

### **3. Renewable Energy and Distributed Resources Policy**

#### **3.1 Summary of Recommendations**

Staff developed four policy recommendations based on the efforts of the Renewable Energy and Alternative Technologies Workgroups.

1. Promote the adoption of cost-effective renewable and alternative energy technologies in Michigan through a mandatory renewable energy portfolio standard (RPS) of seven to 10 percent by 2015. The RPS should be applicable to all Michigan load serving entities (LSEs) with deferral of RPS targets for one year at a time, for hardship or rate impacts that are burdensome.
2. Support distributed resources through a review and appropriate changes in MPSC rates and tariffs including net metering and distribution system use tariffs; and interconnection procedures.
3. Create an on-going collaborative process to monitor national smart power grid infrastructure initiatives. When options appear cost-effective and practical to implement, establish evaluation criteria and standards and trigger pilot programs or broader deployment in Michigan.
4. Support legislation to create a residential property tax exemption for solar, wind and fuel cell installations.
5. Create a solar energy pilot program.

#### **3.2 Introduction and Workgroup Process**

Because Renewable Energy and Alternative Technologies Workgroup participants identified many similar policy issues, it was agreed to form a single policy team comprised of participants from both workgroups. The combined policy team met twice, in July and August, in addition to full Workgroup meetings held in June, July, August, and September.

The general procedure used for developing policy concepts for consideration by the combined Policy Team was for Workgroup leaders to produce strawman proposals on which interested participants could comment. Two major proposals were provided; one for a renewable portfolio standard (RPS), and a second on policies to promote distributed resources which might employ either renewable or alternative energy technologies. These distributed resources policies might be implemented independent of or in concert with an RPS.

The various renewable and alternative energy policies investigated are discussed here in four groups: (1) an RPS; (2) distributed resources, including both MPSC rates and tariffs and other regulations; (3) smart power grid technologies; and (4) financing, funding, and incentives.

**Benefits of Renewable and Alternative Energy** – Three principle reasons for supporting renewable and alternative technologies are fuel and technology diversity, economic and employment benefits, and environmental protection.

Fuel and technology diversity can reduce a variety of risks associated with electric generation. Primary benefits of fuel and technology diversity include reduced risks due to the effects of fuel price volatility and demand forecasting error. The shorter lead times associated with bringing smaller facilities on line greatly enhances this flexibility and risk reduction, including the ability to more efficiently coincide with demand growth. In an uncertain world and economic climate, fuel diversity and the use of indigenous resources – especially those not subject to price volatility and shortages – represent valuable safeguards to utility ratepayers.

Environmental benefits are often associated with renewable and alternative energy technologies. Each new power source must be evaluated individually in order to determine its impacts on the environment, but generally speaking, renewable and alternative energy technologies produce less air pollution compared to many central station power plant options analyzed for this study. Some available renewable resources produce no emissions during normal operations (e.g., wind and solar energy). The environmental benefits associated with renewable and alternative energy technologies are especially important given present air quality regulations, Michigan's central location within the Great Lakes basin, and global climate change concerns.

**Barriers to Renewable and Alternative Technology Adoption** – Economic concerns, including fear of higher costs, valuation, risk aversion and uncertainty, are barriers to renewable and alternative technologies.

Utilities and some customer groups are reluctant to have utility rates rise as a result of incorporating renewable and alternative energy technologies which can cost more relative to existing options. Often, this attitude is held regardless of substantial long term economic and environmental benefits associated with renewable and alternative energy options.

Energy planners face difficulty in valuing resources with variable output, and this serves as a barrier to adoption. The value of wind and solar energy, for instance, varies greatly depending on the local wind regimes or solar exposure.

Risk aversion associated with technologies considered unproven or undergoing rapid improvement in efficiency and performance acts as a barrier as well. Many renewable and alternative energy options are novel and utility managers question how they will affect the utility grid and its operations.

Finally, uncertainty regarding interconnection costs and timing undermines interest in these options. Though the Commission has established rules governing utility interconnection standards and procedures, the first applications demonstrate uncertainty remains and can be a major concern for project developers.

In its review of existing policy barriers, workgroup participants identified the major areas of concern and the agencies best able to address them, including the Commission and other state regulatory agencies. Under the directive regarding development of the Plan, our focus is almost exclusively on State of Michigan policies, though some barriers might also be addressed through federal or local government actions, as well.

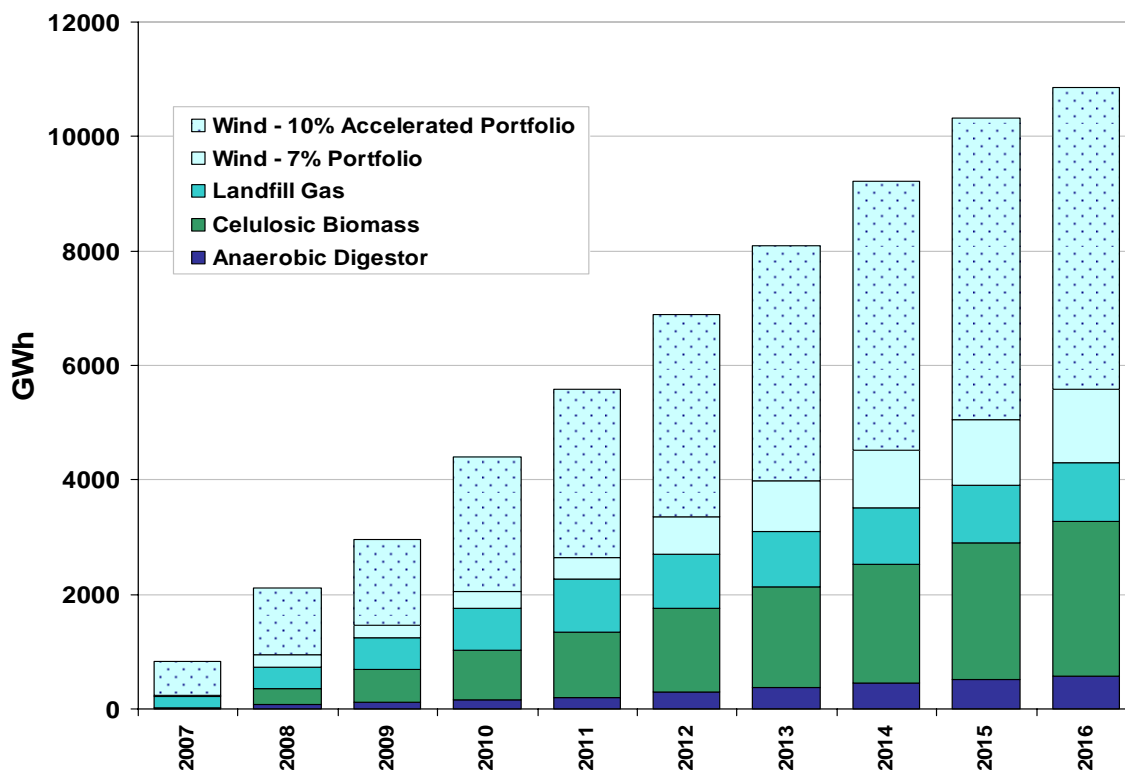
### 3.3 Proposal for Renewable Portfolio Standard

The Executive Directive explicitly requests a proposal for “a renewable portfolio standard with established targets for the share of the state’s energy consumption to be derived from renewable energy sources.” In response, MPSC Staff proposes a mandatory RPS with the following basic characteristics:

- All load serving entities (LSEs) in Michigan shall gradually increase the percentage of new renewable energy in their portfolios. All LSEs not yet meeting the statewide average of approximately 3 percent renewable energy shall have until the end of 2009 to reach at least the statewide average. After 2009, all LSEs shall increase their renewable energy portfolio from new facilities until they reach seven to 10 percent by the end of 2015. The Commission shall hold a public hearing in 2014 to determine whether it is in the public interest to pursue an RPS goal of 20 percent by 2025.
- An LSE with less than 100,000 customers shall comply through any combination of: (a) producing or purchasing renewable energy; (b) procuring independently certified and verified renewable energy certificates (RECs); or (c) making a Commission-established alternative compliance payment (ACP) per kilowatt-hour. LSEs with more than 100,000 customers shall comply through any combination of (a), (b), and (c) through 2012 and (a) and (b) thereafter. ACP payments shall be credited to the Michigan Energy Efficiency Program fund and will be used exclusively to help finance renewable energy projects.
- The Commission may defer RPS targets for one year at a time, for hardship to an LSE or its customers, or if it determines that rate impacts are burdensome.
- Eligible facilities will be those producing electricity delivered in Michigan for consumption by end-use customers and meeting the definition of renewable resources found in the Michigan Customer Choice and Electricity Reliability Act. Only new resources will be eligible for meeting the expanding RPS, beginning in year four.
- RECs associated with out-of-state facilities will be eligible if they improve air quality or provide economic development benefits to Michigan as a result of the energy generated.
- The Commission shall: (1) establish and oversee a program to provide for REC verification and trading; (2) establish and update every two years a just and reasonable per-kWh alternative compliance payment (ACP) amount; (3) establish LSE reporting requirements; and (4) file with the Governor and Legislature annual reports on the RPS and in-state renewable energy resources.
- Legislation shall grant the Commission authority to impose remedies and penalties if it is determined that an LSE is in non-compliance with the RPS requirement.

Figure 8 shows the estimated growth of electricity from renewable resources that would result from the proposed RPS for Michigan.

**Figure 8: Proposed RPS (Estimated Statewide New GWh per Year, by System Type, 2007–2016)**



There are several important reasons to include renewable resources in Michigan’s portfolio of generating resources. One additional reason that guided Staff in the development of its RPS proposal is the finding of many of the Scenarios and sensitivities analyzed for the Plan, that a significant level of renewable resources can be achieved at a modest, incremental cost above that incurred through reliance on central station generation options alone. Modeling suggests a combination of renewable energy and energy efficiency resources as important components of a broad portfolio of resources that can help meet much of the state’s short term electric resource needs at no incremental cost above the cost of reliance on central station generating options alone. At the same time, however, these resources will protect Michigan ratepayers from some major planning contingencies.

Staff prefers an RPS that is as simple to understand and administer as possible, but no simpler than needed to make it effective. Therefore, Staff prefers a mandatory RPS combined with appropriate policies to reduce, and where possible, remove barriers to renewable energy market growth. If a mandatory RPS is not adopted though, various additional incentives and specialized financing and funding will be required, to overcome existing obstacles.

Table 5 (p. 58) summarizes many important features associated with RPSs in other states. It is worth noting that since 2003, 11 states upgraded existing RPSs (AZ, CA, CT, HA, IL, ME, MN, NV, NJ, TX, and WI). And, since 2004, 10 states and the District of Columbia initiated RPSs (DC, CO, DE, MD, MT, NM, NY, PA, RI, VT, and WA), with Colorado and Washington added

by voter referendum.<sup>28</sup> In addition, a few more states, like Michigan, are presently considering RPSs. These include North Carolina, where a 5 percent RPS is under consideration and Oregon, where RPS legislation will reportedly be proposed in 2007.<sup>29</sup> RPS legislation has already been introduced in Ohio, proposing a formal advisory council to consider an RPS, and Virginia, calling for a 20 percent RPS within 10 years.<sup>30</sup>

The issues and concerns expressed about the strawman proposal by commenting parties are reviewed and summarized in a separate report, will be posted on the 21st Century Energy Plan's Renewable Energy Workgroup webpage. The MPSC Staff RPS proposal is summarized in Table 6. The following narrative explains the Staff proposal and the major concerns raised by commenting parties.

**Staff proposes a portfolio standard of at least seven to 10 percent, to be reached by the end of 2015, and a goal to reach 20 percent by 2025** – Resource modeling confirms meeting this goal will be challenging yet achievable. Staff believes the estimates of renewable resources and costs indicate that a mandatory RPS in this range can be achieved with only a moderate incremental cost compared to an alternative scenario based on the construction of new central station power plants. The modeling also suggests the benefits of the additional renewable resources, in terms of fuel and technology diversity and reduced environmental risks, are expected to offset any short-term increased costs that might result.

A voluntary RPS alternative is preferred by utility company representatives and ABATE, and several parties believe extending the RPS to municipal utilities on anything other than a voluntary basis could be problematic. Other parties recommend percentages, on the order of 10 percent by 2015, 20 percent by 2020, and 25 percent by 2025. Staff proposes the Commission hold a public hearing in 2014 to determine whether it is in the public interest to pursue an RPS target of 20% by 2025.

One option is for legislation to initiate a voluntary program with provisions to switch to mandatory status if pre-established target percentages are not achieved. Another approach is for RPS targets to be based only on LSE sales growth or new capacity need, rather than total sales. For example, the RPS target could be to employ renewable resources to meet a minimum of 50 percent of all sales growth or 50 percent of all new capacity need. Staff favors a statewide mandatory approach. Experience with voluntary programs does not instill confidence that a voluntary program would achieve the goals recommended here.

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<sup>28</sup> <http://www.dsireusa.org>; viewed December 22, 2006.

<sup>29</sup> <http://www.ncuc.commerce.state.nc.us/rps/rps.htm>, for North Carolina and <http://www.oregon.gov/ENERGY/RENEW/RenewPlan.shtml>, for Oregon, viewed January 5 2007.

<sup>30</sup> See: [http://pickocc.org/publications/renewable\\_energy/Need\\_for\\_Alternative\\_Energy\\_Portfolio\\_Standard.pdf](http://pickocc.org/publications/renewable_energy/Need_for_Alternative_Energy_Portfolio_Standard.pdf) for Ohio summary report; <http://leg1.state.va.us/cgi-bin/legp504.exe?071+sum+SB278> for Virginia proposed Senate Bill 278; both viewed January 5, 2007.

**Table 5: Other States RPS Programs**

State	Start Year	Target Year	Start %	Target %	ACP <sup>1</sup>	Rate Impact Limit	New / Existing Facilities?	Technology Set-Asides?	Uses RECs ?	Electric Customer Choice?
Arizona	2006	2025	1.25	15		Y	New	Distributed Generation	Y	Y
California	2003	2017	6	20	SEP <sup>2</sup>	Y	Both			N <sup>3</sup>
Colorado	2007	2015	3	10		Y	Both	Solar	Y	
Connecticut <sup>4</sup>	2004	2010	4	14	Y	Y <sup>5</sup>	Both		Y	Y
D.C.	2007	2022	4	11	Y	Y <sup>5</sup>	Both	Solar	Y	Y
Delaware	2007	2019	1	10	Y	Y <sup>5</sup>	Both <sup>6</sup>	Y <sup>7</sup>	Y	Y
Hawaii	2003	2020	7	20		Y	Both			
Illinois <sup>8</sup>	2007	2013	2	8			Both	Wind		Y
Iowa <sup>4</sup>						Y				
Maine	2000	2000		30			Both		Y	Y
Maryland	2006	2019	3.5	7.5	Y	Y <sup>5</sup>	Both	Y <sup>9</sup>	Y	Y
Massachusetts	2003	2009	1	4 <sup>10</sup>	Y	Y <sup>5</sup>	New		Y	Y
<b>Michigan Proposal</b>	<b>2007</b>	<b>2025</b>	<b>-3.0</b>	<b>10%</b>	<b>Y</b>	<b>Y</b>	<b>Both</b>		<b>Y</b>	<b>Y</b>
Minnesota <sup>8</sup>	2005	2015	1	10			Both	Biomass		
Montana	2008	2015	5	15	Y	Y	Both <sup>11</sup>		Y	Y <sup>12</sup>
Nevada	2005	2015	6	20	Y	Y	Both	Solar	Y	Y <sup>12</sup>
New Jersey	2004	2020	3.25	22.5	Y	Y <sup>5</sup>	Both <sup>11</sup>	Solar	Y	Y
New Mexico	2006	2011	5	10		Y	Both	Y <sup>13</sup>	Y	N <sup>3</sup>
New York		2013	19	24		Y	New	Y <sup>14</sup>		Y
Pennsylvania	2007	2020	5.7	18	Y	Y	Both	Solar	Y	Y
Rhode Island	2007	2019	3	16	Y	Y <sup>5</sup>	Both <sup>6</sup>		Y	Y
Texas	2007	2015			Y	Y	New	Y <sup>15</sup>	Y	Y
Vermont <sup>8</sup>	2005	2012 <sup>16</sup>			Y		New		Y	
Washington	2012	2020	3	15		Y	New		Y	
Wisconsin		2015		10		Y	Both		Y	

Source: Data gathered from <http://www.dsireusa.org/index.cfm?EE=1&RE=1>.

<sup>1</sup> ACP stands for Alternative Compliance Payment.

<sup>2</sup> SEP stands for Supplemental Energy Payments.

<sup>3</sup> CA and NM have formally reversed, suspended, or delayed restructuring.

<sup>4</sup> States with rows shaded gray do not have utility green pricing programs. States with rows shaded black mandate their utilities to offer green pricing programs. States with rows not shaded have both an RPS and utility green rate programs. No states with both an RPS and green rate programs allow sales to the green rate programs to count towards RPS requirements. (Source for Green Pricing data is National Renewable Energy Laboratory, July 2006; <http://www.eere.energy.gov/greenpower/markets/pricing.shtml?page=0>.)

<sup>5</sup> Price ceiling for RPS compliance is determined by the alternative compliance payment (ACP) amount.

<sup>6</sup> RPS limits the amount of existing renewables that can be used to meet annual requirements.

<sup>7</sup> DE provides extra RPS compliance credit for solar PV, fuel cells, and wind turbines.

<sup>8</sup> IL, MN, and VT have voluntary RPS goals, rather than mandatory RPSs.

<sup>9</sup> MD provides extra RPS compliance credit for solar PV, wind, and methane.

<sup>10</sup> Ending percentage increases 1% per year until the Massachusetts Division of Energy Resources ends the program.

<sup>11</sup> Out-of-state renewables must be new.

<sup>12</sup> MT and NV have limited restructuring.

<sup>13</sup> NM provides extra RPS compliance credit for biomass, solar, geothermal, landfill gas or fuel cells.

<sup>14</sup> NY has a set-aside for customer-sited generation.

<sup>15</sup> TX requires at least 500 MW from renewable sources other than wind.

<sup>16</sup> VT total incremental energy growth between 2005 and 2012 is to be met with new renewables (as long as the state does not exceed a cap of 10% renewable resources).

**Table 6: Summary of MPSC Staff Renewable Portfolio Standard Proposal**

Topic/Feature of RPS	MPSC Staff Proposal
<b>Applies to which LSEs?</b>	<ul style="list-style-type: none"> <li>• RPS applies to all load serving entities (LSEs).</li> <li>• LSEs can comply by producing or purchasing renewable energy, or procuring renewable energy certificates (RECs).</li> <li>• LSEs with less than 100,000 customers can also comply by making a Commission-established alternative compliance payment (ACP), per kWh.</li> </ul>
<b>RPS Targets</b>	<ul style="list-style-type: none"> <li>• Target is for all LSEs to meet statewide average by end of 2009. Then, all LSEs increase by approximately 1% of total sales per year until the statewide average reaches 7–10% by end of 2015. The Commission shall hold a hearing in 2014 to determine whether it is in the public interest to pursue an RPS target of 20 percent by 2025.</li> <li>• Targets will be mandatory, but MPSC can defer targets one year at a time for hardship to an LSE or its customers.</li> </ul>
<b>Eligible Resources</b>	<ul style="list-style-type: none"> <li>• Use definition from Michigan Customer Choice and Electricity Reliability Act; (MCL 460.10g(1)(f)).</li> <li>• Do not include pumped storage, except when pumping using renewables.</li> <li>• Non-electric-producing technologies are not eligible. They are supported only through non-RPS policies.</li> <li>• Out-of-state renewables must be “new” (&gt;1/1/1999)</li> </ul>
<b>Eligible Facilities</b>	<ul style="list-style-type: none"> <li>• Producing electricity delivered in Michigan for consumption by end-use customers and meeting the MCL 460.10g (1)(f) definition.</li> <li>• Existing in-state renewables will be eligible to count towards reaching and meeting the statewide average.</li> <li>• Only new resources will be eligible for meeting RPS expansions, beginning in year four.</li> <li>• MPSC will certify facilities for utility PPAs.</li> </ul>
<b>RECs</b>	<ul style="list-style-type: none"> <li>• RECs can be used to meet 100% of RPS obligation.</li> <li>• Out-of-state RECs can count, but only if air quality and economic development benefits accrue to Michigan.</li> <li>• Two year maximum REC banking.</li> <li>• MPSC will establish requirements for independent REC certification, verification, and tracking.</li> </ul>
<b>Rate-Impact Limit</b>	<ul style="list-style-type: none"> <li>• RPS targets may be deferred for one year at a time, for hardship to an LSE or its customers or if the Commission determines that rate impacts are burdensome.</li> <li>• ACP amount set by MPSC will act as a second rate impact limit, and ACP will be recoverable in rates.</li> </ul>
<b>Cost Recovery</b>	<ul style="list-style-type: none"> <li>• Utility costs recoverable through PSCR process.</li> <li>• AES costs recoverable through rates, or via non-bypassable charge.</li> </ul>
<b>Compliance Reporting</b>	<ul style="list-style-type: none"> <li>• All LSEs report annually to MPSC.</li> <li>• MPSC will set report content requirements.</li> </ul>
<b>RPS Program Review Other Associated Policies</b>	<ul style="list-style-type: none"> <li>• MPSC will report annually to Legislature and Governor.</li> <li>• Siting/zoning guidelines/standards.</li> <li>• Property tax guidelines/standards, and exemptions for residential systems.</li> <li>• ACP payments will be placed into a fund which is only used for in-state renewable energy development, especially community-based systems.</li> </ul>

**The RPS should apply to all LSEs, including investor owned utilities, cooperative utilities, alternative electric suppliers, and municipal utilities** – Staff believes broad applicability is necessary to ensure all competitors remain on an equal footing in Michigan’s competitive electricity supply market. Staff anticipates that long term benefits from adopting a renewable portfolio standard will accrue to all Michigan’s ratepayers. Therefore, it is appropriate for all ratepayers to participate in the program.

In line with comments regarding possible hardship exemptions or variances for some LSEs in meeting the RPS standard, Staff believes its proposed alternative compliance payments and rate impact limits, described below, will both constrain compliance costs to reasonable levels and provide a hearing process for an LSE that might need to defer, for a reasonable time period, its obligation to meet specific RPS annual targets.

**Qualifying renewable resources should be based on the definition provided in the Michigan Customer Choice and Electricity Reliability Act (P.A. 141 of 2000) as** – electric energy generated from solar, wind, geothermal, hydroelectric or biomass, including waste-to-energy and landfill gas.

Facilities should be eligible only if they meet all applicable regulations and generate electricity that would otherwise be produced using fossil fuels. Co-firing biomass fuels in existing fossil-fueled utility boilers would qualify under this definition.

Some participants have proposed that pumped storage hydroelectricity qualify as a renewable resource. The Ludington facility, jointly owned by Consumers Energy and DTE, is a valuable Michigan electric generating resource but it is a storage facility rather than a power source. The Ludington storage facility could be a valuable compliment to a renewable program but generation from the facility should not count towards the RPS.

Some parties recommended allowing thermal energy from renewable resources to receive an appropriate credit (for example solar thermal, geothermal, and thermal energy generated in conjunction with biomass-fired CHP). Staff believes it is best not to complicate the RPS by trying to accommodate non-electricity producing technologies; incentives for those technologies can better be provided through energy efficiency programming.

Establishing a broader clean energy portfolio standard, as some other states have recently done, has been proposed. A few state standards include targets and provide energy portfolio credits for energy efficiency; some include CHP because of its greater efficiency compared to central station power plants; and others allow credit for selected alternative technologies, such as fuel cells, regardless whether they are powered by renewable fuels. Broadening eligible technologies is assumed to provide LSEs with more portfolio options at lower costs, especially if energy efficiency is included. On the other hand, Staff believes the relative simplicity of a more limited RPS outweighs the potential benefits that might be associated with development of a broader energy portfolio standard. Also, a portfolio standard which includes energy efficiency is impractical if energy efficiency programs will be administered by one independent entity, rather than LSEs. Likewise, Staff believes the benefits associated with statewide energy efficiency program administration outweigh the potential benefits of a broader energy portfolio standard.

Similar to the question of what technologies might count towards meeting RPS targets is the more specific question of which facilities should qualify. Several states' standards include provisions to restrict qualification to in-state facilities or grant them favorable treatment. Treatment of pre-existing versus new renewable resource facilities has also been raised as an issue. Several parties commented that existing facilities should be eligible for inclusion in a Michigan RPS, and no party proposed existing facilities should be ineligible. An RPS should not

disadvantage pre-existing, in-state renewable resource facilities, nor should it create windfall profits for pre-existing facilities. Staff recommends RPS eligibility for pre-existing in-state resources for the initial 3 percent requirement.

Roughly equal numbers of parties recommended allowing RECs only from in-state facilities versus RECs from anywhere. Those advocating in-state RECs only cite environmental and economic development benefits from new in-state renewable facilities, which directly accrue to the ratepayers. Advocates for eligibility from out-of-state are concerned single-state restrictions could be challenged under the commerce clause of the U.S. Constitution, and some believe restricting a special market to in-state production could restrict competition, driving prices to unreasonable levels. Staff believes its proposal strikes a reasonable balance between these positions, allowing out-of-state RECs to qualify, but only when it can be shown that Michigan utility customers will obtain at least some of the associated air quality or economic development benefits.

In addition to these technical concerns, LSEs will seek regulatory assurance regarding the eligibility of specific facilities proposed for inclusion in renewable resource portfolios. Several parties note a need for pre-certification of facilities and perhaps other assurances that costs associated with RPS compliance will be recoverable through utility rates. Staff agrees there should be no doubt about what technologies and facilities will qualify. Adequate rules can be developed so generators should be able to initially self-certify their eligibility to participate, and Staff recommends that LSEs be pre-authorized to meet RPS obligations through power purchase agreements (PPAs), purchase of RECs, ACP payments, or ownership of qualifying renewable facilities. Staff believes all these options should be eligible for cost recovery. Reasonable and prudently incurred compliance costs on the part of regulated utilities should be recoverable through power supply cost recovery (PSCR) rates, subject to the rate impact limits discussed below. Staff proposes that LSEs serving less than 100,000 customers be allowed to opt for their customers to pay a non-bypassable ACP surcharge, either in lieu of compliance with the RPS or to meet any portion of their RPS target. And, Staff proposes this ACP option should also apply through 2012 to utilities serving more than 100,000 customers.

The Legislature should provide the Commission with authority to resolve any remaining questions raised by parties, such as how to apply RPS targets to regulated distribution cooperatives that have full-requirements contracts with power supply cooperatives, that are not MPSC regulated; and how to apply RPS cost recovery for utilities operating without PSCR clauses or annual PSCR hearings.

The ACP, set in a biennial, contested-case MPSC hearing, should accurately reflect market conditions. It should be low enough not to be punitive, nor to influence artificially high REC prices. At the same time, however, the ACP should not be set so low as to discourage LSEs from building or purchasing capacity and energy or RECs to meet their RPS requirements. ACP amounts should be recoverable in rates through a non-bypassable surcharge.

Staff proposes ACP funds be placed in the statewide energy efficiency fund and used to support Michigan renewable energy projects, especially community based projects, where renewable

energy production helps to reduce costs for facilities where utility bills are ultimately paid by taxpayers.

**The impact of the RPS on utility rates should be limited** – Some participants prefer renewable energy policies designed to completely avoid rate increases. MPSC Staff recognizes the longstanding tension between utility plans that minimize short-term versus long term costs and rate impacts, and believes this proposal strikes a reasonable balance.

Flexibility and stability are two competing goals for RPS policies. A good RPS should allow enough flexibility to avoid significant rate impacts and hardships for LSEs and their customers. At the same time, however, it should produce sufficient long term stability to enable new facilities to obtain financing at attractive interest rates. In comments, several parties recognized the desirability of long term stability and others recommend at least a limited ability for the Commission to be able to react quickly to prevent hardships or unreasonable rate impacts.

This proposal includes three mechanisms that will limit the RPS's rate impact. One is setting the ACP as described above. A second is through MPSC authority to defer RPS targets for one year at a time, if it were shown that meeting the annual target would result in a hardship for an LSE or its customers or if an LSE is unable to satisfy the standard for reasons beyond its control; for example, if a renewable energy developer fails to complete a project on schedule. Third, the Commission could defer targets for one year if the cumulative rate impact of meeting the RPS target were deemed to be burdensome.

**The RPS should incorporate provisions for the use and trading of RECs** – As shown in Table 5, about three-quarters of all states with an RPS have incorporated provisions for REC trading. Staff recommends that REC trading be approved for Michigan's RPS program. A REC is a unique, independently certified and verifiable record of the production of one megawatt hour of renewable energy. When employed in an RPS program, RECs can be purchased by an LSE as one mechanism for meeting part of its RPS target commitment, and then one REC is retired to represent each MWh of qualifying renewable energy sales to the LSE's customers. LSEs typically can assemble a portfolio of qualifying resources through any combination of building their own renewable resource production facilities, purchasing renewable energy through long term contracts, and purchasing RECs, either through contracts or spot-market sales. REC trading provides a mechanism by which renewable resource generators can separately market their electricity production and its green-power attributes. Typically, a renewable resource generator will sell its electricity production bundled with RECs in one contract, or they might sell their electricity production into an energy-only market while separately selling their RECs to a purchaser who will use them to meet some part of a renewable portfolio commitment.

Within this general context, there are many specific characteristics of the applicability of RECs and REC trading programs operations that must be determined. For example, MPSC Staff is recommending that RECs used for compliance with the Michigan RPS: (a) should be bankable for a maximum of 24 months, after which they should expire, whether or not they are used; (b) must be retired upon use, and systems must be employed to account for the transfer and retirement of RECs thus avoiding double-counting; and (c) beginning with the fourth year, should come only from new facilities. Though pre-existing in-state facilities would be counted

as renewable resources for the purpose of meeting the statewide average, beginning with the fourth year, MPSC Staff recommends REC certification and trading only for renewable resources from facilities independently certified as being new.

Parties expressed three general concerns about the operation of a Michigan REC trading program: (1) the extent to which out-of-state RECs might be used to meet Michigan's RPS; (2) fair treatment for renewable resource facilities developed prior to the establishment of a REC market; and (3) whether the benefits of a REC trading program would outweigh the costs associated with REC certification and tracking. The MPSC Staff proposal addresses pre-existing in-state renewable resource facilities by acknowledging them in the baseline determination for each LSE to reach the statewide average of approximately 3 percent renewable resources, and allowing until the end of 2009 for those LSEs presently below the statewide average to catch up, as it were. MPSC Staff believes its proposal for a REC trading program strikes a reasonable balance between the interests of all parties.

**Staff also recommends that RECs come from in-state resources** – Staff would allow RECs to be included from out-of-state sources, under certain conditions. RECs and renewable resources serve to manage fuel price increases and volatility and protect against potential air quality compliance costs, including risks associated with the growing concern regarding global climate change. Furthermore, in-state facilities create jobs within Michigan, pay taxes in Michigan, and support Michigan's economy. Such benefits can more than offset any incremental costs associated with renewable energy generators compared to central station generation. These are direct benefits to Michigan, and for facilities located in Michigan. It is less clear whether and how these benefits accrue to Michigan ratepayers if the facility is located out-of-state. To capture these benefits, MPSC Staff recommends that RECs originate with Michigan generation. However, RECs would be allowed from out-of-state generators, if they can be shown to help protect Michigan air quality and produce benefits for Michigan's economic development. A REC trading program could be efficiently administered through development of an in-state program or in cooperation with an existing regional program.

**Annual Commission reports to the Legislature and Governor will provide accountability** – The reports would include monitoring data on each LSE's performance with respect to its RPS target, lists of all in-state renewable energy facilities being used to meet RPS requirements, data on the amount of power generated from renewable sources within Michigan, and the percentage of power purchased by Michigan customers obtained from renewable energy sources. Data on the number and aggregate capacity of renewable energy generators receiving third-party certification, and on Michigan sales and purchases of renewable energy certificates (RECs) would also be provided. Lastly, the percentage and absolute change indicators of renewable energy penetration in Michigan will help policy makers track growth of the renewable electricity sector.

Each LSE covered by the RPS will file an annual compliance report for the previous year explaining in detail its renewable resource plans for the next year and providing a renewable resource forecast for the next five years. The report shall be due to the Commission each September 30, with regulated utility reporting incorporated into the Commission's annual PSCR process. A reporting schedule and requirements will be developed for AESs. The Commission

should establish the filing requirements and can utilize, to some extent, the same data already required to be submitted to FERC and the Energy Information Administration (EIA).

**Additional policies could be important or even necessary to implement in conjunction with an RPS** – RPS strawman comments indicate three policies are most important to consider in conjunction with an RPS: statewide zoning guidelines or standards for renewable energy system siting; changes in property taxation; and financial incentives for some renewable and distributed energy systems, which presently have limited market potential, such as solar photovoltaic systems and fuel cells. These three subjects are discussed in the following section, along with other policies that might be implemented in conjunction with and support of a Michigan RPS.

### **3.4 Distributed Resources Policies**

This section of the report addresses important renewable and distributed energy technology policy issues identified by participants in the Plan project. These policy issues are in addition to the RPS and RECs policies already discussed,

The Distributed Resources strawman proposal identified and recommended for potential consideration by the Commission certain approaches to address several issues. These include treatment of renewable and distributed energy options in LSE planning, utility power purchase agreements, and utility rate design. In addition to issues explicitly identified in the Distributed Resources proposals, both the RPS and Distributed Resources strawman proposals elicited comments regarding incentive regulation.

Reducing costs associated with renewable and alternative energy applications is an important goal so that the smaller the generator, the lower the transaction costs. A second major goal is to review rate treatment and tariff terms and conditions of service to identify and, wherever practical, remove barriers to renewable and alternative energy applications. Staff supports removing barriers to the full extent practical, but recommends stopping short of introducing new ratepayer-funded subsidies for renewable and alternative energy technology.

Two fundamental concerns addressed by many of the specific proposals for distributed resources policies in the Plan are: (1) no practical market options exist, at present, to allow distributed generators, particularly small ones, to effectively participate in electricity markets as merchant plants; and (2) changes in rates, tariffs, and interconnection procedures may be warranted in order to enable adoption of self-service power options, when appropriate. The several proposals discussed in the following pages are all recommendations for MPSC actions intended to address these two major concerns. The proposals cover utility purchase power agreements; rate design, including net metering and distribution system use tariffs; and interconnection procedures.

Following the discussion of proposals amenable to MPSC action, is a section regarding proposals for action by other state agencies.

### 3.4.1 Policy Recommendations for MPSC Action for Distributed Resources

**Utility Power Purchase Agreements** – Non-utility generators should be able to enter into contractual agreements to sell power to utilities under varying terms that reflect the specific characteristics of various resources, including benefits from avoided transmission and distribution system charges and line losses, considerations for the value of the power, and enhanced reliability.

Some participants indicate provisions for such contractual agreements already exist in the open, wholesale marketplace, with many of the detailed requirements already specified in MISO tariffs. They are also skeptical that distributed resources will prove capable of producing quantifiable distribution system benefits. Other participants recommend evaluating such benefits on a case-by-case basis and propose these issues be addressed through bilateral contracts, by mutual agreement, for sales to LSEs. Some participants also assert that obligations mandated for regulated utilities should apply to all market participants.

Although the Commission has limited authority to oversee specific PPA terms and conditions, a mandatory RPS will provide renewable energy producers much better opportunities to negotiate contracts which recognize specific system benefits. Staff recommends legislation authorizing the Commission to review the terms of PPA contracts in the event of a dispute between a utility and a renewable or CHP energy provider.

**Rate Design** – Changes in Commission policies and tariffs are necessary to remove barriers to the adoption of renewable and alternative energy technologies. These include proposals for specific modifications to Michigan’s net metering program. A distribution system use rate should be adopted that varies by interconnection voltage level for distributed generators who wish to convey power from a generator to a wholesale customer, utilizing the local distribution company grid.

A general proposal for application to all distributed generation is that each LSE should be required to offer to its customers with on-site generation equipment standby, backup, maintenance, and supplemental power, under terms and conditions that reflect the cost of serving a class of such customers on an aggregate, service territory wide basis. Staff supports this general concept and recommends that it be investigated in upcoming Commission proceedings. Staff recommends development of pilot load management and demand response programs, incorporating smart metering and real time pricing as recommended in the energy efficiency section, Subsection 4.6.2, as a preliminary step to begin investigating how this general proposal might be implemented.

**Net Metering** – The Distributed Resources strawman included a proposal to make available net metering tariffs for all qualifying renewable and CHP facilities less than 150 kW in size. Under this proposal, a fixed monthly service charge would be applied to ensure net metering customers continue to pay their fair share of distribution system and utility administrative expenses.

Little opposition to this proposal was expressed in comments from any parties. Some utilities report a general willingness to consider such changes, as long as (a) net metered customers

continue to pay their fair share of distribution system and administrative expenses; (b) the current maximum system limit for net metering (0.1% of each utility's peak load) remains in place; and (c) credits for net excess generation (NEG) are limited only to power supply charges, and do not reflect a subsidy. Even then, however, some utilities recommend no changes to the current net metering program until more experience has been gained, and it can be thoroughly evaluated.

Some participants requested an even larger capacity limit be considered for net metering treatment. This concern is important to consider because renewable resource technology system costs decline rapidly as system size increases. These proposals would allow much larger net metered systems for wind and solar equipment to be sized, up to 2 MW, based on the customer's total annual energy needs. Others' comments recommend no changes to the existing voluntary net metering agreement, but a few propose increasing the value of credits for net-metered power flowing back to the utility.

Staff generally supports modifying tariffs for self-service power provided from renewable resources and high-efficiency CHP systems to include larger units, but believes the public interest may be best served by making targeted changes to the Commission's existing net metering program for the smallest generators and utilizing PPAs for larger generators. The Legislature should explicitly recognize the Commission's authority to establish net metering and resolve PPA issues for all regulated utility companies in Michigan.

**Distribution System Use Tariffs** – Local distribution companies should offer tariffs for eligible renewable resources and high-efficiency CHP. With new tariffs available for this purpose, distributed generators will be able to pay for and use the distribution system to transmit energy for sales under a bilateral contract to any wholesale provider. Comparable tariffs already exist in unbundled utility rates for distribution service, but they are based on energy delivered by the utility or an AES to an end-use customer. This proposal requests a similar utility service be provided to accommodate the distribution of energy from a generator. Staff believes it could be helpful and feasible to establish such tariffs so that rates would reflect costs associated with the specific equipment utilized to provide the service (the voltage of the distribution equipment used), and, perhaps, the distance covered by the transaction. Staff believes this type of service may be essential for small generators to obtain the benefits of self-service power or exercise the rights provided merchant plants in the Customer Choice and Electricity Reliability Act. Staff recommends legislation to explicitly authorize the Commission to establish rates, terms, and conditions of service for these tariffs.

**Interconnection Procedures** – The distributed resources proposal also included some ideas about streamlining utility interconnection procedures. The Commission has already adopted interconnection standards rules. Workgroup participants did not suggest revising the Commission's currently established interconnection standards rules, but some parties have proposed changes in the way that utilities are implementing those rules. For example, the distributed resources strawman proposal recommends, "Net metering interconnections, metering, and billing options shall be the lowest total cost to customers while still maintaining system safety and integrity, and meeting all MPSC approved interconnection rules."

Staff notes the Commission has already initiated a proceeding, Case No. U-15113, to: “(1) investigate the interconnection of independent power producers with a utility’s system, (2) identify any problems or deficiencies in the existing interconnection procedures, and (3) develop and implement remedies.” The Commission has directed utilities to file reports on all interconnections and pending applications completed pursuant to the approved procedures, including “whether any problems arose in the process.” The Commission also invited interested parties to file, by December 19, 2006, “information detailing interconnection problems they have experienced and any suggestions for changes to the interconnection procedures.” And, the Commission directed MPSC Staff to convene a public meeting on this subject on January 9, 2007, and file a report by January 31, 2007, “summarizing the issues identified and making recommendations for future action.” MPSC Staff believes this hearing process provides the appropriate venue for determining changes to the current utility interconnection procedures.

### **3.4.2 Other State Agency Policy Proposals for Distributed Resources**

Additional policy proposals were recommended for consideration by Workgroup participants. These would not be under MPSC jurisdiction, but involve other state and local government agencies. They include proposals for statewide guidelines or standards for siting and zoning; smart power grid technology policy proposals; distribution reliability planning; financing, funding and incentives, including property tax treatment; plus concerns regarding the implementation of existing environmental regulations.

**Siting and Zoning for Renewable Resource Facilities** – The distributed resources strawman proposal included a call for the establishment of statewide siting and zoning guidelines, which would take effect for any townships and municipalities that had not otherwise passed their own ordinances.

Staff believes that these are matters for legislative consideration, and recognizes that wind energy siting and zoning bills have already been drafted. In 2004-2005, the MREP Wind Working Group developed guidelines for siting and zoning of wind generators. Those advisory guidelines were published by the State Energy Office. Staff recommends the appropriate MREP committees undertake a similar process for biomass, solar, and hydroelectric facilities, as practical, to try to achieve the broadest possible consensus on practical siting and zoning guidelines for renewable resource facilities.

**Smart Power Grid Technologies Policy Proposals** – Staff recommends the Commission establish an ongoing collaborative process amongst utilities and other LSEs, customers, other interested parties, and Staff, for the purpose of monitoring the various national initiatives reviewed in Chapter 5C of Appendix Volume II. Once it is clear specific technologies can be used in a way that will reduce utility system costs, deployment should begin promptly at least on a pilot or experimental program basis. At the appropriate time, the collaborative process can be used to establish evaluation criteria and standards, to be applied to pilot or experimental program proposals. This will likely include the load management, smart metering, and real time pricing pilot programs, as proposed in the energy efficiency (Section 4) of this volume.

**Distribution Reliability** – A recurring concern expressed by plan participants has been the quality and reliability of power delivered to the end-user. Although much of the modeling performed for the plan has been to evaluate prospective generation reliability, distribution reliability likewise play a critical role in assuring an uninterrupted flow of power to end-users. Distribution lines are essential to the delivery of generated power, and these lines are particularly vulnerable to disruptions caused by weather or growing trees. Sometimes recurring problems are confined to specific circuits or local distribution areas because of faults on existing lines. At other times they may be due to an inability of the particular circuit to handle growing loads. Recently, Commission Staff has received complaints from industrial customers and local governmental entities regarding distribution reliability. Some customers indicate that even brief distribution failures cost them thousands of dollars. When major storms occur, distribution outages can be widespread and service restoration often takes several days. The transformation of Michigan’s economy from traditional manufacturing to computer-assisted, high precision, flexible manufacturing processes, along with the growing role of sophisticated communications, requires better distribution reliability. Improving distribution reliability is a multi-dimensional undertaking and will require monitoring and adopting smart grid advancements and advanced metering infrastructure, accommodating distributed resources efficiently, and minimizing interruptions.

Underground placement of distribution lines will harden our infrastructure and reduce distribution vulnerability. Reliability and power quality will also be enhanced by the development and application of smart grid technology, including deployment of smart metering technologies that can sense distribution faults or other disturbances. Currently, underground distribution facilities are required for new residential subdivisions and new commercial developments. Presently, when right-of-way construction or reconstruction is undertaken for any reason, opportunities are being missed to bury lines at a reduced price. Underground wires do a better job of keeping electricity flowing to homes, businesses, and neighborhoods. The Plan proposes that the Commission undertake rulemaking to extend the requirement of underground placement to poorly performing existing circuits, especially those that experience repeated faults; all new secondary distribution line extensions and primary lines<sup>31</sup> that are presently on the same pole; and to primary lines where facilities are being relocated due to road improvements.

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<sup>31</sup> A primary electrical distribution system is that part of an electric utility’s system delivering electricity from a substation to the neighborhood. It is operated at a voltage level that is too high for most customers to use. This higher voltage is used for efficiency in delivering electricity over long distances. Some large commercial and industrial customers take service at such voltages and then provide their own voltage reducing transformers. A primary system, depending on utility and circuit, is usually operated at 4,800 to 14,400 volts. A primary distribution system might also be described as the system immediately on the utility’s side of the service transformer. A secondary electric distribution system is that part of a utility’s system that actually connects to customers. A transformer separates a primary from a secondary system. The transformer (either a box on the ground or a canister on a pole near a customer) is used to reduce the primary voltage to levels that customers can use. The particular voltage depends on the customer’s need, which could include 480, 277, 240, 208, or 120 volts for a commercial or small industrial customer. Most, if not all, residences are served with a secondary voltage of 240 and 120 volts. Central air conditioners, electric hot water heaters and electric dryers usually run on 240 volts. Plug outlets and lights throughout a residence are typically 120 volts. The secondary system might also be described as the system immediately on the customer side of a service transformer.

**Financing, Funding, and Incentives** – The strawman included a proposal for a “Michigan 21<sup>st</sup> Century Energy Endowment Fund” to be established by the Legislature, to facilitate project financing.

Staff believes few if any new financial incentives will be required to adequately support robust renewable and alternative energy development in Michigan if a mandatory RPS and the other policy recommendations presented here are implemented. If mandatory RPS targets are not adopted, however, then Staff supports establishing a non-bypassable systems benefit charge as a source of funds to be used explicitly to support renewable and alternative energy technology projects.

Staff recommends that the MREP Financing Committee complete in 2007 its effort to review existing state programs in order to identify all available sources of state and federal financial support and incentives for renewable and alternative energy technologies. Several programs already have been identified that might be viable sources funding and financial support. At the state level, these include: the Michigan Department of Environmental Quality’s Pollution Prevention Small Business Loan Program and special state bond funds for wastewater treatment plant upgrades; NextEnergy program financial incentives; and advanced energy technology grants possible through the 21st Century Jobs Fund. From the federal government, the list includes sources such as the U.S. DOE, Environmental Protection Agency (EPA), Department of Agriculture, and the Small Business Innovations Research initiatives of many federal departments.

Staff notes other states have successfully leveraged federal funding by establishing programs to assist in-state projects with the development of high quality proposals. Staff recommends that the state identify a single point of contact for such assistance and adequately staff it (through DLEG, Michigan Economic Development Corporation, the Michigan Department of Agriculture, etc.).

Michigan’s NextEnergy legislation provides extensive taxpayer funded incentives for renewable resource and alternative energy technology research and development and in-state manufacturing. Staff prefers to minimize the use of taxpayer or ratepayer funded financial incentives intended to support consumer purchases of renewable resources. However, some technologies that could become important contributors for Michigan’s electricity supply in the future have experienced limited market penetration in Michigan and may require additional financial incentives in the near term, to establish themselves. These technologies will benefit from larger scale production and continued technological innovation. For example, solar photovoltaic installations typically cost more than conventional power generation sources. Another example is fuel cells, which can provide both uninterrupted electricity and domestic hot water.

Staff recommends that carefully targeted financial incentives for renewable resources be implemented under the auspices of the statewide energy efficiency program using ACP revenues. ACP revenues should be deposited into a fund to be used exclusively for the support of renewable resource projects, as directed by the board overseeing the statewide energy efficiency programs. The program administration should place special consideration on community-based

renewable energy projects, including self service power for facilities such as schools, government buildings, and subsidized housing, where utility bills are paid by taxpayers. Individual property tax exemptions might also be adopted to offset some of the costs associated with renewable energy options, and Staff supports this proposal as described in the following section.

**Property Taxes** – Property taxes should not disadvantage renewable energy production. To provide more financial certainty for renewable energy facilities, local tax assessors should apply consistent property valuations, based on the value of energy produced. The other commonly used method is to assess facilities based on their capital cost, which greatly disadvantages renewable energy facilities, especially the smallest ones, in comparison to central station power plants. It may be sufficient for the state to recommend this approach to local assessors, and provide the basic education and guidelines necessary to apply this method. This issue will be pursued by the Michigan Renewable Energy Program as one of its goals.

A second distributed resources strawman recommendation was, “Property tax increases should be capped at no more than the percent increase in power and energy sales revenue received in the most recent three year period, relative to the first three years of operation.” Staff believes this policy might prove unnecessary if its first recommendation is implemented, and recommends postponing this action until ample experience can be gained with the property valuation proposal..

A third strawman recommendation was, “The Legislature should promulgate property tax exemptions for residential and small-commercial-scale renewable and CHP applications. Staff recommends legislation to exempt residential solar and wind renewable energy and residential fuel cell equipment from property taxes. Staff notes 26 states have enacted special property tax policies for renewable energy facilities and 23 offer exemptions for at least some types of equipment.

### **3.5 Summary of Renewable Energy and Distributed Resources Policies**

In summary, Staff proposes a mandatory RPS combined with distributed resources policies to remove market barriers to renewable and alternative energy technologies. Once an RPS is in place, the consideration is to complete regulatory changes necessary to enable renewable and distributed generators to enter into wholesale and retail markets as merchant plants and facilitate the provision of self-service power. Some of the required changes can be implemented by the Commission without new legislation. However, Staff believes the Legislature should explicitly acknowledge Commission authority to engage in some of the proposed activities.