution, sulfur dioxide pollution and particulate pollution. In Maine, the GridSolar Project has been proposed to provide exactly this solution as an alternative to the MPRP. Further, the CMP NTA analysis completed by LaCapra Associates, despite its flaws, also defines and evaluates a wide variety of alternatives to the MPRP that meet the overall project purpose with little or no wetlands impacts. Any one of these NTA alternatives renders the MPRP not LEDPA.

While the Maine Chapter does not endorse any one provider or company, we strongly endorse the concept of a non-transmission alternative to the MPRP that incorporates efficiency, the smart grid and distributed renewable generation. Furthermore, we note that GridSolar has stepped forward with detailed, clear and convincing evidence that it is a practicable alternative to the MPRP. *See* GridSolar filings in MPRP Docket No. 2008-255. Accordingly, because GridSolar has shown that a LEDPA exists, no permit can issue for the MPRP.

And this is exactly the purpose behind the Section 404(b)(1) Guidelines. As noted in the preamble to the Guidelines: "[T]he Guidelines always prohibit discharges where there is a practicable, less damaging alternative . . . . This [ ] reflects the wide range of water systems subject to 404 and the extreme sensitivity of many of them to physical destruction. These waters form a priceless mosaic. Thus, if destruction of an area of waters of the United States may reasonably be avoided, it should be avoided." 45 Fed. Reg. 85336.

We appreciate the opportunity to provide comments. If you have any questions, please contact Joan Saxe at 207.865.3648, jsaxe@suscom-maine.net.

Sincerely,

James Frick
Acting Chair

Appendix C "ISO New England and States RSP10 Long-run Forecasts of Energy and Seasonal Peaks," David Ehrlich, Supervisor – Load Forecasting, PAC Meeting, March 18, 2010.

ISO New England and States RSP10 Long-run Forecast of Energy and Seasonal Peaks

PAC Meeting
March 18, 2010

David Ehrlich
Supervisor, Load Forecasting

ISO new england

DRAFT

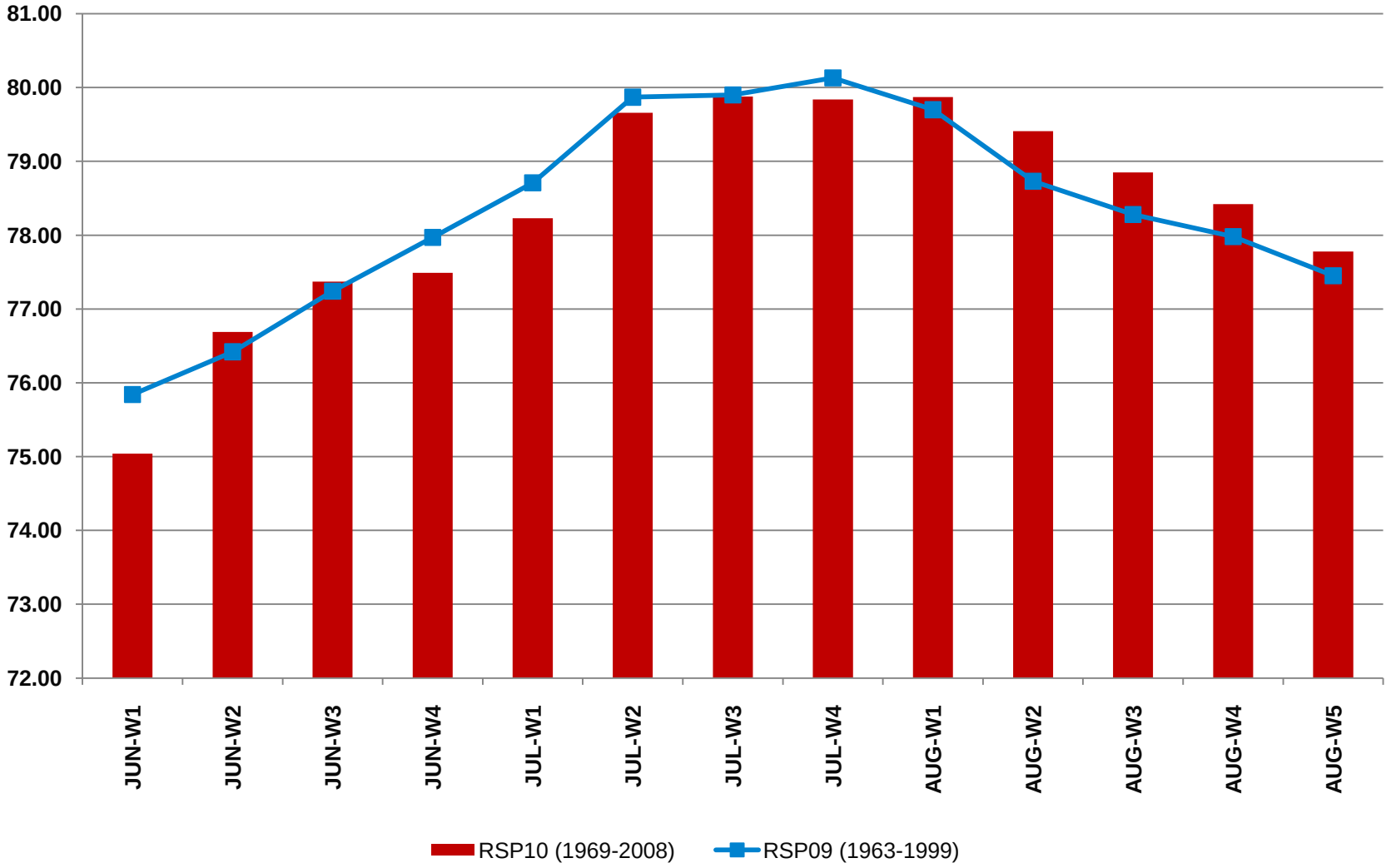
Agenda

- Highlights
- Weather Updates & Economic Forecast
- ISO-NE Annual Energy Demand Seasonal Peaks
  - RSP10 Forecast and Differences from RSP09
- States Annual Energy and Seasonal Peaks
  - RSP10 Forecasts and Differences from RSP09
- Sub-area Summer Peaks
  - RSP10 Forecasts

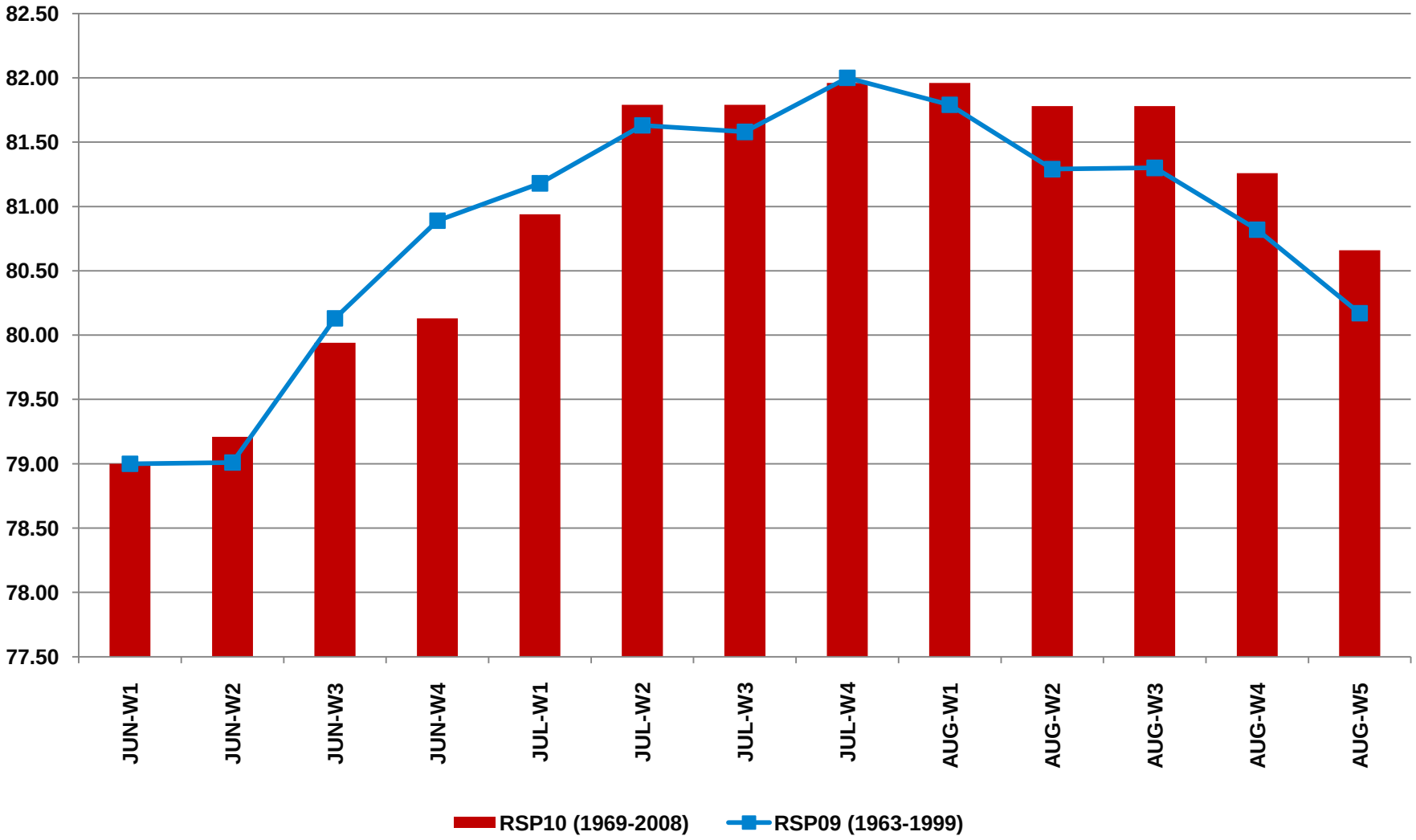
Highlights

- The recession is more severe than forecasted last year
- Updated historical weather is used to forecast weekly peak load distributions, and seasonal peak loads
  - Updated historical years from 1963-1999 to 1969-2008
  - June and July not quite as hot, but August hotter
  - January and December not quite as cold
- Updated economic and historical weather inputs have resulted in lower forecasts of energy and seasonal peak loads than in RSP09
- No changes in forecast methodology used for RSP10

New England 50/50 WTHI



New England 90/10 WTHI

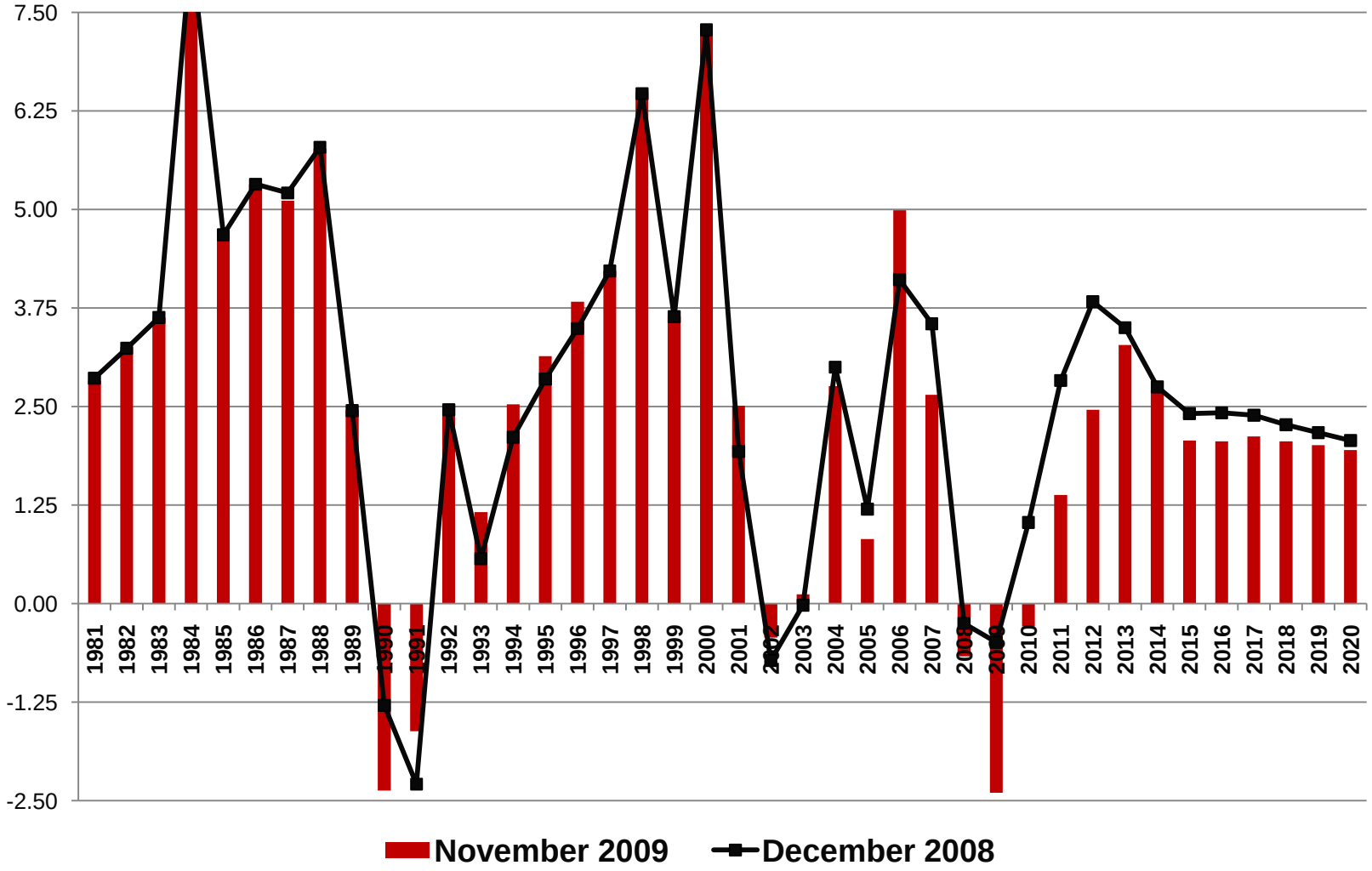


Economy.com November 2009 Economic Forecast

- Recession more severe than forecasted in December 2008
- Recovery started 3rd quarter 2009
- Real Income decline ends in early 2010
- Employment decline ends late 2010, but doesn't recover to 2008 level until late 2012

Economy.com 2008 & 2009 Forecasts

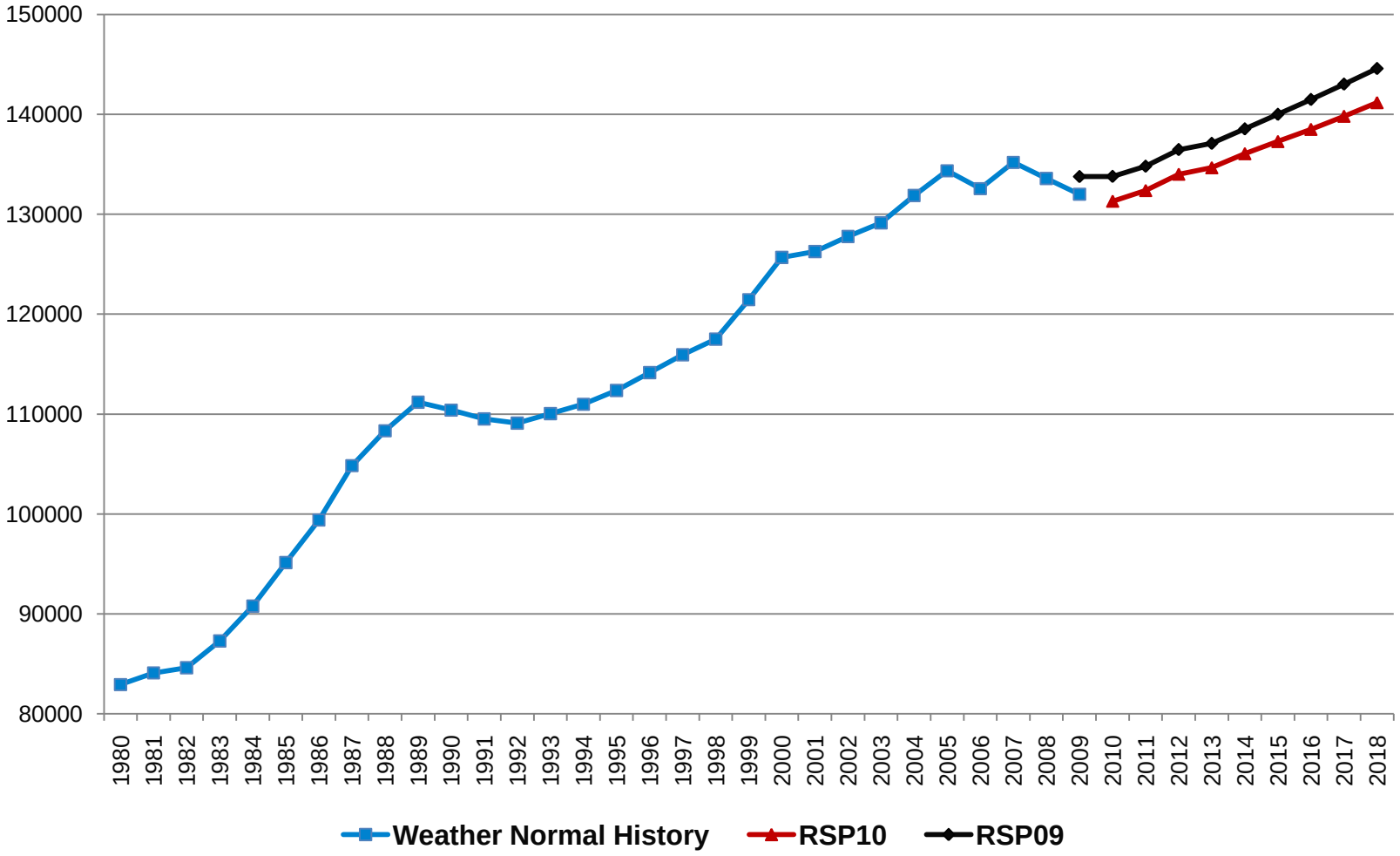
New England Real Personal Income: Annual Percent Changes



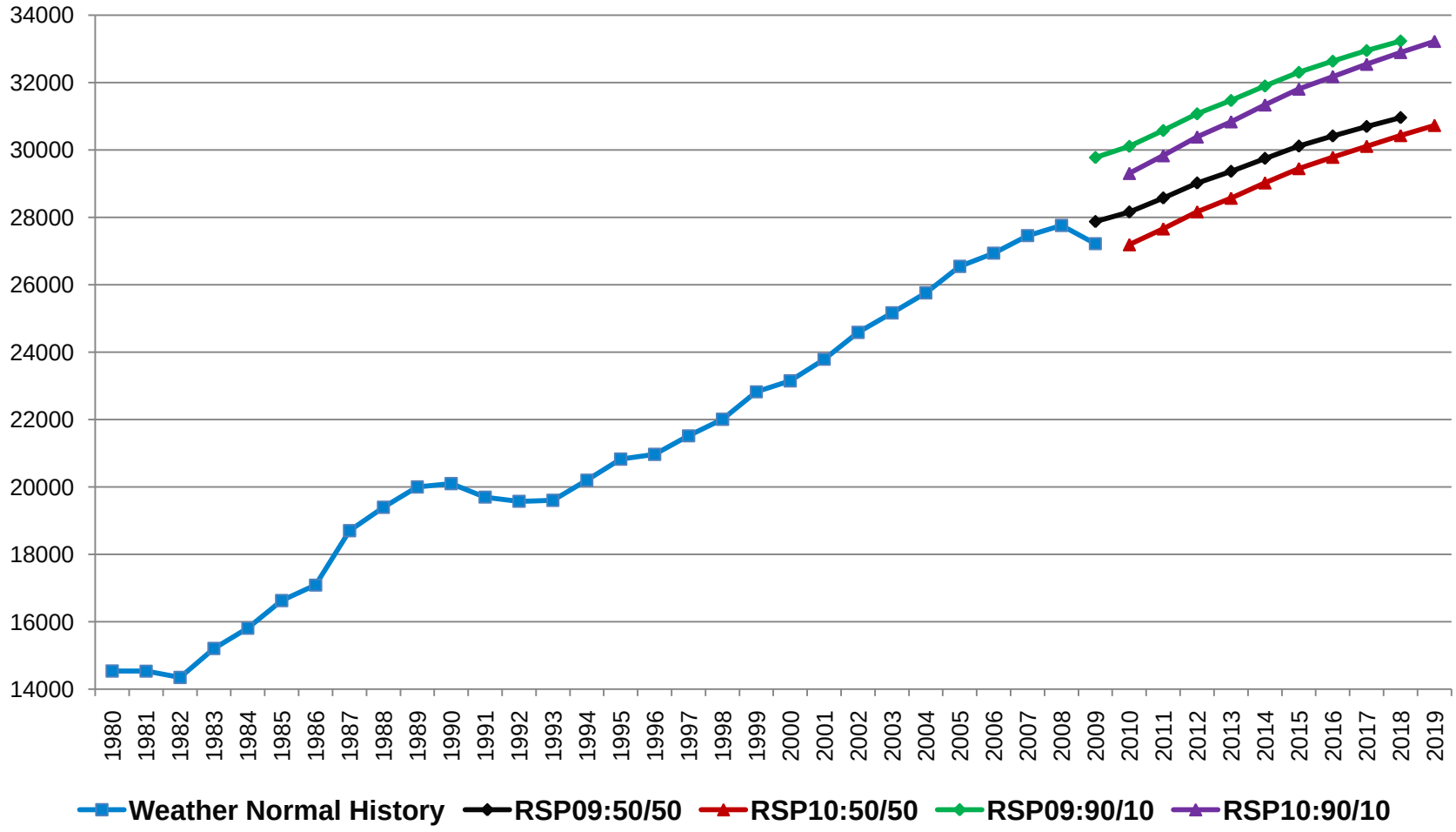
2010 CELT & RSP Forecast Detail: ISO-NE Control Area, New England States, Sub-areas, and SMD Load Zones

		Reference Weather Peaks (MW) 50% chance of being exceeded		Extreme Weather Peaks (MW) 10% chance of being exceeded		
		Summer	Following Winter	Summer	Following Winter	Energy (GWH)
ISO-NE						
	2010	27190	22085	29310	22765	131305
	2011	27660	22225	29835	22905	132370
	2012	28165	22280	30390	22960	134005
	2013	28570	22400	30840	23080	134655
	2014	29025	22505	31340	23185	136060
	2015	29450	22610	31810	23290	137280
	2016	29785	22720	32180	23400	138500
	2017	30110	22835	32545	23520	139810
	2018	30430	22950	32895	23635	141175
	2019	30730	23070	33225	23750	142520
CAGR		1.3	0.5	1.3	0.5	0.9

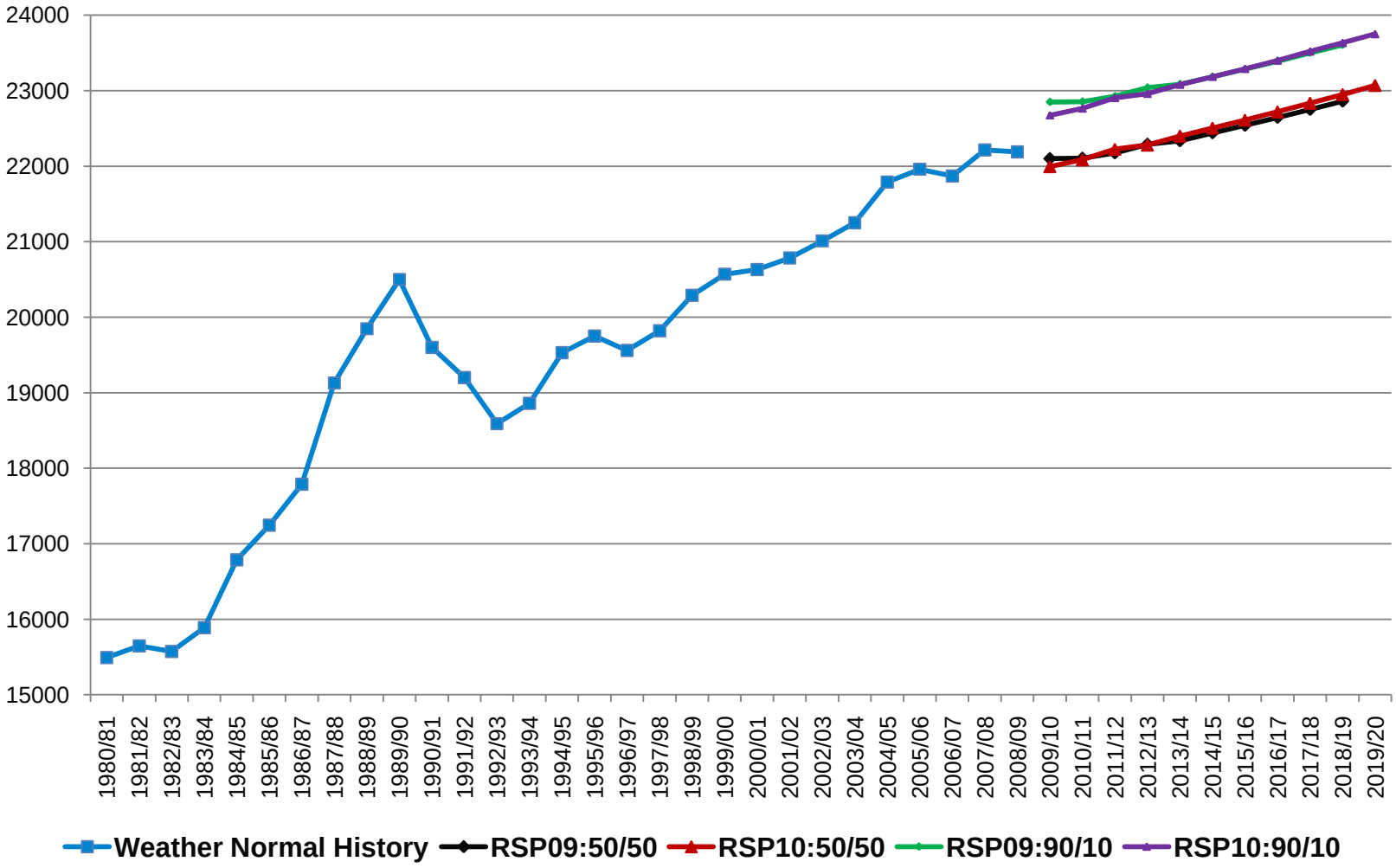
ISO-NE Annual Energy Demand Reconstituted for ODRs (GWh)
Weather Normal History 1980-2009
Forecasts RSP09 2009-2018 RSP10 2010-2019



ISO-NE Summer Peak Loads (MW)
Weather Normal History 1980-2009
Forecasts RSP09 2009-2018 RSP10 2010-2019



ISO-NE Winter Peak Loads (MW)
Weather Normal History 1980-2009
Forecasts RSP09 2010-2018 RSP10 2010-2019



ISO-NE RSP10 & RSP09 Annual Energy and Seasonal Peak Loads

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average Annual Change	Average Growth Rate
Energy (GWh)											
RSP10	131303	132372	134005	134654	136060	137279	138498	139809	141174	0.9	0.9
RSP09	133780	134800	136465	137085	138535	139990	141475	143015	144575	1	1.0
GWh Difference	-2477	-2428	-2460	-2431	-2475	-2711	-2977	-3206	-3401		
% Difference	-1.9%	-1.8%	-1.8%	-1.8%	-1.8%	-1.9%	-2.1%	-2.2%	-2.4%		
50/50 Summer Peak (MW)											
RSP10	27190	27660	28165	28570	29025	29450	29785	30110	30430	405	1.4
RSP09	28160	28575	29020	29365	29750	30115	30415	30695	30960	350	1.2
MW Difference	-970	-915	-855	-795	-725	-665	-630	-585	-530		
% Difference	-3.4%	-3.2%	-2.9%	-2.7%	-2.4%	-2.2%	-2.1%	-1.9%	-1.7%		
90/10 Summer Peak (MW)											
RSP10	29310	29835	30390	30840	31340	31810	32180	32545	32895	448	1.5
RSP09	30110	30580	31075	31470	31900	32305	32635	32950	33235	391	1.2
MW Difference	-800	-745	-685	-630	-560	-495	-455	-405	-340		
% Difference	-2.7%	-2.4%	-2.2%	-2.0%	-1.8%	-1.5%	-1.4%	-1.2%	-1.0%		
50/50 Winter Peak (MW)											
RSP10	21995	22085	22225	22280	22400	22505	22610	22720	22835	105	0.5
RSP09	22100	22105	22175	22290	22340	22440	22540	22645	22750	81	0.4
MW Difference	-105	-20	50	-10	60	65	70	75	85		
% Difference	-0.5%	-0.1%	0.2%	0.0%	0.3%	0.3%	0.3%	0.3%	0.4%		

RSP10 Annual Energy and Seasonal Peak Forecast

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	CAGR
Energy (GWh)											
ISO-NE	131305	132370	134005	134655	136060	137280	138500	139810	141175	142520	0.9
CT	32675	32765	33020	33060	33310	33520	33740	33975	34225	34465	0.6
ME	11975	12100	12265	12320	12440	12530	12620	12730	12855	12975	0.9
MA	60305	61000	61910	62330	63085	63745	64410	65105	65815	66510	1.1
NH	11620	11710	11885	11990	12160	12310	12460	12615	12775	12940	1.2
RI	8315	8340	8415	8440	8510	8570	8635	8700	8775	8845	0.7
VT	6415	6450	6505	6510	6560	6600	6635	6685	6730	6780	0.6
50/50 Summer Peak (MW)											
ISO-NE	27190	27660	28165	28570	29025	29450	29785	30110	30430	30730	1.4
CT	7240	7350	7470	7560	7670	7770	7845	7915	7985	8050	1.2
ME	2030	2060	2105	2145	2185	2215	2240	2265	2290	2315	1.5
MA	12620	12860	13100	13295	13505	13710	13870	14025	14170	14315	1.4
NH	2410	2460	2515	2560	2615	2660	2700	2740	2780	2815	1.7
RI	1825	1850	1880	1900	1930	1955	1975	2000	2025	2045	1.3
VT	1060	1075	1095	1105	1125	1140	1150	1165	1175	1185	1.2
90/10 Summer Peak (MW)											
ISO-NE	29310	29835	30390	30840	31340	31810	32180	32545	32895	33225	1.4
CT	7865	7985	8105	8220	8330	8450	8530	8610	8680	8760	1.2
ME	2165	2195	2260	2290	2345	2370	2400	2430	2470	2485	1.5
MA	13555	13820	14070	14295	14520	14750	14925	15100	15255	15415	1.4
NH	2590	2645	2710	2760	2815	2865	2910	2955	3000	3040	1.8
RI	2035	2065	2115	2125	2170	2185	2215	2240	2280	2290	1.3
VT	1100	1120	1130	1150	1160	1185	1200	1210	1215	1235	1.3

RSP10 Annual Energy and Seasonal Peak Forecast

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	CAGR
50/50 Winter Peak (MW)											
ISO-NE	22085	22225	22280	22400	22505	22610	22720	22835	22950	23070	0.5
CT	5710	5725	5730	5745	5760	5770	5785	5805	5820	5835	0.2
ME	1915	1920	1925	1930	1935	1940	1945	1950	1960	1965	0.3
MA	10065	10140	10175	10240	10295	10350	10410	10470	10530	10590	0.6
NH	1990	2015	2025	2045	2065	2080	2100	2120	2140	2160	0.9
RI	1365	1375	1375	1385	1390	1400	1405	1415	1425	1430	0.5
VT	1040	1050	1050	1055	1060	1065	1070	1075	1080	1085	0.5
90/10 Winter Peak (MW)											
ISO-NE	22765	22905	22960	23080	23185	23290	23400	23520	23635	23750	0.5
CT	5880	5900	5900	5915	5930	5945	5960	5975	5995	6010	0.2
ME	1975	1980	1985	1990	1995	2000	2005	2010	2015	2025	0.3
MA	10375	10450	10485	10550	10605	10660	10720	10780	10840	10900	0.5
NH	2070	2095	2105	2125	2145	2160	2180	2200	2220	2240	0.9
RI	1410	1420	1420	1430	1435	1445	1450	1460	1470	1475	0.5
VT	1055	1065	1065	1070	1075	1080	1085	1090	1095	1100	0.5

ISO-NE and State RSP10 Differences from RSP09
50/50 Summer Peak Comparison (MW)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average Annual Change	Average Growth Rate
ISO-NE											
RSP10	27190	27660	28165	28570	29025	29450	29785	30110	30430	405	1.4
RSP09	28160	28575	29020	29365	29750	30115	30415	30695	30960	350	1.2
MW Difference	-970	-915	-855	-795	-725	-665	-630	-585	-530		
CONNECTICUT											
RSP10	7240	7350	7470	7560	7670	7770	7845	7915	7985	93	1.2
RSP09	7560	7650	7735	7805	7880	7950	8005	8055	8105	68	0.9
MW Difference	-320	-300	-265	-245	-210	-180	-160	-140	-120		
MAINE											
RSP10	2030	2060	2105	2145	2185	2215	2240	2265	2290	33	1.5
RSP09	2095	2130	2165	2190	2225	2255	2275	2300	2325	29	1.3
MW Difference	-65	-70	-60	-45	-40	-40	-35	-35	-35		
MASSACHUSETTS											
RSP10	12620	12860	13100	13295	13505	13710	13870	14025	14170	194	1.5
RSP09	13065	13265	13480	13650	13840	14020	14175	14320	14455	174	1.3
MW Difference	-445	-405	-380	-355	-335	-310	-305	-295	-285		
NEW HAMPSHIRE											
RSP10	2410	2460	2515	2560	2615	2660	2700	2740	2780	46	1.8
RSP09	2490	2540	2590	2630	2675	2720	2755	2785	2815	41	1.5
MW Difference	-80	-80	-75	-70	-60	-60	-55	-45	-35		
RHODE ISLAND											
RSP10	1825	1850	1880	1900	1930	1955	1975	2000	2025	25	1.3
RSP09	1870	1900	1935	1960	1990	2020	2045	2065	2085	27	1.4
MW Difference	-45	-50	-55	-60	-60	-65	-70	-65	-60		
VERMONT											
RSP10	1060	1075	1095	1105	1125	1140	1150	1165	1175	14	1.3
RSP09	1085	1100	1115	1125	1135	1150	1160	1170	1180	12	1.1
MW Difference	-25	-25	-20	-20	-10	-10	-10	-5	-5		

ISO-NE and State RSP10 Differences from RSP09
90/10 Summer Peak Comparison (MW)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average Annual Change	Average Growth Rate
ISO-NE											
RSP10	29310	29835	30390	30840	31340	31810	32180	32545	32895	448	1.5
RSP09	30110	30580	31075	31470	31900	32305	32635	32950	33235	391	1.2
MW Difference	-800	-745	-685	-630	-560	-495	-455	-405	-340		
CONNECTICUT											
RSP10	7865	7985	8105	8220	8330	8450	8530	8610	8680	102	1.2
RSP09	8095	8195	8295	8370	8455	8535	8595	8655	8705	76	0.9
MW Difference	-230	-210	-190	-150	-125	-85	-65	-45	-25		
MAINE											
RSP10	2165	2195	2260	2290	2345	2370	2400	2430	2470	38	1.7
RSP09	2245	2285	2325	2360	2400	2430	2460	2485	2510	33	1.4
MW Difference	-80	-90	-65	-70	-55	-60	-60	-55	-40		
MASSACHUSETTS											
RSP10	13555	13820	14070	14295	14520	14750	14925	15100	15255	213	1.5
RSP09	13920	14145	14380	14575	14780	14980	15145	15300	15445	191	1.3
MW Difference	-365	-325	-310	-280	-260	-230	-220	-200	-190		
NEW HAMPSHIRE											
RSP10	2590	2645	2710	2760	2815	2865	2910	2955	3000	51	1.9
RSP09	2670	2725	2785	2835	2885	2935	2970	3005	3040	46	1.6
MW Difference	-80	-80	-75	-75	-70	-70	-60	-50	-40		
RHODE ISLAND											
RSP10	2035	2065	2115	2125	2170	2185	2215	2240	2280	31	1.4
RSP09	2050	2085	2125	2155	2190	2225	2250	2275	2295	31	1.4
MW Difference	-15	-20	-10	-30	-20	-40	-35	-35	-15		
VERMONT											
RSP10	1100	1120	1130	1150	1160	1185	1200	1210	1215	14	1.3
RSP09	1130	1145	1165	1175	1190	1205	1215	1225	1235	13	1.1
MW Difference	-30	-25	-35	-25	-30	-20	-15	-15	-20		

RSP10 Annual Energy and Seasonal Peak Forecast

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	CAGR
50/50 Summer Peak (MW)											
ISO-NE	27190	27660	28165	28570	29025	29450	29785	30110	30430	30730	1.4
BHE	325	329	335	340	345	349	352	354	357	360	1.1
ME	1133	1150	1174	1195	1217	1234	1249	1264	1279	1294	1.5
SME	573	583	597	610	623	632	639	646	654	662	1.6
NH	1984	2027	2073	2112	2158	2196	2230	2263	2297	2327	1.8
VT	1248	1268	1292	1306	1330	1349	1363	1381	1395	1407	1.3
Boston	5564	5653	5741	5811	5884	5971	6039	6103	6165	6225	1.3
CMA/NEMA	1795	1849	1904	1954	2005	2035	2058	2080	2101	2121	1.9
WMA	2029	2067	2104	2135	2168	2202	2230	2256	2281	2306	1.4
SEMA	2875	2923	2970	3008	3048	3098	3137	3175	3212	3248	1.4
RI	2498	2539	2584	2618	2660	2696	2725	2756	2788	2815	1.3
CT	3451	3498	3548	3593	3645	3693	3729	3762	3796	3827	1.2
SWCT	2369	2415	2465	2498	2536	2570	2595	2618	2641	2663	1.3
NOR	1344	1360	1377	1390	1406	1424	1438	1451	1464	1476	1.0

RSP10 Annual Energy and Seasonal Peak Forecast

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	CAGR
90/10 Summer Peak (MW)											
ISO-NE	29310	29835	30390	30840	31340	31810	32180	32545	32895	33225	1.4
BHE	347	350	359	363	370	373	377	380	385	387	1.2
ME	1209	1225	1260	1277	1306	1321	1339	1356	1379	1389	1.6
SME	611	621	641	651	668	676	685	694	705	710	1.7
NH	2129	2176	2230	2273	2320	2363	2400	2438	2475	2509	1.8
VT	1308	1332	1349	1373	1388	1416	1435	1449	1459	1481	1.4
Boston	5975	6075	6166	6247	6327	6425	6498	6571	6635	6702	1.3
CMA/NEMA	1927	1987	2045	2100	2156	2190	2214	2239	2261	2284	1.9
WMA	2178	2220	2258	2294	2329	2368	2397	2427	2452	2480	1.5
SEMA	3094	3147	3198	3241	3286	3340	3383	3426	3465	3505	1.4
RI	2751	2799	2863	2889	2948	2976	3014	3047	3092	3111	1.4
CT	3748	3800	3850	3906	3959	4017	4054	4092	4125	4163	1.2
SWCT	2573	2624	2675	2716	2755	2795	2821	2848	2870	2897	1.3
NOR	1460	1478	1495	1511	1527	1549	1564	1578	1591	1606	1.1

RSP10 Summer Peak Forecast (MW)

Peak Load Forecast From a Generation/Active Demand Resource Dispatch Perspective.

The Cleared Passive Demand Resources that are ICR Resources are Subtracted From the Load Forecast.

	Passive DR	Peak Forecast 50/50	Peak Forecast Net DR	Peak Forecast 90/10	Peak Forecast Net DR
2010	583	27190	26607	29310	28727
2011	846	27660	26814	29835	28989
2012	1073	28165	27092	30390	29317
2013	1066	28570	27504	30840	29774
2014	1066	29025	27959	31340	30274
2015	1066	29450	28384	31810	30744
2016	1066	29785	28719	32180	31114
2017	1066	30110	29044	32545	31479
2018	1066	30430	29364	32895	31829
2019	1066	30730	29664	33225	32159

Passive DR is indicative and the actual values used in planning studies may be different.