### Smart Growth Self-Assessment for Rural Communities

### *Section XI: Use Energy Efficiently and Provide Renewable Energy*

### *This tool is part of the Smart Growth Self-Assessment for Rural Communities, developed by the U.S. Environmental Protection Agency. EPA suggests that communities using this tool complete Section I: “Revitalize Village and Town Centers,” before filling out other sections. For more information and the tool’s other sections, see* [*https://www.epa.gov/smartgrowth/smart-growth-self-assessment-rural-communities*](https://www.epa.gov/smartgrowth/smart-growth-self-assessment-rural-communities)*.*

More efficient homes and offices save money for people, businesses, and local government and can improve the environment by reducing energy demand. Locally produced renewable energy can create jobs and provide a reliable energy source. Open space and agricultural land can house wind or solar energy installations, providing additional income for farmers and ranchers.

| Goal: Use Energy Efficiently and Provide Renewable Energy | Adopted? | Add or Improve? | Context [[1]](#footnote-1) |
| --- | --- | --- | --- |
| *Improving Energy Efficiency in New Construction and Renovations* |  |  |  |
| Are energy efficiency standards required for new construction and renovations? |  |  |  |
| Strategy 1: The building code has minimum requirements for building insulation.[[2]](#footnote-2),[[3]](#footnote-3) *[Enter optional notes in gray boxes for all strategies]* |[ ] [ ]  1,2,3 |
| Strategy 2: The building code requires measures in new construction to limit air exchange around and through doors, windows, and where exterior walls meet to reduce indoor to outdoor air exchange.536,[[4]](#footnote-4)  |[ ] [ ]  1,2,3 |
| Strategy 3: The building code encourages high solar reflectivity in roof materials.[[5]](#footnote-5),[[6]](#footnote-6)  |[ ] [ ]  1,2,3 |
| Strategy 4: The building code sets standards for the energy efficiency of heating and cooling equipment.[[7]](#footnote-7),[[8]](#footnote-8)  |[ ] [ ]  1,2,3 |
| Strategy 5: Provide incentives for builders who install ENERGY STAR or similarly efficient appliances.[[9]](#footnote-9)  |[ ] [ ]  1,2,3 |
| Strategy 6: The building code requires ducts and pipes to be insulated.[[10]](#footnote-10),[[11]](#footnote-11)  |[ ] [ ]  1,2,3 |
| Do site development requirements promote energy efficiency? |  |  |  |
| Strategy 7: Guidelines are available for climate-appropriate building orientation to maximize natural solar heat and minimize cooling loads in buildings.[[12]](#footnote-12)  |[ ] [ ]  1,2,3 |
| Strategy 8: Site lighting and lighted signs are required to be energy efficient.[[13]](#footnote-13)  |[ ] [ ]  1,2,3 |
| *Producing Renewable Energy Locally* |  |  |  |
| Do codes allow small-scale renewable energy production?  |  |  |  |
| Strategy 9: Allow solar photovoltaics on commercial and residential structures and sites.[[14]](#footnote-14),[[15]](#footnote-15)  |[ ] [ ]  1,2,3 |
| Strategy 10: Allow solar water heaters on commercial and residential structures and sites.[[16]](#footnote-16)  |[ ] [ ]  1,2,3 |
| Strategy 11: Allow wind turbines on or near commercial and residential structures and sites.[[17]](#footnote-17)  |[ ] [ ]  1,2,3 |
| **Do codes allow large-scale renewable energy production?** |  |  |  |
| Strategy 12: Allow renewable energy production at different scales in rural, residential, commercial, and industrial districts.[[18]](#footnote-18),[[19]](#footnote-19)  |[ ] [ ]  1,2,3 |
| Strategy 13: Allow renewable energy production operations on agricultural land.[[20]](#footnote-20)  |[ ] [ ]  1,2,3 |
| *Using Energy Efficiently Through Comprehensive Plans and Local Government Policies* |  |  |  |
| Do land use plans and policies support compact development and redevelopment of existing town centers?[[21]](#footnote-21) |  |  |  |
| Strategy 14: Major government offices are located in village or town centers.[[22]](#footnote-22)  |[ ] [ ]  1,2 |
| Strategy 15: Require an analysis on the impact of new development on energy use prior to annexing new land into the city or town.[[23]](#footnote-23)  |[ ] [ ]  1,2 |
| Strategy 16: Identify future potential areas for annexation.557  |[ ] [ ]  1,2 |
| **Does the local government promote and monitor energy efficiency?** |  |  |  |
| Strategy 17: Implement a green roofs program to reduce the amount of energy needed to cool buildings.[[24]](#footnote-24)  |[ ] [ ]  1,2 |
| Strategy 18: Create and institute a recommissioning plan for public facilities.[[25]](#footnote-25)  |[ ] [ ]  1,2 |
| Strategy 19: Conduct a municipal energy use inventory and identify investments to improve efficiency.[[26]](#footnote-26)  |[ ] [ ]  1,2 |
| Strategy 20: The local government has adopted a goal for increasing energy efficiency in public facilities.[[27]](#footnote-27)  |[ ] [ ]  1,2 |
| Strategy 21: Conduct a community-wide energy use inventory and identify public or private investments to improve efficiency.[[28]](#footnote-28)  |[ ] [ ]  1,2 |
| Strategy 22: Adopt a community-wide goal for improving energy efficiency and track progress toward the goal over the long term.[[29]](#footnote-29)  |[ ] [ ]  1,2 |
| *Using Energy Efficiently Through Programs and Services* |  |  |  |
| Is electricity from renewable sources available locally? |  |  |  |
| Strategy 23: Local public utilities have committed to producing a certain percentage of energy with renewable resources.[[30]](#footnote-30)  |[ ] [ ]  1,2 |
| Strategy 24: Local public utilities provide a renewable energy purchase program.[[31]](#footnote-31)  |[ ] [ ]  1,2 |
| Strategy 25: The local government produces energy from renewable sources or as a part of standard operations.[[32]](#footnote-32),[[33]](#footnote-33)  |[ ] [ ]  1,2 |
| **Does the community support transportation using less-polluting energy sources?** |  |  |  |
| Strategy 26: Electric vehicle charging stations are available in public parking areas.[[34]](#footnote-34)  |[ ] [ ]  1,2 |
| Strategy 27: The local government fleet uses alternative fuel vehicles such as natural gas or electric vehicles.[[35]](#footnote-35)  |[ ] [ ]  1,2 |
| Strategy 28: Natural gas fueling stations are available and open to the public.[[36]](#footnote-36)  |[ ] [ ]  1,2 |
| Are energy conservation strategies considered in government programs and purchases? |  |  |  |
| Strategy 29: Implement and establish a lighting retrofit program for public facilities and a plan for replacing fixtures with energy efficient options.[[37]](#footnote-37)  |[ ] [ ]  1,2 |
| Strategy 30: Vehicle purchasing decisions consider the fuel efficiency of the municipal fleet.[[38]](#footnote-38)  |[ ] [ ]  1,2 |
| Strategy 31: Perform energy audits on public buildings and identify actions to improve their efficiency.[[39]](#footnote-39)  |[ ] [ ]  1,2 |
| **Are energy efficiency programs available to the general public?** |  |  |  |
| Strategy 32: The city or county provides energy audits through the local public utility.[[40]](#footnote-40)  |[ ] [ ]  1,2 |
| Strategy 33: The local public utility provides programmable thermostats.[[41]](#footnote-41)  |[ ] [ ]  1,2 |
| Strategy 34: Grant or revolving loan programs are available for energy-efficiency upgrades.[[42]](#footnote-42),[[43]](#footnote-43),[[44]](#footnote-44)  |[ ] [ ]  1,2 |

1. Self-assessment topics and recommendations apply to one or more of the following scales: 1 – large town/small city (population of approximately 10,000 or greater); 2 - village/small town (population typically under 10,000) 3 – rural (very low density places, working lands, and natural areas outside of towns, villages, and cities). [↑](#footnote-ref-1)
2. Minnesota State Residential Energy Code Requirements (<https://www.energycodes.gov/adoption/states/minnesota>). [↑](#footnote-ref-2)
3. Daly City Municipal Requirements (<http://www.dalycity.org/City_Hall/Departments/ECD/building.htm>). [↑](#footnote-ref-3)
4. U.S. Department of Energy. Guide to Air Sealing (<http://energy.gov/sites/prod/files/guide_to_air_sealing.pdf>). [↑](#footnote-ref-4)
5. EPA. Cool Roofs: Urban Heat Island Mitigation (<http://www.epa.gov/heatisland/mitigation/index.htm>). [↑](#footnote-ref-5)
6. California Title 24 and Cool Roofs (<http://www.title24express.com/what-is-title-24/title-24-cool-roof/>). [↑](#footnote-ref-6)
7. New York State Heating, Ventilation, and Air-Conditioning standards (<http://www.dos.ny.gov/DCEA/>). [↑](#footnote-ref-7)
8. California Building HVAC Requirements (CEC-400-2013-001) (<http://www.energy.ca.gov/2008publications/CEC-400-2008-016/rev1_chapters/RCM_Chapter_4_HVAC.pdf>). [↑](#footnote-ref-8)
9. State Appliance Efficiency Standards (<http://www.epa.gov/statelocalclimate/documents/pdf/guide_action_chap4_s4.pdf>). [↑](#footnote-ref-9)
10. Virginia Mechanical Code: Duct Systems (<http://www2.iccsafe.org/states/virginia/Mechanical/Mech_Frameset.html>). [↑](#footnote-ref-10)
11. 2012 North Carolina Residential Energy Code (<http://ncenergystar.org/energy-code>). [↑](#footnote-ref-11)
12. U.S. Green Building Council. Solar Orientation Guidelines (<http://www.usgbc.org/credits/ea51>). [↑](#footnote-ref-12)
13. U.S. Department of Energy. Outdoor Lighting Resources (<http://energy.gov/eere/ssl/outdoor-lighting-resources>). [↑](#footnote-ref-13)
14. Cape Coral Photovoltaic Solar Permit Guidelines (<http://www.capecoral.net/department/community_development/permitting/documents_required_for_permits.php#.VPTe2fnF9gg>). [↑](#footnote-ref-14)
15. American Planning Association. Model Solar Ordinances and Commentary (<https://www.planning.org/pas/infopackets/open/eip30.htm>). [↑](#footnote-ref-15)
16. U.S. Department of Energy. Solar Water Heaters. (<http://energy.gov/energysaver/articles/solar-water-heaters>). [↑](#footnote-ref-16)
17. Oregon Department of Energy. Residential Wind Systems (<http://www.oregon.gov/energy/renew/pages/wind/small.aspx>). [↑](#footnote-ref-17)
18. Natural Resources Defense Council. Renewable Energy for America (<http://www.nrdc.org/energy/renewables/>). [↑](#footnote-ref-18)
19. Accomack County Draft Industrial Zoning District permits alternative energy and biofuels production (<http://accomackcounty.eregulations.us/code/coor_apxid1370_ch106_artvi>). [↑](#footnote-ref-19)
20. Sonoma County. Renewable Energy: Zoning For Renewable Energy (<http://www.sonoma-county.org/prmd/docs/renewable_energy/>). [↑](#footnote-ref-20)
21. EPA. Study on Location Efficiency and Housing Type – Boiling it Down to BTUs (<http://www.epa.gov/dced/location_efficiency_BTU.htm>). [↑](#footnote-ref-21)
22. City of Aspen Civic Master Plan (<http://www.aspenpitkin.com/Results/?search=civic+master>). [↑](#footnote-ref-22)
23. Fort Worth Annexation Policy, Program, and Plan (<http://fortworthtexas.gov/planninganddevelopment/misc.aspx?id=8662>). [↑](#footnote-ref-23)
24. Portland Ecoroof Program (<https://www.portlandoregon.gov/bes/44422>). [↑](#footnote-ref-24)
25. Minnesota State Public Buildings Enhanced Energy Efficiency Program Reports (<https://mn.gov/commerce/energy/businesses/financial/Energy-Savings-Programs/Government/Public-Buildings-Enhanced-Energy-Efficiency-Program/PBEEEP-State-Reports.jsp>). [↑](#footnote-ref-25)
26. City of Bloomington, Indiana 2010 Local Government Operations: Energy Use and Emissions Inventory ([http://bloomington.in.gov/energyresources](http://bloomington.in.gov/media/media/application/pdf/11987.pdf)). [↑](#footnote-ref-26)
27. Charles County Energy Action Plan for County Facilities (<http://www.charlescounty.org/green/>). [↑](#footnote-ref-27)
28. City of Knoxville, Tennessee. Energy and Sustainability Initiative: 2014 Work Plan & Emissions Inventory Update (<http://www.cityofknoxville.org/sustainability/>). [↑](#footnote-ref-28)
29. City of Asheville, North Carolina. Reducing Energy Use in the East of the Riverway (<http://www.ashevillenc.gov/portals/0/city-documents/communitydevelopment/community%20energy%20reduction%20policy%20analysis%2012%2006%2012.pdf>). [↑](#footnote-ref-29)
30. Massachusetts Renewable Energy Portfolio Standard (RPS) & Alternative Energy Portfolio Standard Programs (APS) (<http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/rps-aps/>). [↑](#footnote-ref-30)
31. Estes Park, Colorado Renewable Energy Purchase Program (<https://www.colorado.gov/pacific/townofestespark/renewable-energy-purchase-program>). [↑](#footnote-ref-31)
32. Examples of this include solar power, wind power, yard waste to energy, solid waste to energy, and methane capture from landfills. [↑](#footnote-ref-32)
33. EPA Top 30 On-site Generation list – represents partners generating and consuming the most green power on-site within the Green Power Partnership (<http://www.epa.gov/greenpower/toplists/top30onsite.htm>). [↑](#footnote-ref-33)
34. City of Tacoma Public Electric Vehicle Charging Stations (<https://www.cityoftacoma.org/government/city_departments/environmentalservices/office_of_environmental_policy_and_sustainability/green_living_resources_and_map/transportation/electric_vehicles>). [↑](#footnote-ref-34)
35. MARTA Sustainability Program: Compressed Natural Gas bus fleet (<http://www.itsmarta.com/textver/update.aspx?id=9981>). [↑](#footnote-ref-35)
36. California Natural Gas Vehicle Coalition. Fueling Station Directory and Locators (<http://www.cngvc.org/news-and-resources/fueling-stations.php>). [↑](#footnote-ref-36)
37. King County, Washington Energy Efficient Lighting Implementation Plan (<http://www.kingcounty.gov/operations/procurement/Services/~/media/operations/procurement/documents/EP_Products_Lighting.ashx>). [↑](#footnote-ref-37)
38. Mid-Ohio Regional Planning Commission. Green your Fleet Strategies (<http://www.morpc.org/Search/index?s=green%20your%20fleet>). [↑](#footnote-ref-38)
39. New Jersey Local Government Energy Audits: Guidelines and Application Forms (<http://www.njcleanenergy.com/LGEA>). [↑](#footnote-ref-39)
40. Fort Collins Home Efficiency Audit Services and Rebates (<http://www.fcgov.com/utilities/residential/conserve/home-efficiency-program/>). [↑](#footnote-ref-40)
41. The Austin Energy Power Saver Program ([http://powersaver.austinenergy.com/wps/portal/psp/about/!ut/p/a1/jZBfb4IwFMU\_yx7o26QUZbqkWRB1og7HjH\_gxRTsEIcU20Ljtx\_qy0w0s8lNe3N\_p-fm6KG-0sOcVGlCZMpykp360FpD1EZDByK3bfcRdD3YNyd9H05dqwaCv8B0-tmC7ssXmvgz02jPjQf1d44N\_9Mv9fAaubHBBbhvMXpgSTuPzHaih5x-U055o-R1OFspi1cNalAp1UgYSzLaiNleg\_X0TRAsAY8l3oEDBlTwGAsgWMljihWNQLzBCFR0g6HjuP5gZ3dBLcOnPzXDtDUDDU5VMEW5IFXtSUoh05zmlCfHs089VoW4UFyS7PwSxekiESsloCluentnESyDKT3OhD8bqwNSPQVKkWB74O8c7525w0B46aaTSyMW6Ygsmutk2LJ-LB-INEF4aQ2P1jIbt7pOT5U-NT7480CBqNrjqGp0LNg0bkW0ZULqq-to9GI\_X8FdK6sm9tMvtuGwUQ!!/dl5/d5/L2dBISEvZ0FBIS9nQSEh/](http://powersaver.austinenergy.com/wps/portal/psp/about/%21ut/p/a1/jZBfb4IwFMU_yx7o26QUZbqkWRB1og7HjH_gxRTsEIcU20Ljtx_qy0w0s8lNe3N_p-fm6KG-0sOcVGlCZMpykp360FpD1EZDByK3bfcRdD3YNyd9H05dqwaCv8B0-tmC7ssXmvgz02jPjQf1d44N_9Mv9fAaubHBBbhvMXpgSTuPzHaih5x-U055o-R1OFspi1cNalAp1UgYSzLaiNleg_X0TRAsAY8l3oEDBlTwGAsgWMljihWNQLzBCFR0g6HjuP5gZ3dBLcOnPzXDtDUDDU5VMEW5IFXtSUoh05zmlCfHs089VoW4UFyS7PwSxekiESsloCluentnESyDKT3OhD8bqwNSPQVKkWB74O8c7525w0B46aaTSyMW6Ygsmutk2LJ-LB-INEF4aQ2P1jIbt7pOT5U-NT7480CBqNrjqGp0LNg0bkW0ZULqq-to9GI_X8FdK6sm9tMvtuGwUQ%21%21/dl5/d5/L2dBISEvZ0FBIS9nQSEh/)). [↑](#footnote-ref-41)
42. Eligible improvements typically include insulation, weatherization, and upgrades to outdated equipment and fixtures. [↑](#footnote-ref-42)
43. Massachusetts Executive Office of Energy and Environmental Affairs. Financing and Tax Incentives for Homeowners (<http://www.mass.gov/eea/energy-utilities-clean-tech/energy-efficiency/ee-for-your-home/financing-and-tax-incentives-for-homeowners.html>). [↑](#footnote-ref-43)
44. Lansing, Michigan Energy Efficiency Revolving Loan Fund Information, Guidelines, and Application. [↑](#footnote-ref-44)