

SYSTEM - Systematic Transitional Energy Management

Optimal Renewable Energy Investment Support & Public Acceptance Enhancement
in Chosen Central and Eastern European Regions

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Vision

- Secure and economically competitive Europe
- Mission: systematic support of RES development

- Holistically planned energy systems
- Energy strategy development tools for multiple future scenarios, maintaining high bottom up resolution
- More investment friendly environment

Mission

- Focus on solutions targeted towards market uptake
- Tackling recognised barriers with specially adapted tools
- Technological tools supporting decentralised planning and decision-making
- Interdisciplinary cross-sectoral data coordination

- Location: Central and Eastern Europe
 - Regions needing transformation support and economic development
- Working with public administration wanting to introduce transformative solutions
- International cooperation do deliver best solutions

Current Challenges



Psychological – existing status quo and lack of code of conduct is **preventing sustained public acceptance**, as well as public **administration changes adaptation** needed due for transformation, leading to growing local protests, and no RES political support.



Structural - public administration has **no structurally comprehensive platform**, allowing to **plan and coordinate energy systems**, combining information from different sources and areas of expertise to administrate the energy system and speeding up investments.



Regulatory – **no holistic scenario-based RES policy development**, and **implementation tools** for energy planning and strategy lead to **not fully informed and integrated decision-making** process in are causing risks, largely contributing to the market barriers.



Educational – **insufficient education regarding energy systems and markets** of local government representatives, inhabitants and urban planners.



Economic – barriers due to **low financial ability** to invest in energy system, being an issue in most of the regions located in post-soviet block countries, as well due to **not appropriate and insufficiently competitive financial offers** fitting investors expectations.

Specific Project Objectives



Supporting **sustained public acceptance of renewable energy**.



Providing basis for **faster and user-friendly permitting and planning** procedures.



Replicable, coordinated support of **renewable energy policies** implementation and development, using best practice examples.



Capacity building in renewable energy **policy**, and **informing the debate** on post-2020 horizons.



Facilitating deployment of improved business models and **financing schemes** for mobilising RES investments.

Project Methods and Tools




Tools & code of conduct preparation for renewable energy public acceptance enhancement basing on status quo assessment and best practices implementation using modern communication solutions and information campaign regarding RES.



Providing structure - Setting up of comprehensive trans-regional platform combining information in interdisciplinary areas of expertise allowing for coordinated energy management and reduction of time required for planning.



Decision making  **software** adaptation to the needs of the local administration, providing scenario-based quantification for political decisions regarding terrain usage as well as public investments in infrastructure and regulations related to energy sector.



Capacity building of local and regional decision makers in planning the areas of economic, social, technological and financial impacts of different solutions. Raising awareness of through best practices exchange & adapted, user-friendly software tools set-up.



Providing economic scheme - Basing on successful financial solutions and market strategies possible scenarios comparison for the analysed regions, recommendations for innovative financing schemes of RES projects to mobilize investments will be developed.

SYSTEM Impact



Psychological ◆ social acceptance code of conduct ◆ communication & participation tools design, implementation, evaluation
◆ communication campaign: visualisation dome and information package on RES



Structural ◆ holistic interdisciplinary tools supporting more efficient development of regional and master plans, strategy and implementation coordination ◆ supporting reductions of RES authorisation time and transaction costs ◆ tools harmonization



Regulatory ◆ better informed, long-term, scenario-based energy systems planning, strategy and policy ◆ information from different sources and areas of expertise ◆ understanding of interdependencies ◆ more informed regional administration participation in policy development debate through regulations-comparison tool



Capacity building ◆ tools and methods adapted to administration partner needs ◆ holistic and scenario-based policy debate ◆ exchange of know-how, best practices and experience between peers and stakeholders ◆ intellectual and organisational capacity improvement ◆ empowered decision making ◆ facilitating relations between public institutions and developers



Economic ◆ development of better financing frameworks ◆ administration decision makers capacity building in economic background and investors' concerns ◆ targeting policy support towards key areas of market failure ◆ more investor-friendly offer ◆ improved usage of structural funds

Team

- **ETH Zürich – Laboratory for Energy Conversion**
 software; energy systems expertise
- **Martin Luther Universität – Department of Psychology**
 Public acceptance of new energy investments
- **Poyry**
 investors collaboration and financial reporting experience
 biomass expertise
- **Energy Design**
 bridging central European public administrative
 with private sector experience
- **GAP Solutions**
 responsible for regional implementation



Implementation Partners

Poland



Marshal Office of Lubelskie Region (PL)



Marshal Office of Mazovian Region (PL)
+ Mazovian Energy Agency



Marshal Office of Podkarpackie Region (PL)
+ Podkarpackie Energy Agency

Slovakia



Marshal Office of Presovski Region (SLO)
+ Presovska Energy Agency

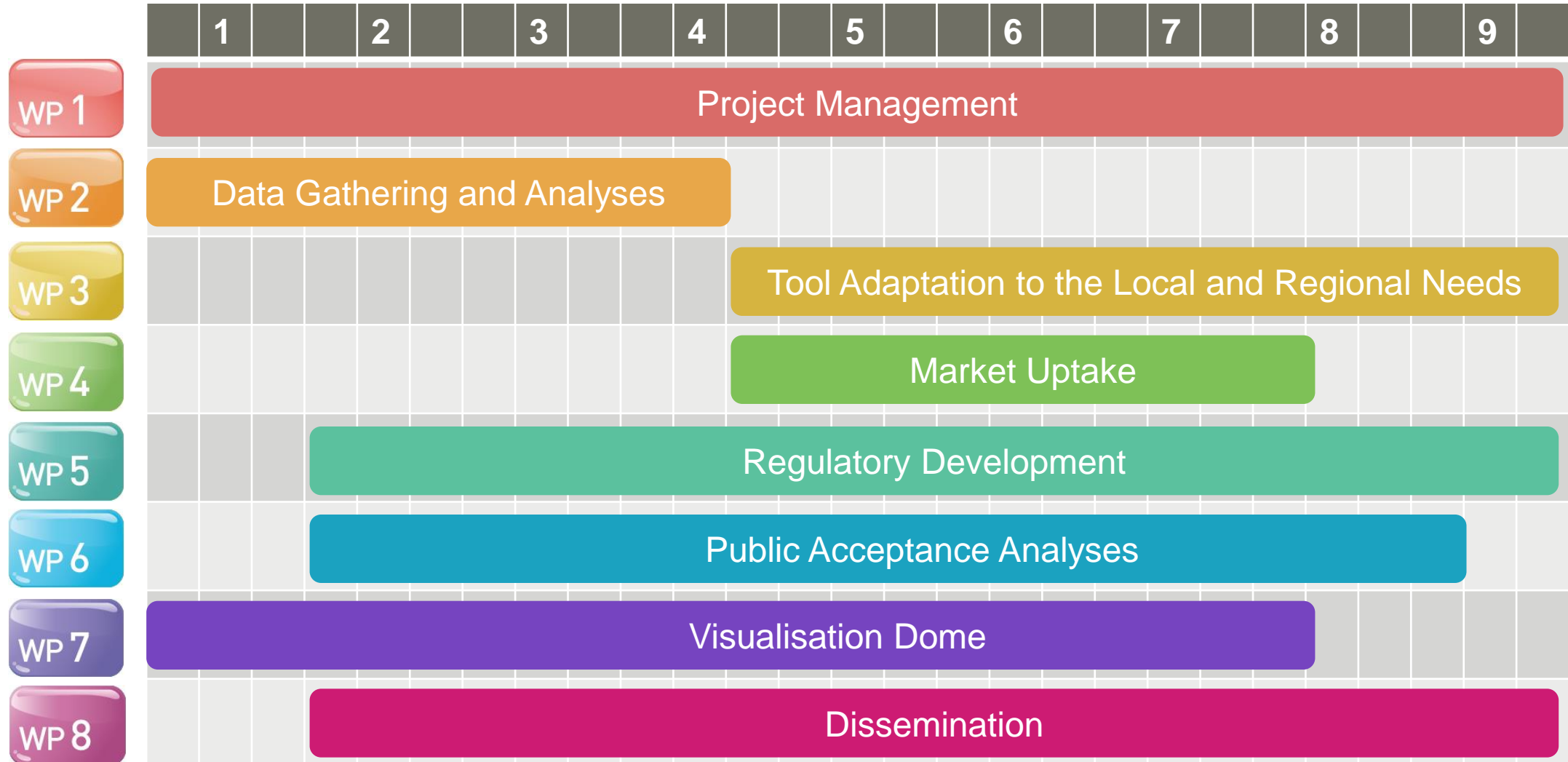


Czech Republic

Energy Agency of Zlin Region (CZ)



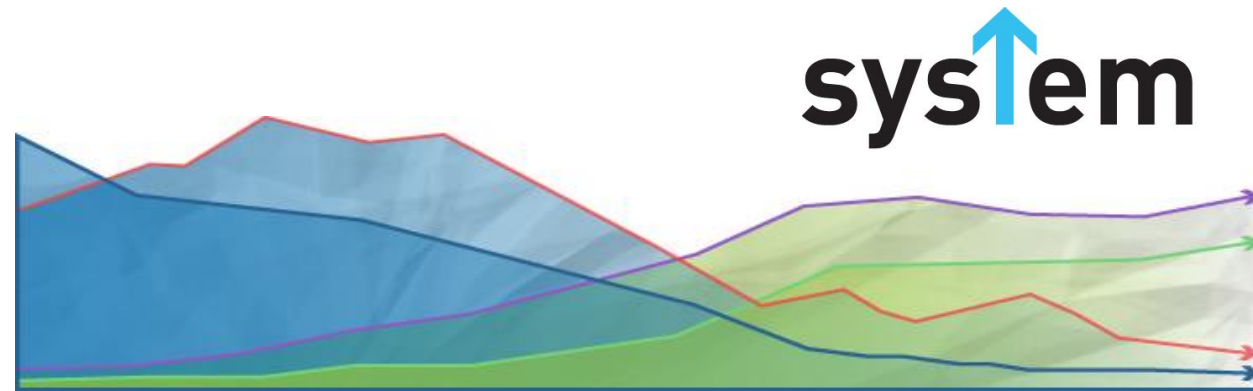
Timeline



Conclusion

- Growth of RES in EU needs a systematic support system for optimisation of its economical, social and environmental benefits
- This goal can be achieved not only by additional funding towards support schemes but also by
 - ◆ improved organisation, coordination and information
 - ◆ usage of advance technology solutions
 - ◆ appropriately calibrated methodologies
- This requires cooperation with implementing partners in the participating states and with market actors
- Central and Eastern Europe going through rapid transformation
- It is envisioned that SYSTEM approach will be replicated in future into other EU member states and neighbouring countries

Thank you



WP 1

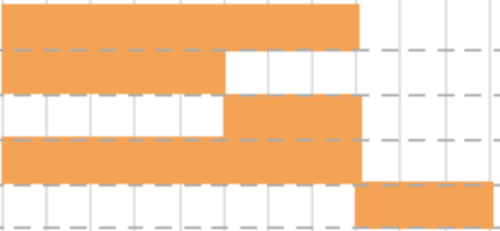
PROJECT MANAGEMENT



WP 2

DATA GATHERING AND ANALYSES

- 2.1. GIS mapping of the provinces
- 2.2. Regulatory framework
- 2.3. Technology framework
- 2.4. Economic framework
- 2.5. Renewable energy potential assessment



WP 3

TOOL ADAPTATION TO THE LOCAL AND REGIONAL NEEDS

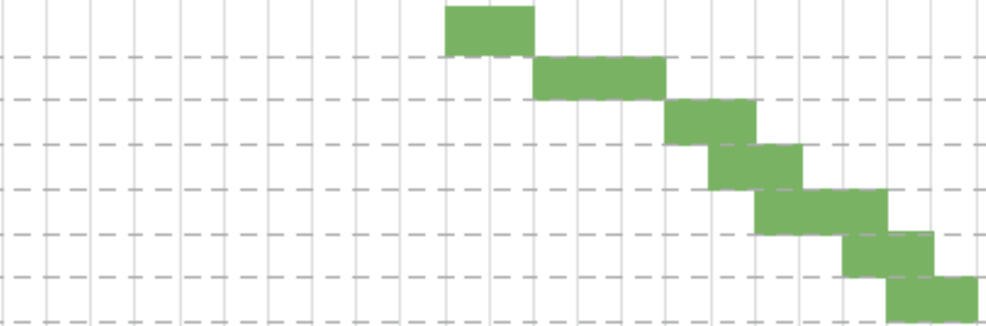
- 3.1. Software adaptation to the needs at the gmina level
- 3.2. Decision-making tool adaptation for regional energy strategy planning
- 3.3. Capacity building and testing the tools in the local and regional envir.



WP 4

MARKET UPTAKE

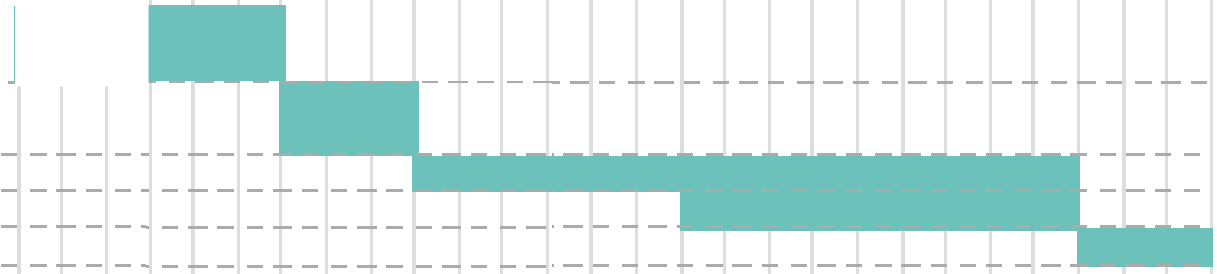
- 4.1. Development of an the "unconstrained" economic "merit order"
- 4.2. What are the barriers to achieving this potential?
- 4.3. Absorbing Intermittency
- 4.4. Considerations from EE and EPB Directives
- 4.5. Types of support mechanism
- 4.6. National Renewables Schemes
- 4.7. Other institutional developments



WP 5

REGULATORY DEVELOPMENT

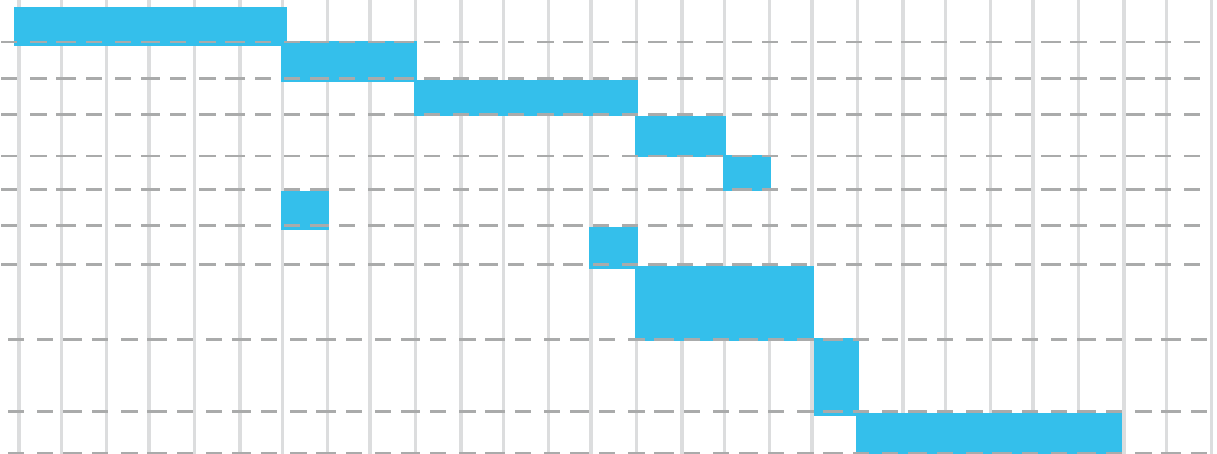
- 5.1. Identification of best practices in local and regional reg. attracting RES inc. energy investments. (add link with dissemination workshops)
- 5.2. Identification of the current practices and descion making process applied by local and regional authorities
- 5.3. Scenario-based comparison modelling of different policy regulations.
- 5.4. Scenario-based comparison modelling of different policy regulations.
- 5.5. Scenario-based comparison modelling of different policy regulations.



WP 6

PUBLIC ACCEPTANCE ENHANCEMENT

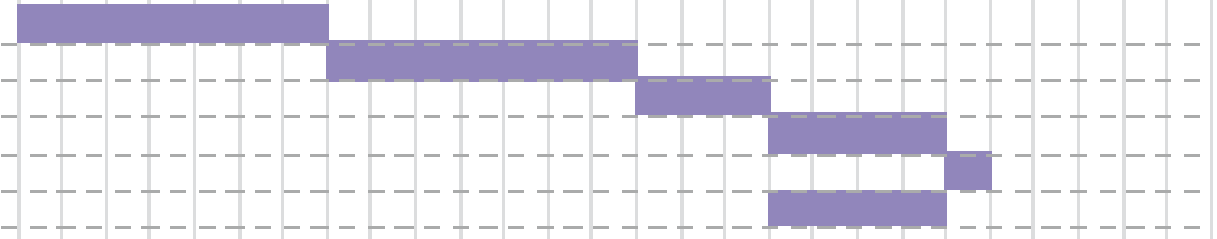
- 6.1. Development of interviews and focus group concept
- 6.2. Interviews and focus groups with local authorities and residents
- 6.3. Data analysis
- 6.4. Analysis of best practice examples in the field of public acceptance
- 6.5. Applying results to the specific situation of Eastern Europe
- 6.6. Development of tailored ownership models
- 6.7. Recommendations for the later communication strategy
- 6.8. Information material for communication campaign and dome evaluation preparation
- 6.9. Pre-test and refinement of information / communication / evalution material
- 6.10. Dome evaluation analisys and recommendations



WP 7

VISUALISATION DOME

- 7.1. Code adaptation for Video and audio simulations
- 7.2. Visualisation
- 7.3. Audio simulation
- 7.4. Two Visualisations Dome built, tested and configured
- 7.5. Training the staff
- 7.4. Data aquisition and implementation (4 - 10 expositions)



WP 1

Project Management

No	Tasks	Milestones	Deliverables
1.	Fulfilling all the administrative obligations necessary to start and complete the project	<ul style="list-style-type: none"> Detailed working plan delivered 	<ul style="list-style-type: none"> Project website
2.	Monitoring the project implementation and progress.	<ul style="list-style-type: none"> Cooperation rules and partners roles defined 	<ul style="list-style-type: none"> Financial report
3.	Planning and organisation of the project meetings.		
4.	Communication with the partners.	<ul style="list-style-type: none"> Administrative and financial basis for project implementation established 	<ul style="list-style-type: none"> Communication plan
5.	Financial management.		
6.	Reporting to the European Commission.		<ul style="list-style-type: none"> Midterm report
7.	Designing and maintaining the project website.		
8.	Solving the disputes.	<ul style="list-style-type: none"> Management procedures accepted by all partners 	<ul style="list-style-type: none"> Final report



Data Gathering and Analyses

No	Tasks	Milestones	Deliverables
1.	GIS mapping of the provinces		<ul style="list-style-type: none"> Report summarizing regulatory, technology, economic analyses and renewable energy potential assessment for four regions participating in the project Geographically indexed site locations for financially eligible areas of renewable energy projects
2.	Regulatory framework	<ul style="list-style-type: none"> Identification of the main factors/restrictions influencing the energy sector in target regions 	
3.	Technology framework		
4.	Economic framework		
5.	Renewable energy potential assessment	<ul style="list-style-type: none"> Eligible site allocation for power plant installation with respective renewable energy sources 	



Tool Adaptation

No	Tasks	Milestones	Deliverables
1.	Software adaptation to the needs at the community level.	<ul style="list-style-type: none"> Ready to use installation package developed 	<ul style="list-style-type: none"> Installation EnerPol package in each partner region
2.	Testing the energy mix tool in the local environment	<ul style="list-style-type: none"> User manual delivered 	<ul style="list-style-type: none"> User manual for better understanding and troubleshooting
3.	Decision making tool adaptation for energy strategy planning on the regional level.	<ul style="list-style-type: none"> Online technical support mechanism provided 	<ul style="list-style-type: none"> Online support scheme for efficient collaboration
4.	Energy mix tool and regulations tool usage beta test on regional level.	<ul style="list-style-type: none"> Staff trained and empowered with the skills 	<ul style="list-style-type: none"> Documentation from the training sessions
5.	Technical capacity building.		

WP 4

Market Uptake

No	Tasks	Milestones	Deliverables
1.	Development of an the “unconstrained” economic “merit order” of the different renewable technologies.	<ul style="list-style-type: none"> Targeting policy support towards key areas of market failure 	<ul style="list-style-type: none"> Report reviewing different ways of supporting renewables in EU countries
2.	Review of the barriers to achieving the potential of renewable technologies.	<ul style="list-style-type: none"> Providing local and regional decision makers with a deep understanding of the economic background to enable them to target support policies towards the lowest cost renewable technologies first 	<ul style="list-style-type: none"> Scenarios of renewables growth A set of policy mechanisms supporting renewable technology development
3.	Absorbing Intermittency		
4.	Considerations from EE and EPB Directives	<ul style="list-style-type: none"> Providing know-how to key public institutions to analyse and understand investors’ concerns 	<ul style="list-style-type: none"> Workshop documentation Report reviewing all relevant laws in each partner country
5.	Types of support mechanism		
6.	National Renewables Schemes		<ul style="list-style-type: none"> Report including recommendations and impacts
7.	Other institutional developments		



Regulatory Development

No	Tasks	Milestones	Deliverables
1.	Diagnosis of current practices	<ul style="list-style-type: none"> Full understanding of practices in countries under consideration and best practices countries 	<ul style="list-style-type: none"> A background paper
2.	Best practices in Europe	<ul style="list-style-type: none"> Firm relationships with stakeholders 	<ul style="list-style-type: none"> Three best practice case studies A comparative analysis between best practice countries and countries covered by the project
3.	Stakeholder process	<ul style="list-style-type: none"> Tangible outcome from stakeholder process 	<ul style="list-style-type: none"> Summary report of interviews with stakeholders Workshops with stakeholders plus concise workshop reports
4.	Assistance in implementation of recommendations	<ul style="list-style-type: none"> Enhanced procedures – positive feedback from stakeholders 	<ul style="list-style-type: none"> Set of analysis of analyses and modelling exercises, facilitating workshops Summary report from stakeholders process Set of dedicated legal opinions and analyses to support implementation phase
5.	Evaluation		<ul style="list-style-type: none"> An evaluation report

WP 6

Public Acceptance Analyses

No	Tasks	Milestones	Deliverables
1.	Local residents survey	<ul style="list-style-type: none"> ▪ Identification of the needs and motivations of different stakeholders ▪ Initiating the dialog with local residents 	<ul style="list-style-type: none"> ▪ Report on the current social acceptance status within the target population
2.	Recommendations for the later communication strategy		
3.	Analysis of best practice examples in the field of public acceptance of renewable energy globally		<ul style="list-style-type: none"> ▪ Report on the best practices in promoting local acceptance of renewable energies
4.	Applying results to the specific situation of Central and Eastern Europe		
5.	Information material for communication campaign preparation		<ul style="list-style-type: none"> ▪ Information and communication materials to be used within the Visualisation Dome
6.	Beta test of information / communication material	<ul style="list-style-type: none"> ▪ Evaluation of communication material and Dome 	
7.	Local level field test and evaluation		<ul style="list-style-type: none"> ▪ Policy recommendations for improved public acceptance



Visualisation Dome

No	Tasks	Milestones	Deliverables
1.	Code implementation for video and audio simulations in the Visualization Engine software.	<ul style="list-style-type: none"> Visualization Software with integrated algorithms developed 	<ul style="list-style-type: none"> Demonstration version of the visualization 360 software for testing
2.	Visualization.	<ul style="list-style-type: none"> Audio Software with integrated algorithms developed 	<ul style="list-style-type: none"> Report about visual, audio and geographical database
3.	Audio simulation.		
4.	Visualization Dome build, tested and configured.	<ul style="list-style-type: none"> Visualisation Dome production completed and tested 	<ul style="list-style-type: none"> Visualisation Dome
5.	Training for data conversion for the chosen locations and dome set up	<ul style="list-style-type: none"> Training 	<ul style="list-style-type: none"> Training, documentation and user manual



Dissemination

No	Tasks	Milestones	Deliverables
1.	Design and implementation of Dissemination and exploitation plan	Potential groups of interests identified and long last relations between them established	<ul style="list-style-type: none"> ▪ List of stakeholders ▪ Database of contacts ▪ Monthly newsletters and website update ▪ Media campaign ▪ Academic papers ▪ Final publication ▪ Final conference ▪ Printed materials ▪ 2 seminars organized ▪ Working meetings organized ▪ Training organized ▪ Report on dissemination activities
2.	Organization of kick-off and final conferences	Appropriate information and dissemination measures developed	
3.	Organization of seminars/ working meetings/trainings	Seminars/working meetings/trainings organized	
4.	Implementation of Internet tools	Information disseminated using different channels of communication	
5.	Publications and reports edition	Publications prepared	
6.	Development and editing of printed materials	Printing materials prepared	
7.	Preparation of communication materials for Visualisation Dome	Materials prepared for Visualisation dome	
8.	Preparation of media campaign	Media campaign prepared	
9.	Development and preparation of other promotion materials	Stakeholders and general public fully informed on the project and its results	