Draft Energy Chapter Outline

Prepared for RCE Middle Albania

A Clean Energy Solutions Center Ask an Expert Policy Solution

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Background

This chapter outline was developed to support RCE Middle Albania’s work in developing the Education for Sustainable Development Action Plan for Albania. In parallel, RCE Middle Albania is working to prepare action plan chapters in other topic areas such as Eco Tourism Chapter, Urban Planning Chapter, and Climate Change Chapter. This outline was initially introduced to the local stakeholders, during a working session on the Education for Sustainable Development Strategy which was held during the EU Energy Week from 6/17-2015.

Following discussions during the EU Energy Week Workshop, the Clean Energy Solutions Center appended this document to include the new UN Sustainable Development Goals for 2030, and supported RCE Middle Albania with identifying several grant opportunities for the expansion of their work. The Clean Energy Solutions Center’s Expert will work with RCE Middle Albania to refine and expand the stakeholder strategy for the Education for Sustainable Development Plan based on feedback from RCE Middle Albania’s stakeholder network and an upcoming Climate Technology Centre and Network (CTCN) request.

Energy Chapter Content Outline

Introduction

The RCE-s re-position to strategic direction in the context of the Post-2015 Development Agenda and the [Global Action Programme (GAP) on ESD](https://u652108.ct.sendgrid.net/wf/click?upn=ALviSBwr15ATMa1yoAaI4KE9m1hAEo9Y1apZld5kbKhK6nmP1oVG0wO8XCCSULLhfctBAFODhFKFxJ6oCHacX9fecXS-2BXXjLaybIzKp2ZI3WgvW2EAGIEhaUjnkR-2Fcsu_IyD9x9dXdYm2fHMeU7yU9gdxi2Tp-2Bup9vVJuoW97cICGEI6UW4oFE1N1i9ODQR0LpS-2BE7DJpQ0ZAzMk7XRXISgBkuB13GMVUofqg-2FupAjsB3StPGhTyEMJd8pAIOPBUB-2FRhjbW3xPCm-2FY0cGHAikw9WDAKDWKIzgxcZ0sRBWaIqybwWflYnPDmD-2BFQ21qm5ASofPgaVPuSBzLo7-2Fu-2FvmGAAwAIL0u6QVVHGCKmVj2Et0-2FqqnljjEM-2BkAwHyrkTQN), will focus on a tangible contribution to the implementation of the [Sustainable Development Goals (SDGs)](https://u652108.ct.sendgrid.net/wf/click?upn=ALviSBwr15ATMa1yoAaI4KE9m1hAEo9Y1apZld5kbKhK6nmP1oVG0wO8XCCSULLhfctBAFODhFKFxJ6oCHacX9fecXS-2BXXjLaybIzKp2ZI2cY9Ds1DPZAecwU72ldltY_IyD9x9dXdYm2fHMeU7yU9gdxi2Tp-2Bup9vVJuoW97cICGEI6UW4oFE1N1i9ODQR0Llklh8msqSxSVnWHMpyyxfUiz3RAvkEfpIDqkvOjF78SPzyQDfAr-2FvY4KnDpFwbHRYT97sZg3-2FtLGggesCaPW1b9oLGkngmc6Tlx6r2IODFWj7jqaOa7bLEmMWdOzle8wFjgVmzbMDC5I-2FZu23aogziLoAPBqJRXMlozhJKJZluBTyPonpDHEGcUS3mkPYw6T). United Nations University in Japan, UNU-IAS is committed to continuing its support for ESD activities beyond Decade, and strengthening the global RCE network.

In order to fulfill the RCE-s unique individual approaches for the implementation of SDG-s in the regional scale, by taking into consideration the work accomplished since 2012 to implement UN objectives to the region of middle Albania,  and the new global perspective, RCE middle Albania will incorporate the implementation of the GAP and SDG-s, in the long-term program for the 2015-2030.

UNESCO launched the decade of Education for Sustainable Development in 2005 at the World Summit on Sustainable Development. Towards the end of the decade, UNESCO recognized a need for continued momentum and further education to promote sustainability. It established the Global Action Program to accelerate access to sustainable development. The Global Action Program has five major priority areas:

The Energy Chapter will outline action-steps based on these five priority areas on energy sector trends in Albania. Each content area will be followed by a list of key stakeholders active in Albania. These lists will be refined with input from RCE Middle Albania’s stakeholder network. Action-items can also be prioritized, supplemented or altered through future conversations until the strategies in the Energy Chapter are representative of local interests and priorities.

In addition, RCE’s will serve as key implementers of the UN Sustainable Development Goals for 2015-2030. In particular, RCE Middle Albania’s work under this Chapter will support the 7th Sustainable Development Goal, “ensuring access to affordable, reliable, sustainable and modern energy for all.” Sustainable development sub-goals are referenced throughout the plan under the convention UN SDG Goal 7.x.

The initial strategies were developed based on desk research and conversations with RCE Middle Albania and the Ministry of Energy and Industry through the Clean Energy Solution Center and the Climate Technology Centre and Network from 2014-2015. Furthermore two workshops were organized respectively in the EU energy week days in 2014 and 2015.

Context

According an analysis of Albanian energy policy completed by the Energy Charter Secretariat, energy consumption is driven by the residential and transportation sector.[[1]](#footnote-1)

When considering electricity specifically, the residential sector drives consumption, partially due to high needs for hot water and space heating.[[2]](#footnote-2)

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| --- | --- | --- | --- |
| Heating | Hot Water Preparation | Oven, Stove, Cooker | Lighting and Other Appliances |
| 22% | 25% | 25% | 29% |

Significant opportunities to increase sustainability in the energy sector also are available through increased end-use efficiency in buildings and shifting towards less carbon-intensive transit. Given these statistics and context, the energy chapter content areas include:

* **Residential Energy Efficiency**- which focuses on action items related to improving the conditions of existing and future housing stock through training and education regarding available efficiency technologies and encouraging conservation behavior in the workplace and at home.
* **Renewable Electricity**- education about emerging and established distributed energy options such as solar energy, and geothermal can promote increased adoption of new technologies and provide long-term benefits to the sustainability of Albania’s grid while driving emissions reductions.
* **Renewable Thermal-** given the heating needs in the residential sector, the expansion of education around renewable thermal technologies such as solar hot water and biomass heat can reduce electricity consumption for heating and drive Albania towards further sustainability and emissions reduction in the energy sector.
* **Transportation**- transport contributes significantly to energy consumption and is a growing contributor to carbon emissions. This section will explore educational opportunities to encourage switching from single occupancy vehicles for transport.

Focused attention on these target areas can help Albania move towards achievement of the long-term UN Sustainable Development goal for energy.

Residential Energy Efficiency

* Albania currently has a target of 9% of energy use reduction target by 2018 according to the National Energy Efficiency Plan
  + This requires a 22% reduction from the residential sector to achieve national targets[[3]](#footnote-3)
  + Electricity consumption is driven by the residential sector
    - Opportunities exist through existing technologies and changing occupant behavior
      * Albania has significant owner-occupancy, with only 5% renters reported out of the total population[[4]](#footnote-4)
        + Owner occupancy is associated with higher interest in energy savings
      * There has also been significant growth in residential construction creating opportunities to incorporate efficiency technologies into new construction
* Albania also recently passed a new Law on Energy Efficiency which enforces building efficiency standards and will require energy audits from trained professionals
  + Training programs for energy auditing have previously been hosted by the Albanian Energy Efficiency Centre and TU Tirana
* There is a need for both training programs and education for tenants and homeowners on how to use energy

more efficiently

* Progress in this area will help in achieving the UN SDG 7.3 which seeks to double the rate of energy efficiency by 2030

**Previous and ongoing work by RCE Middle Albania and stakeholders**

* Development of a residential energy efficiency guidance document for homeowners and developers to pursue energy efficiency retrofits and conserve energy
  + Guide presented at 2014 EU Energy Week
* Research on international best practices on integrating energy efficiency into vocational educational opportunities
  + Case studies presented at a stakeholder forum in 2014
* Application to the Climate Technology Centre and Network (CTCN) in collaboration with the Ministry of Energy and Industry, Ministry of Environment and Meister Consultants Group, Inc. for development of three regional energy efficiency plans and energy auditor training
  + Application under review

*Key Stakeholders:*

* Ministry of Energy and Industry
* Technical University of Tirana
* Albanian Energy Efficiency Centre
* Housing Developers
* Apartment Owners or Community Associations
* Clean Energy Solutions Center /Meister Consultants Group
* Climate Technology Centre and Network (CTCN)
* **RCE middle Albania stakeholders and collaborator**

University 'Aleksander Xhuvani' Elbasan

European University of Tirana

PUM

Refraction Association,

SEDA Institute for Social Economic Development Alternative

AD-in Studio Architecture

Eco-tour Albania,

3A concept & development

Research and Development Chipstar

A&I Design

Consulting and Management Albania, *C&MA*

Rotary Club of Elbasan

Regional Councils of Tirana, Durres, Elbasan,

Duna Vision

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| GAP Priority Area/ UN Sustainable Development Goal | Regional  Action Items | Key Stakeholders for Implementation |
| Advancing policy  UN Sustainable Development Goal 7.3  By 2030, double the rate of energy efficiency | Develop regional efficiency plans to educate local officials on national policy priorities and enhance implementation of the new Law on Energy Efficiency. Target locations include:   * Tirana * Durres * Elbasan | Ministry of Energy and Industry,  RCE Middle Albania, CTCN,  Ministry of Environment,  Regional Councils |
| Engage community members and other key stakeholders in the development of energy efficiency planning priorities | CESC, RCE Middle Albania, Regional Councils |
| Transforming learning and training environments | Introduce energy conservation behavior and develop habits by integrating conservation into K-12 | Ministry of Education,  Local school teachers, |
| Building capabilities of trainers and youth  UN SDG 7.4a  By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology. | Develop country-wide strategy for energy efficiency education and training building [off of best practices](https://mc-group.box.com/s/t3hyhzatq0139tlmpkdh) from the EU BuildUp Skills initiative to:   1. Expand sites for energy auditor training 2. Integrate energy issues into curricula 3. Offer training opportunities for the public on continuous basis 4. Standardize certification for trainees | Ministry of Education,  RCE Middle Albania,  School districts,  Efficiency industry employers |
| Develop criteria to designate and certify educational sites to offer auditor training   1. Build off successful work by Bosnia and Herzegovina to pursue similar action (see best practices) | RCE Middle Albania, |
| Shadowing opportunities for youth with energy auditors and other efficiency professionals | Industry employers,  Community organizations,  Local schools |
| Accelerating sustainable solutions at a local level | Engage stakeholders in regional efficiency planning progress | RCE Middle Albania |
|  | Provide [residential efficiency guide](https://mc-group.box.com/s/z70qtzcnjabwvb467bl4) and workshop to homeowner’s associations and/or community organizations to share with residents | RCE Middle Albania and key stakeholders |

Renewable Energy

Electricity

* Albania currently relies heavily on hydropower for its electricity supply (90%)[[5]](#footnote-5)
  + Climate change will put increasing pressure on Albania’s infrastructure and hydroelectric resources
    - It is estimated that changing conditions could reduce hydroelectric output by 15-20%
      * Further opportunities for encouraging and developing renewable energy exist in addition to improved scenario planning for hydroelectric resources
* In 2013, the Law on Renewable Energy Resources (RES) was approved to support the deployment of solar, geothermal, hydro, biomass and wind for electricity and heat.
  + Concerns still exist about grid access for renewable electricity generators to the grid, and further legal clarification is still needed on both priority grid access for renewables and a compensation mechanism for renewable technologies[[6]](#footnote-6)
    - To date only small-scale hydro receives a feed-in-tariff as a compensation mechanism[[7]](#footnote-7)
    - As part of its commitment to the EU Energy Community, Albania targets 38% of its energy production from renewables in 2020[[8]](#footnote-8)
      * This amount excludes large hydroelectric facilities.
* Albania has significant renewable energy resources, including high solar potential.
  + Most of the solar investments in Albania have been for hot water heating due to grant programs led by UNDP.
  + Albania also has several regions attractive for wind development. Studies of geothermal potential have also been completed.
  + Albania also has available resources for biomass, but these would need to be developed sustainably to not put further strain on forest resources
* Need to educate communities and stakeholders about existing opportunities and future technologies
* Accomplishments and progress in this area will assist in the achievement of the UN SDG 7.2 which seeks to substantially increase the contribution of renewables to the global energy mix by 2030

**Previous and Ongoing Work by RCE Middle Albania**

* Development of proposal on efficiency and renewable energy retrofit of public facility. Retrofit would be used for public education and integrated into school curriculum
  + Submitted proposal to GEF Small Grants program and identifying key partners and other agencies

*Key Stakeholders:*

* Ministry of Energy and Industry
* Ministry of Environment
* Albania Energy Association
* Community Members
* Project Developers

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| GAP Priority Area/UN Sustainable Development Goal | Regional  Action Items | Key Stakeholders for Implementation |
| Advancing Policy  UN SDG 7.2  By 2030, increase substantially the share of renewable energy in the global energy mix | Educate local leaders on upcoming national policy priorities for renewable energy and local energy development opportunities, including the need for expansion of incentives to other renewable technologies beyond small hydro | Ministry of Energy and Industry |
| Transforming learning and training environments | Integrate discussions of renewable energy into K-12 classrooms through guest speakers from Albanian energy industry. | Renewable energy companies,  RCE Middle Albania |
| Building capabilities of trainers and youth  UN SDG 7.4a  By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology. | Discuss training opportunities for solar technologies with UNDP and develop outreach program | UNDP, RCE Middle Albania |
| Integrate completed renewable energy feasibility assessments for Albania into classrooms as tool to understand Albania’s natural resources | RCE Middle Albania,  Ministry of Energy and Industry,  Local teachers |
| Empowering and mobilizing youth | Site visits and demonstrations of existing solar thermal systems with schools and community groups | Local schools,  Regional councils |
| Accelerating sustainable solutions at a local level  UN SDG 7.1 7.1  By 2030, ensure universal access to affordable, reliable and modern energy services  UN SDG 7.2  By 2030, increase substantially the share of renewable energy in the global energy mix | Educate local leaders on feasibility of deploying renewable technologies in their communities such as geothermal and PV | Ministry of Energy and Industry |

Thermal

* Hot water and heating needs are served primarily by electricity in urban areas
  + 70% of heat is provided by electric boilers[[9]](#footnote-9)
* In rural areas, there is higher use of fuel wood which has raised concerns about the sustainability of this practice for Albania forests, and the leading biomass use in Albania[[10]](#footnote-10)
  + Biomass use is driven by the residential sector.
  + Biomass is used in 42.5% of Albania households (51% of the population in rural areas). The majority is fuel wood, with 1% using pellets. [[11]](#footnote-11)
    - 90% use biomass for cooking while an additional 10% use it in fireplaces. A small number also uses biomass for hot water. The fuel wood is purchased from distributors in one cases though some still get wood directly from forestry (22%)
* Significant opportunity to enhance sustainability and reduce emissions from renewable technologies, such as solar hot water and biomass heating – both technologies encouraged in the National Renewable Energy Action Plan[[12]](#footnote-12)
  + Solar Hot Water: Significant work has been conducted by the UNDP Solar Water Heating Market Transformation Initiative, which has trained personnel and installed 79,000 m2 of solar hot water systems
    - More opportunities to use solar for space heating as well as hot water
  + Albania has traditional used fuel wood for energy from biomass, but there is significant potential to develop biomass heat or electricity from non-forest resources
    - Residues from agriculture and forest products and urban waste have potential for biomass heat, electricity or co-generation production in Albania[[13]](#footnote-13)
    - More efficient wood burning technologies can also have an impact
* Co-generation and district heat also represent important energy opportunities for facilities and sites where such installations are feasible
* Education is needed to encourage a behavior change to shift to new technologies and to train skilled installers and professionals to deploy these technologies in the near-term.
* Progress in this area will assist in the achievement of the UN SDG 7.1 focused on supplying affordable, reliable, sustainable and modern energy for all by 2030

**Previous and Ongoing Work by RCE Middle Albania and Stakeholders**

* Interviewed UNDP team as part of research for residential energy efficiency guide
  + Future opportunities to collaborate on educating homes and businesses on efficiency and solar hot water

*Key Stakeholders:*

* Ministry of Energy and Industry
* Ministry of Agriculture
* UNDP Solar Water Heating Market Transformation Initiative
* GEF
* Community Members
* Forestry and Agricultural Industry
* Albania Energy Association

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| --- | --- | --- |
| GAP Priority Area/ UN Sustainable Development Goal | Regional  Action Items | Key Stakeholders for Implementation |
| Advancing policy  UN SDG 7.2  By 2030, increase substantially the share of renewable energy in the global energy mix | Integrate proven technologies such as solar hot water into requirements for new construction collaborating with and building on UNDP’s [efforts](http://www.al.undp.org/content/dam/albania/docs/Solar%20Thermal%20Obligation%20for%20Tirana%20Municipality.pdf) in Tirana to develop a Solar Thermal Obligation for new public buildings. | UNDP, RCE Middle Albania |
| Transforming learning and training environments | Collaborate with UNDP on training programs for solar hot water | RCE Middle Albania, UNDP |
| Building capabilities of trainers and youth  UN SDG 7.4a  By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology. | Develop consistent training program offerings for renewable thermal in partnership with local universities | TU Tirana,  Albania Energy Efficiency Centre,  UNDP,  RCE Middle Albania |
| Organize site visits to the existing solar thermal installations around Albania as well as conversations with manufacturers of additional products such as geothermal and biomass for K-12 and student enrolled in engineering programs | UNDP,  Albanian Energy Association,  RCE Middle Albania |
| Empowering and mobilizing youth | Recruit representatives from renewable heating suppliers, manufacturers, policy programs and other aspects of the renewable thermal value chain in career day events or job fairs at high school and colleges | RCE Middle Albania,  Albanian Energy Association |
| Accelerating sustainable solutions at a local level  UN SDG 7.1 7.1  By 2030, ensure universal access to affordable, reliable and modern energy services | Host community forums and before winter months on available technologies and options to improve sustainability in heating | Regional councils,  RCE Middle Albania,  Ministry of Energy and Industry |

Transportation

* Transportation represents a significant portion of energy use in Albania and is a growing contribution to total emissions. Albania’s transit sector emissions grew from 1990-2007[[14]](#footnote-14)
  + This is partially due to a large increase in car ownership- survey research from Co-Plan shows an increase in car ridership from 2003-2007[[15]](#footnote-15)
  + In 2009, in the second national communication to the UNFCC, the government estimated double in 5 years from 1 to 10 to 1 to 5.[[16]](#footnote-16)
* Enforcement of fuel standards in line with EU directives could be improved, high emission vehicles are on the roads
  + Increased enforcement and education of drivers is necessary[[17]](#footnote-17)
* The National Transport Plan is focused on improving traffic and road conditions[[18]](#footnote-18). Education in several key areas can help improve this:
  + Public transit and strategies to improve ridership
  + Education on bicycling options, such as bike share programs[[19]](#footnote-19) and existing safe cycling paths
  + Driver education to share roads with pedestrians and bikers
  + Outreach around carpooling
* Progress in the area would help with the achievement of emissions reductions and the UN SDG 7.4b focused on expanding infrastructure and technology to support supply modern services fueled by sustainable energy

**Potential Future Opportunities for RCE Middle Albania**

*Energy usage from the transportation sector is a new focus area for RCE Middle Albania. RCE Middle Albania envisions compiling resources to assist in educating the public about increasing sustainability in transit and launching a mobility visioning process in key cities to educate and get feedback from communities on their vision for a transit future. Best practices on urban mobility planning can be leveraged from programmatic guidance from* [*Eltis*](http://www.eltis.org/mobility-plans/european-platform)*, which has pioneered sustainable urban mobility plans throughout Europe. The* [*European Commission*](http://www.eltis.org/mobility-plans/sump-concept) *also provides technical and financial support for cities looking to develop a full Sustainable Urban Mobility Plan.*

*Key Stakeholders:*

* Public transit agencies
* Community members and organizations
* Local governments
* Ministry of Transportation
* Vehicle Testing Centers
* Car Manufacturers
* Biking organizations
* Others

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| GAP Priority Area | Regional  Action Items | Key Stakeholders for Implementation |
| Advancing policy | Work with key stakeholders on public transit improvements and educate public about existing bicycling paths and plans (i.e. shared bus/bike infrastructure in Tirana) | Regional Councils |
| Transforming learning and training environments | Collaborate with local experts to compile and develop resources on transportation alternatives and eco-friendly driving | RCE Middle Albania and key stakeholders |
| Encourage major employers to educate employees about carpooling and other options for work commutes | RCE Middle Albania,  Regional Councils |
| Building capabilities of trainers and youth | Encourage youth biking through bicycle repair clinics with local bike shops and bike route maps | Community organizations,  Local schools |
| Work with driving schools to integrate eco-friendly driving principles such as sharing the road with bikers and pedestrians and anti-idling into classes | Local transportation departments,  Driving schools,  RCE Middle Albania |
| Empowering and mobilizing youth | Organize youth-led bike events for communities to bike routes together | RCE Middle Albania,  Regional councils,  City governments |
| Accelerating sustainable solutions at a local level | Host community forums to envision locally feasible sustainable transit options and encourage public participation in planning for future of public transit. | Eltis,  RCE Middle Albania, Other key stakeholders |

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