

# AN OVERVIEW OF CONNECTICUT ENERGY POLICY PLANNING<sup>1</sup>

## Energy Entities and Functional Roles

### Comprehensive State-level Energy Plan

#### Connecticut

From 2004 through 2007, the CEAB was tasked with developing a comprehensive annual Energy Plan<sup>2</sup> consistent with legislative findings and policies regarding energy and the State Conservation and Development Policies Plan. The plan included a combination of factual assessments of supply, demand, costs and infrastructure status as well as forward looking recommendations for energy planning structures and systems that would address among other things, conservation, alternative energy sources, ratepayer protection and energy security.<sup>3</sup> The plan was required by statute to be submitted to the legislature; there was no explicit requirement for agencies to implement its provisions.

Additionally, through state agencies with specific jurisdiction, Connecticut conducts planning for component parts the state's "energy" system. For example, the DPUC sets service quality standards for the utilities and reviews and approves annual electric and gas conservation program plans.<sup>4</sup>

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<sup>1</sup> Taken from A REPORT ON VARIOUS ENERGY ISSUES FOR CONNECTICUT: PHASE I, MAY 30, 2008

<sup>2</sup> Comprehensive planning authority was assigned to CEAB through PA 03-140 and eliminated through PA 07-242.

<sup>3</sup> "...plan shall include, but not be limited to, (1) an assessment of current energy supplies, demand and costs; (2) an identification and evaluation of the factors likely to affect future energy supplies, demand and costs; (3) a statement of progress made toward long-term goals set in the previous report; (4) recommendations for decreasing dependency on fossil fuels by promoting energy conservation, solar and other alternative energy sources; (5) an assessment of the infrastructure of the state for natural gas and electric systems; (6) an evaluation of the impact of regional transmission infrastructure planning processes conducted by the regional independent system operator, as defined in section 16-1, on the state's environment, on energy market design, and on economic development in the state; (7) the consideration of alternative energy planning mechanisms and targets as an alternative to integrated resource planning; (8) a statement of energy policies and long-range energy planning objectives and strategies appropriate to achieve, among other things, the least-cost mix of energy supply sources and measures that reduce demand for energy, giving due regard to such factors as ratepayer impacts, security and diversity of fuel supplies and energy generating methods, protection of public health and safety, adverse or beneficial environmental impacts, conservation of energy and energy resources and the ability of the state to compete economically; and (9) recommendations for administrative and legislative actions to implement such policies, objectives and strategies. (former Conn. Gen. Stat. Sec.16a-7a(1))

<sup>4</sup> See Appendix A: Table 2 for Detailed Functional Roles of State entities including planning for conventional supply, demand side resources and renewables and alternative fuels.

# Procurement Plan (Integrated Resource Plan)

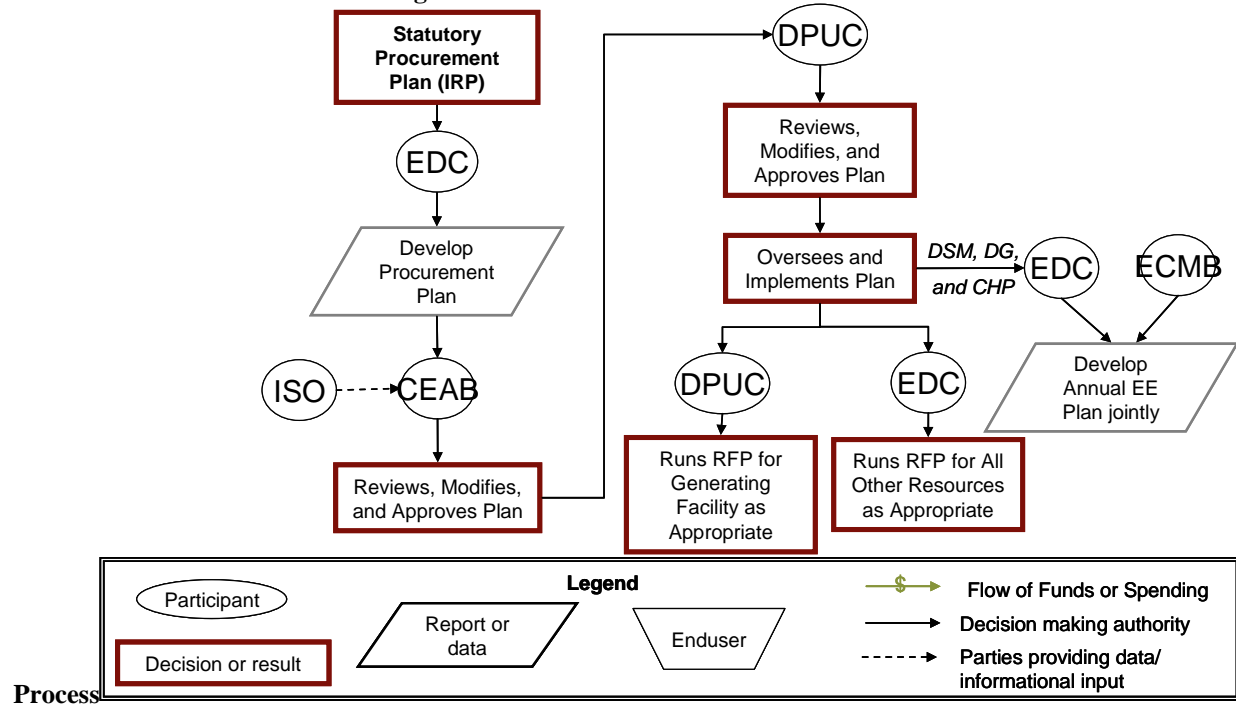
## Connecticut

At present, the state’s electric distribution companies, in consultation with CEAB, are charged with developing a comprehensive integrated resource and procurement plan. The plan will be reviewed, modified and approved by the CEAB, in consultation with the ISO-NE, and then submitted to the DPUC for approval. The plan is to include:

“conventional and renewable generating facilities, energy efficiency, load management, demand response, combined heat and power facilities, distributed generation and other emerging energy technologies to meet the projected requirements of their customers in a manner that minimizes the cost of such resources to customers over time and maximizes consumer benefits consistent with the state's environmental goals and standards.”<sup>5</sup>

The enabling statute expresses a strong preference for energy efficiency and demand reduction: it requires that resource needs must first be met through all available energy efficiency and demand reduction resources that are cost-effective, reliable and feasible.

**Figure 0-1: Connecticut Procurement Plan**



<sup>5</sup> PA 07-242 codified as Conn. Gen. Stat. Sec. 16a-3a.

*EDC: Electric Distribution Companies  
CEAB: Connecticut Energy Advisory Board  
ISO: Independent System Operator (New England)  
DPUC: Department of Public Utility Control  
ECMB: Energy Conservation & Management Board*

## **Planning for Natural Gas (Procurement and Infrastructure)**

### **Connecticut**

Every other year, Connecticut natural gas companies are required by statute to provide a report to the DPUC containing a five-year forecast of loads and resources. The report describes the facilities and supply sources that will be required to meet gas demands during the forecast period. By statute, the report must include: (1) a tabulation of estimated peak loads and resources for each year; (2) data on gas use and peak loads for the five preceding calendar years; (3) a list of present and projected gas supply sources; (4) specific measures to control load growth and promote conservation; and (5) other information the department may require by regulation. The DPUC may request the gas companies to provide an updated report in the off cycle years.

In addition, currently, the ECMB and Connecticut's natural gas companies are conducting a natural gas energy efficiency potential study among the commercial/industrial market segment for the period from 2009 through 2020. The primary objective of this study is to produce estimates of the potential for natural gas energy savings that might be obtained through energy efficiency programs in existing and possible new programs for firm, non-interruptible commercial and industrial customer segments annually from 2009 through 2020.

### ***Implementation--Identification/Selection of Resources***

#### **Conventional Resources**

### **Connecticut**

Connecticut relies on the wholesale market to meet energy and capacity needs, with some limited exceptions.

By legislative act, the DPUC was directed to procure certain conventional resources to meet specific objectives. For example:

- In 2005, the DPUC was directed by legislation to run a procurement process to acquire new capacity.<sup>6</sup> The objective of the procurement process was to decrease total costs of electricity for Connecticut electricity ratepayers over the next 15 years and to improve the reliability of the electricity system in Connecticut. According to the DPUC, the objective of this procurement process was not to resolve all supply deficiencies in Connecticut for the foreseeable future or to displace or replace wholesale electricity markets. Rather, it

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<sup>6</sup> By law, generation projects selected for long term capacity contracts had the right to enter negotiations with the utilities for their electric energy output, provided the rates paid for such electric energy output when added to the payments made pursuant to such capacity contracts will be the project's cost of service, plus a reasonable rate of return. The DPUC is allowed by statute to approve such contracts if they would reduce and stabilize the cost of electricity to Connecticut ratepayers.

was meant to encourage the development of new or incremental capacity sooner than might otherwise occur, focusing on capacity that minimizes costs by reducing FMCCs, improves reliability, and therefore achieves the greatest net benefits for Connecticut ratepayers over time, while maximizing other state policy objectives. The DPUC was authorized by statute to approve contracts of fifteen years or less in duration that contain terms that mitigate the long-term risk assumed by ratepayers, and only if the contracts: (1) result in the lowest reasonable cost of such products and services, (2) increase reliability, and (3) minimize FMCCS to the state over the life of the contract.<sup>7</sup>

- In 2007, the DPUC was directed by statute to solicit peaking generation plants. By law, the utilities had to submit a bid and other entities were allowed to submit bids. The DPUC determined the estimated need for peaking, established evaluation criteria and then issued an RFP. Project selection is now underway. By law, any approved peaking generator is to be compensated at the plant's cost of service plus a reasonable rate of return.

Following the approval of the annual Integrated Resource Plan described above, the DPUC will oversee the implementation of the procurement plan as follows:

- By law, the utilities must implement the demand-side measures, including energy efficiency, load management, demand response, combined heat and power facilities, distributed generation and other emerging energy technologies, specified in the procurement plan through the Conservation and Load Management Plan and reviewed by the ECMB.
- To implement any transmission and distribution upgrades specified in the procurement plan, the utilities have to submit proposals to appropriate regulatory agencies.
- If the procurement plan specifies the construction of a generating facility, the DPUC has to solicit such resources through a request for proposal (“RFP”). After July 1, 2008, the utilities may submit proposals in response to such RFP on the same basis as other respondents to the solicitation. If the DPUC selects an entity other than a utility, the utilities will be counterparties to the resulting contract.
- For any resources not described above but that may be identified in the procurement plan, the utilities must issue RFPs to acquire such resources, subject to approval by the DPUC.

In addition, the CEAB has statutory authority to issue an RFP for resources, including conventional resources, to meet an energy need identified in the ISO-NE’s regional system planning process or to seek alternatives to certain energy projects that request Siting Council approval. Such solicitations are to include proposals that include distributed generation and energy efficiency where relevant. The result of such RFP is a report to the Siting Council that evaluates such projects in light of the state’s infrastructure criteria guidelines, referred to as the Preferential Criteria, established pursuant to Conn. Gen. Stat. Sec. 16a-7b.

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<sup>7</sup> The DPUC selected a portfolio that included one 620 MW base load plant, two peaking plants (66MW and 96 MW) and one 5MW energy efficiency program.

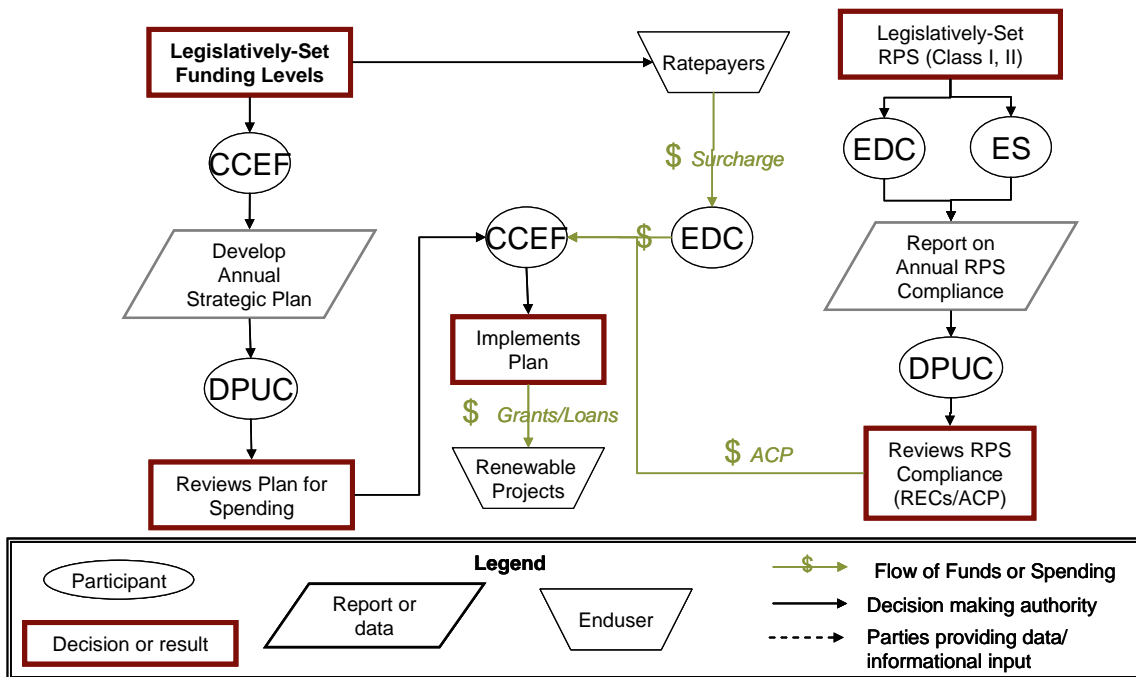
## DSM (EE) and Renewable Energy

### Connecticut

Connecticut programs for Renewable Energy and DSM (EE) are funded by surcharges to ratepayers. Renewable energy and EE are implemented by different entities, although they are required by statute to participate in a joint committee.

The CCEF administers programs for renewable generation and research and development of emerging technologies. The CCEF develops an annual comprehensive plan, which must give preference to reducing federally mandated congestion charges. By law, the budget for the Plan is funded through a ratepayer surcharge at a level set by statute. The DPUC reviews and approves the Plan. Once approved, the CCEF administers the plan. Additionally, the CCEF is authorized by statute to receive Alternative Compliance Payments (ACP) from competitive electric suppliers and the utilities when those entities do not comply with Renewable Portfolio Standard obligations through the purchase of renewable energy or renewable energy credits.<sup>8</sup> CCEF is required by statute to invest funds from the ACP in Class I renewable resources.

**Figure 0-2: Connecticut Renewable Energy Selection Process**

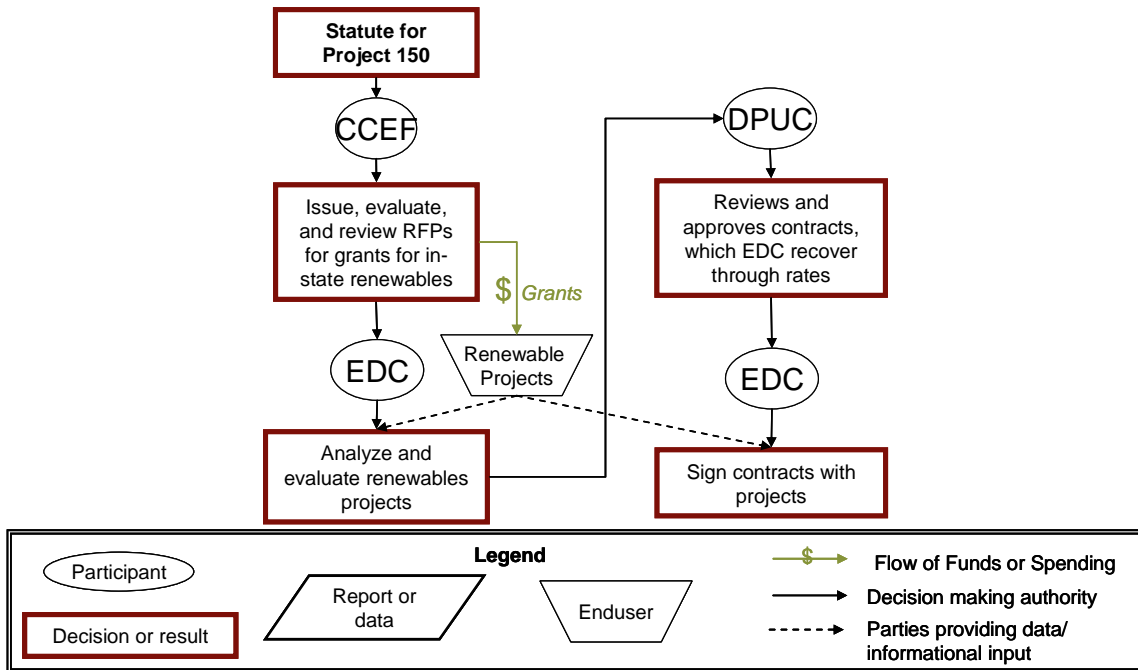


The CCEF also participates in Project 150. Project 150 is a statutory requirement that Connecticut utilities enter into long term contracts for 150 MW of in-state renewable power.

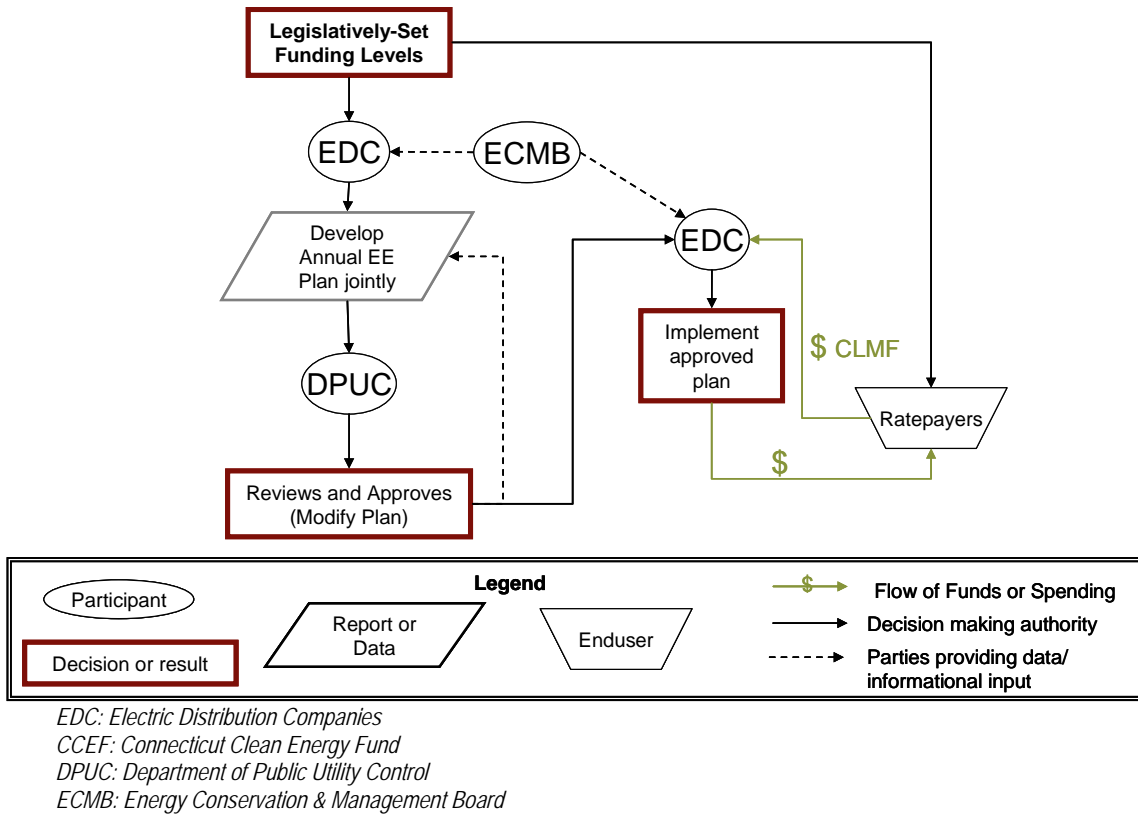
<sup>8</sup> To the extent a supplier or a utility, in the provision of electric generation to customers who do not take service from a competitive supplier, do not have enough adequate renewable energy credits, they are required to make a compliance payment at a level set by the Renewable Portfolio Standard statute, which goes to the CCEF.

CCEF participates in the project selection process by soliciting renewable projects through an RFP, evaluating those projects and recommending them for a contract. After the CCEF process, the utilities analyze the projects and provide such analysis to the DPUC for its consideration along side CCEF's analysis. Ultimately, the DPUC reviews and approves those renewable projects that merit long term contracts with the utilities. Projects may receive grants from the CCEF and the contracts include a premium payment of up to 5.5 cents/kWh. Projects approved by the DPUC still need to obtain appropriate siting approval through the Siting Council and environmental permitting through the DEP.

**Figure 0-3: Connecticut Project 150 Process**



**Figure 0-4: Connecticut DSM Selection Process**



The ECMB advises and assists the utilities in preparing and implementing conservation programs supported by the conservation fund. Funds to support conservation are collected from surcharges to ratepayers at levels set by law. Upon DPUC review and approval of the proposed conservation plan, the utilities implement the programs, often through contracts with third party energy efficiency providers. The flow diagram in

Figure 0-4 shows the DSM program development process associated with administering the conservation fund. It does not reflect other sources of funding for DSM in Connecticut, discussed in a later section on incentives.

The Connecticut natural gas companies are required by statute to submit to the DPUC a gas conservation plan to implement cost-effective energy conservation programs and market transformation initiatives on annual basis. The ECMB advises and assists the gas companies in the development and implementation of the plan. All supply and conservation and load management options have to be evaluated and selected within an integrated supply and demand planning framework. Programs included in the plan have to be screened through cost-effectiveness testing that compares the value and payback period of program benefits to program costs to ensure that the programs are designed to obtain gas savings whose value is greater than the costs of the program. The ECMB has to examine opportunities to offer joint programs providing similar efficiency measures that save more than one fuel resource or to otherwise coordinate programs targeted at saving more than one fuel resource. The plan is funded by the growth in the utilities gross receipts tax in each fiscal year over the amount contained in the revenue estimate in the adopted state budget for that year, subject to a \$10 million per year cap. Additionally, natural gas efficiency programs are funded through base rates and the Conservation Adjustment Mechanism by the natural gas companies' firm customers. Each program in the plan has to be reviewed by the gas company and be accepted, modified or rejected by the ECMB before the plan is submitted to the DPUC. The DPUC may approve, modify or reject the plan.

## ***Implementation-Siting/Permitting***

### **Siting Process**

#### **Connecticut**

The Siting Council reviews and approves siting of certain power generation and electric and natural gas transmission in the state.

Siting in Connecticut may include two steps, depending on whether the CEAB decides to exercise its authority to issue an RFP to solicit alternatives to proposed projects. In those instances where CEAB issues an RFP for potential alternatives that may satisfy the need identified by an applicant to the Siting Council, the CEAB evaluates and compares alternatives for consistency with infrastructure criteria guidelines, referred to as Preferential Criteria.<sup>9</sup> At the conclusion of such RFP, the CEAB sends a report to the Siting Council, which provides a comparative analysis of any projects submitted. The Siting Council must consider the CEAB's comparative analysis and must find that the proposed project represents the most appropriate alternative presented.

In the event the CEAB does not issue an RFP for alternatives, the CSC considers a project's application and must make specific statutorily required findings prior to approving a

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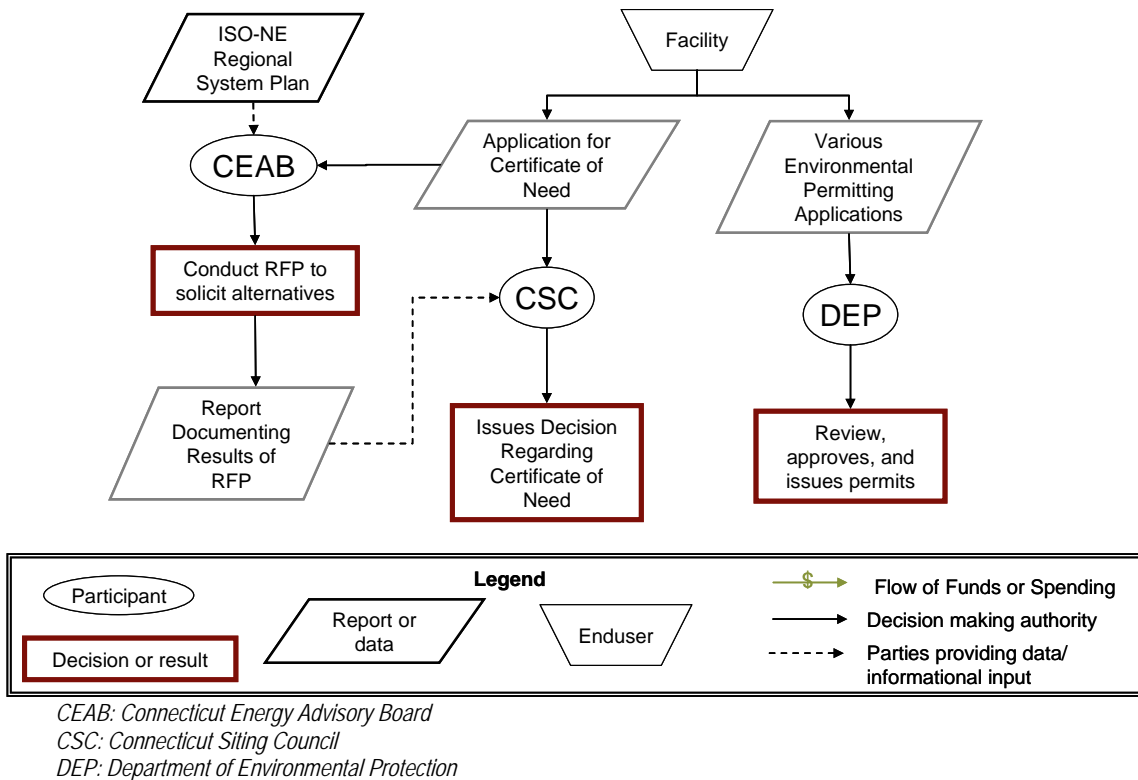
<sup>9</sup> These standards, established pursuant to Conn. Gen. Stat. Sec. 16a-7b, are used to identify projects that will support and balance energy reliability, environmental and natural resource protection, cost effectiveness and quality of life goals.

project also known as issuing a certificate of need. Those findings include but are not limited to: that there is a public need for the facility; that any adverse environmental impacts or conflicts with environmental or natural resource policies are not reason to deny the application; that the facility will not pose a safety hazard; and that the facility will not materially decrease acreage and productivity of arable land.<sup>10</sup>

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<sup>10</sup> CGS16-50p

**Figure 0-5: Connecticut Siting and Permitting Process**



## Environmental Permitting

### Connecticut

The Connecticut DEP is responsible for setting environmental standards and issuing permits for a broad array of regulated activities or activities that might impact certain identified natural resources. The DEP implements federal health-based air emission standards for sources including power generating facilities and regulates those facilities to ensure compliance with applicable standards. Standards generally affect acceptable fuel types, operation, and location (distance from sensitive receptors). DEP also regulates diversions of, intake from and discharge to state waters; structures in tidal, coastal and navigable waters; and dams. These authorities can affect the location and operational aspects of generating facilities, transmission facilities and hydropower facilities. (In addition DEP establishes acceptable waste streams and recycling strategies that may affect availability of “indigenous” resources for use as fuel.)

The Department must act on all applications made to it. The Department review procedures are governed by the State’s administrative procedures statutes and regulations as sometimes modified by specific statutory requirements specific to the regulatory program. The process generally provides for public comment and often public hearings to which intervention by interested parties is allowed.

A facility or project may choose whether to submit applications to DEP and the CSC at the same time or to one or the other in some sequence. There is no requirement that one agency precede the other.

## ***Implementation-Financing/Incentives***

### **Funding for State Incentive Programs**

#### **Connecticut**

##### ***Renewable Energy***

Connecticut has Renewable Portfolio Standards for three classes of resources: Class I (20% by 2020), Class II (3% in all years), and Class III (4% by 2010). The resources in each Class are set in statute. Class I resources include resources such as wind, certain biomass, and solar. Class II renewable energy sources include trash-to-energy facilities, biomass facilities not included in Class I, and certain hydropower facilities. Class II obligations can be met with Class I resources. Class III resources include energy efficiency, waste heat, and combined-heat and power (CHP) as described above. Electric suppliers (ES) and utilities in their provision of standard service, must meet each of these RPS targets through purchase of Renewable Energy Certificates (RECs). Typically, owners of Class I and Class II projects have the rights to the RECs generated from their projects. They, in turn, sell the RECS to suppliers or utilities, in the provision of standard service, to meet their RPS obligations. If suppliers or the utilities do not or are unable to acquire sufficient RECs to meet Class I RPS requirements, they must make an Alternative Compliance Payment (ACP) for each MWh they are short.

The CCEF, which administers programs to support renewable energy generation funded by ratepayers at levels set by statute, receives the ACP discussed above. CCEF is required to use ACP to invest in Class I renewable energy resources. In the future, a portion of RGGI allowance auction proceeds (described further below) will be provided to CCEF to support development of Class I renewable resources. As described previously, the state also requires utilities to enter into long term contracts with 150 MW of renewable resources located in Connecticut, referred to as Project 150.

##### ***DSM***

Funding for DSM comes from multiple sources as described below.<sup>11</sup>

- **Conservation and Load Management Fund:** Electric customers contribute, on a cents/kWh basis and at a level established by the legislature, to the Conservation and Load Management Fund. The programs funded by CLM funds are administered by the electric distribution companies, with the advice and assistance of the ECMB. The DPUC has ultimate oversight of the fund and the conservation programs it supports.
- **Class III RPS:** The Class III RPS program is a set target of 4% by 2010 for electric savings created at commercial and industrial facilities from conservation and load management programs and electricity output from customer-side combined heat and

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<sup>11</sup> There are additional sources of funding for DSM that are earmarked for low-income housing and/or are through federal grant programs.

power systems. Specifically, utilities and competitive suppliers must get part of their supply from Class III resources from a variety of demand-side resources. Portions of credits from programs funded through CLM funds will be allocated to the fund, which may be sold to electric suppliers to meet Class III RPS.<sup>12</sup> A DPUC decision on administrative processes for a class III credit trading program is pending.

- **Forward Capacity Market:** Another source of funds that support EE investment in Connecticut is ISO-NE's New England Forward Capacity Market (FCM), which allows energy efficiency to qualify as a capacity resource. The proceeds from the FCM for energy efficiency resources funded by the CLMF will add to the CLMF for future DSM programs.
- **FMCCs:** In 2005, the DPUC was directed by the legislature to develop near-term measures to reduce federally mandated congestion charges (FMCCs) and to implement those measures as soon as possible. The measures included demand response programs (as well as distributed resources, and contracts between utilities and generators) and were authorized to be paid for by ratepayers through a non-bypassable surcharge on electric bills (referred to as FMCCs).<sup>13</sup>
- **RGGI:** Forthcoming RGGI regulations in Connecticut are expected to allocate a portion of the proceeds (68.5 percent) from the auction of RGGI allowances to the utilities for use as advised by the ECMB. (Up to an additional one percent would be distributed to the Connecticut Municipal Electric Energy Cooperative "CMEEC" for energy efficiency projects.)
- **Electric Efficiency Partnership Program:** The Electric Efficiency Partnership Program (EEPP) is another source of energy efficiency funding. Under the EEPP, the ECMB, in consultation with the CCEF, evaluates and approves eligible technologies.<sup>14</sup> Any entity can seek DPUC approval and funding as an EEPP by showing financial resources, managerial ability, and technical competence. Starting February 1, 2010, partners can receive funding only if chosen in a DPUC RPF process.<sup>15</sup> No more than \$60 million in ratepayer funds can go to this program each

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<sup>12</sup> Qualifying resources include systems that recover waste heat or pressure from commercial and industrial processes installed on or after April 1, 2007 and electricity savings from all conservation programs that started on or after January 1, 2006. A customer who implements energy conservation or customer-side distributed resources on or after January 1, 2008 are entitled to Class III credits equal to at least one cent per kilowatt-hour. For nonresidential projects receiving conservation and load management funding, 25% of the credit goes to the customer and the remainder goes to conservation and load management fund. For projects not receiving such funding that are submitted on or after March 9, 2007, 75% of the credit goes to the customer and the rest to the conservation and load management fund. For projects serving residential customers, 75% of the credits must go to the conservation and load management funds. A DPUC decision on administrative processes for a class III credit trading program is pending.

<sup>13</sup> The DPUC authorized spending on such measures in 2006 and 2007 to reduce FMCCs. The DPUC indicated that it will evaluate spending on these measures and conservation programs together when determining budgets to capture the most cost-effectiveness measures.

<sup>14</sup> The technologies can include demand-side measures such as conservation and supply-side measures such as renewable generation and emergency generators that can be centrally dispatched, as well as high efficiency natural gas and oil furnaces.

<sup>15</sup> Applicants have to describe the services and DPUC-approved technologies that the EE partner will buy or provide and the amount of funding sought. The DPUC has to consider the applicant's potential to reduce overall and peak demand and all applications must have a two-to-one payback ratio. Additionally, the DPUC has to develop a low-interest loan program to finance the customer's share of the capital cost of the technologies. If the loan comes through the Connecticut Development Authority, the financing agreements cannot exceed \$10 million dollars.

By April 1, 2011, the DPUC has to begin a proceeding to review the program's cost-effectiveness and perform a ratepayer cost-benefit analysis. Based on the DPUC's findings, it may modify or discontinue the EEPP.

year, which is recovered through the system benefits charge collected from ratepayers. A person cannot receive ratepayer funding under the EEPP that is receiving funding from the conservation and load management fund.

### ***Distributed Generation***

As required by law, the DPUC administers programs to support installation of distributed generation that reduce FMCCS. These may be renewable or fossil fuel resources. First, the DPUC provides capital grants to customers who install distributed generation at their premise for the purpose of serving their own power needs.<sup>16</sup> In addition, the DPUC makes a low interest loan program available for customer-side distributed resource projects of 50 kW or greater. The distributed generation grant program also allows distributed resource projects that use natural gas to qualify for certain gas distribution charges to be waived. Finally, under the capital grant program, the electric cost associated with power used when base load customer-side generation is out of service can be reduced by eliminating backup rates and demand ratchets.

## **Indigenous Alternative Fuels**

The CEAB is required to make recommendations on how to promote indigenous alternative fuel resources. This research phase of the report attempts to identify Connecticut's indigenous alternative resources, though "indigenous alternative fuel resources" is not defined explicitly in Connecticut law or regulation. For purposes of this report, the focus is on DSM and renewable energy resources defined and supported by various Connecticut programs.

### ***Definition and Current Connecticut Activities***

Connecticut promotes alternative fuel resources through a variety of means, including for example, through the RPS requirements, CCEF and Conservation Fund programs and Connecticut's tax code. It is reasonable to consider resources eligible for those programs, narrowed to those indigenous to Connecticut, as potential "indigenous alternative fuel resources" that the state has an interest in promoting.

Class I resources include a variety of renewable energy resources, including for example, solar power, wind power, fuel cells and methane gas from landfills.<sup>17</sup> Class II resources include trash to energy facilities and certain biomass facilities.<sup>18</sup> Class III resources means certain combined

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<sup>16</sup> The DPUC reviews proposed projects and approves grants for those where the benefits outweigh the costs. Grants are funded through FMCCS, collected from ratepayers. The grant value is higher for projects located in Southwest Connecticut in light of congestion challenges in that area.

<sup>17</sup> "Class I renewable energy source" means (A) energy derived from solar power, wind power, a fuel cell, methane gas from landfills, ocean thermal power, wave or tidal power, low emission advanced renewable energy conversion technologies, a run-of-the-river hydropower facility provided such facility has a generating capacity of not more than five megawatts... or a sustainable biomass facility...or (B) any electrical generation, including distributed generation, generated from a Class I renewable energy source

<sup>18</sup> "Class II renewable energy source" means energy derived from a trash-to-energy facility, a biomass facility that began operation before July 1, 1998...a run-of-the-river hydropower facility provided such facility has a generating capacity of not more than five megawatts...and began operation prior to July 1, 2003.

heat and power facilities, the productive use of waste heat and savings from conservation measures.<sup>19</sup>

Resources eligible by law for CCEF support differ from those eligible for the state's RPS. Clean energy resources eligible for CCEF funding include:

“solar photovoltaic energy, solar thermal, geothermal energy, wind, ocean thermal energy, wave or tidal energy, fuel cells, landfill gas, hydropower that meets the low-impact standards of the Low-Impact Hydropower Institute, hydrogen production and hydrogen conversion technologies, low emission advanced biomass conversion technologies, alternative fuels, used for electricity generation including ethanol, biodiesel or other fuel produced in Connecticut and derived from agricultural produce, food waste or waste vegetable oil, provided the Commissioner of Environmental Protection determines that such fuels provide net reductions in greenhouse gas emissions and fossil fuel consumption, usable electricity from combined heat and power systems with waste heat recovery systems, thermal storage systems and other energy resources and emerging technologies which have significant potential for commercialization and which do not involve the combustion of coal, petroleum or petroleum products, municipal solid waste or nuclear fission.”

Connecticut also promotes certain alternative resources through the tax code. For example, solar energy systems are exempt from sales tax. With respect to property taxes, Connecticut exempts Class I resources, while municipalities are allowed, but not required, to exempt certain combined heat and power facilities.

### **Renewable Resources**

In 2005, the CCEF commissioned a review of the renewable resource potential within Connecticut, which is show below for informational purposes. This estimate shows that there is very limited in-state renewable resource potential in the near term, though solar and tidal technologies were not evaluated. Estimates of solar potential are difficult because, arguably, any un-shaded surface area in the state can conceivably have a solar installation. The current barrier for wide-spread adoption of solar photovoltaic systems or other solar-based energy options is primarily cost. Tidal technology was not estimated due to the nascent nature of the technology.

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<sup>19</sup> Class III source” means the electricity output from combined heat and power systems with an operating efficiency level of no less than fifty per cent that are part of customer-side distributed resources developed at commercial and industrial facilities in this state on or after January 1, 2006, a waste heat recovery system installed on or after April 1, 2007, that produces electrical or thermal energy by capturing preexisting waste heat or pressure from industrial or commercial processes, or the electricity savings created in this state from conservation and load management programs begun on or after January 1, 2006

**Table 0-1: Excerpt from “Incremental Class 1 Renewable Resource Potential in Connecticut”<sup>20</sup>  
Summary: Renewable Resource Potential in Connecticut (MW)**

	<b>Estimate of MW Potential Available by 2008</b>	<b>Cumulative MW Potential Available by 2013-2015 (inclusive of 2008 estimates)</b>
Wind (Land)	16	41
Wind (Offshore)	0	0
Landfill Gas	10.3	13.5
Biomass	25	60
Hydroelectric <sup>1</sup>	2.3	9.1
<b>Total MW potential</b>	<b>53.6</b>	<b>123.6</b>

Connecticut, through Project 150, supports the development of large-scale renewable resources in the state. Project 150, described previously, requires projects to be located in the state of Connecticut. The following table illustrates the types of resources resulting from that process:

**Table 0-2: Project 150 Approved Projects (Table B from FY2009-FY2010 Comprehensive Plan)<sup>21</sup>**

<b>Project 150 Approved Projects</b>						
<b>PROJECT NAME</b>	<b>TECHNOLOGY</b>	<b>LOCATION</b>	<b>MW</b>	<b>CCEF FUNDING AMOUNT</b>	<b>EXPECTED ANNUAL GENERATION (kWh)</b>	<b>EXPECTED LIFETIME GENERATION (MWh)</b>
Clearview – Kofkoff Egg Farm	Biomass	Bozrah	30.0	\$ 4,000,000	219,175,200	4,383,504
Clearview – Laurelbrook Dairy	Biomass	Canaan	3.0	50,000	23,652,000	236,520
EMCOR – Stamford Hospital	Fuel Cell	Stamford	4.8	558,942	36,266,400	543,996
EMCOR – Waterbury Hospital	Fuel Cell	Waterbury	2.4	1,015,449	18,133,200	271,998
Plainfield Renewable Energy	Biomass	Plainfield	30.0	50,000	236,520,000	3,074,760
SCG Gate Station	Fuel Cell	Milford	9.0	50,000	62,283,600	934,254
SNEW Station	Other	Norwalk	30.0	50,000	228,636,000	4,115,448
Tamarack/GDI	Biomass	Watertown	15.0	50,000	118,260,000	2,365,200
<b>Total Project 150</b>	<b>8</b>		<b>124.2</b>	<b>\$ 5,824,391</b>	<b>942,926,400</b>	<b>15,925,680</b>

For smaller-scale renewable resources, the CCEF has provided funding for 83 on-site renewable distributed generation in Connecticut and continues to fund additional on-site renewable generation. These projects include fuel cells, solar photovoltaic, and biomass systems. Under the CCEF’s Residential and Small Solar Photovoltaic (PV) System Rebate Program, rebates are offered through designated participating installers for Connecticut residents, nonprofits and governmental organizations that install solar PV systems of 10 kW or less on their homes or at their facilities. About 2,300 kW have been installed, are under construction or are approved for funding.<sup>22</sup>

## **DSM and Energy Efficiency**

With regard to in-state DSM potential, in 2004, the ECMB commissioned an analysis that determined Connecticut had a maximum achievable energy efficiency potential of 908 MW for

<sup>20</sup> Report to the CCEF “Incremental Class 1 Renewable Resource Potential in Connecticut,” July 27, 2005.

<sup>21</sup> CCEF FY2009-FY2010 Draft Comprehensive Plan filed for the DPUC’s review on April 4, 2008.

<sup>22</sup> Ibid.

the years 2003 through 2012.<sup>23</sup> Subsequently, as part of the 2008 Procurement Plan, the utilities provided an updated estimate of this potential as 952 MW to account for savings that have already been captured since 2003, offset by increased energy prices that would drive more measures to be “cost-effective.”<sup>24</sup>

Currently, the ECMB and Connecticut’s utilities are commissioning an updated study of the EE potential study completed by the ECMB in 2004 and a new focused assessment of the potential for Demand Response based on a combination of Connecticut data and estimates of DR potential from analyses in other studies and states. Both the update to EE potential and the assessment of DR potential will look at the period from 2008 through 2020 in three geographic areas, including Connecticut statewide, and the territories of each of the utilities.

Waste heat that can provide power, heating and cooling may also be considered an indigenous alternative resource. There is limited information available about the potential for waste heat and combined heat and power in Connecticut.

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<sup>23</sup> “Independent Assessment of Conservation and Energy Efficiency Potential for Connecticut and the Southwestern Connecticut Region” Final Report to the ECMB, GDS Associates, Inc. and Quantum Consulting, June 2004.

<sup>24</sup> Connecticut Light & Power and United Illuminating’s 2008 Integrated Resource Plan dated January 1, 2008. Appendix D.