

“Wind of the coast” project

WP3 Exchange of experience and best practices

WORKSHOP 2 – THE MARKET

Southampton, 16th June 2010

- best practice sharing -

***The development of the renewable energy market in the
Province of Ravenna***

By Province of Ravenna

The background

The Energy Action Plan was approved according to the Regional Law 20/2000 which foresees a previous **participatory** mechanism on the basis of the **Agenda 21** method

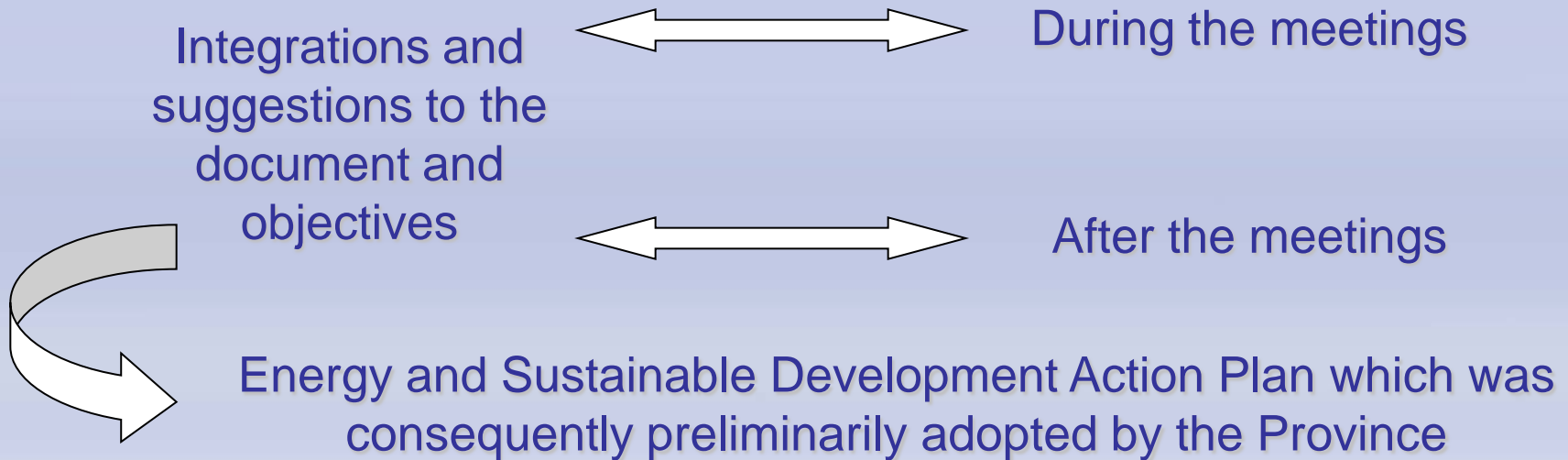


Preliminary steps

1. The Province prepared a preliminary document showing the energy situation of the area as starting point for the **activities** planning
2. The Provincial Council defined the objectives of the plan strictly in line with the regional energy plan:
 - Energy saving and efficient use of resources
 - Development and enhancement of renewables
 - Decrease of polluting and green house gases (CO₂, etc...)
 - To lead local businesses toward green economy

The participatory mechanism 1/2

After the definition of the preliminary document and of the objectives, the Province of Ravenna organised **3 local meetings with local public bodies and stakeholders** (i.e. category associations, etc. for a total of about 100 represented bodies) to present them



The participatory mechanism 2/2

After the preliminary adoption of the Energy & Sustainable Develop. Action Plan, the document was published on the official Regional Journal (BUR)



Further suggestions and observations were sent to the Province



Evaluation of such observations by the Province and amendments to the Plan

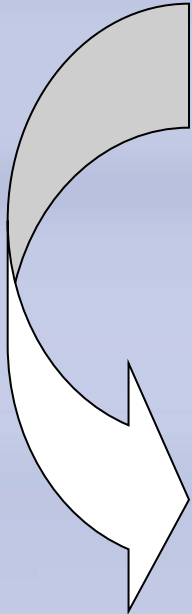


Modify the Plan according to Region'sat input and observations



Definitive adoption of the Plan

Toward market creation 1/5



Key inputs from the participatory mechanism: what do local stakeholders want/pointed out?

1. Need to foster and promote the green economy image of the territory
2. Need to promote and incentive mainly solar energy (as it is the most known one), but also other renewable energy systems, and simplification of procedures for the application
3. Need of facilitations: creation of the conditions for the development of a local “short market chain” to favour the deployment of renewable energy to move toward green economy

Toward market creation 2/5

The local demand

More than 450 seaside resorts and 100 hotels located along the coast are willing to use renewable energy to improve the appeal of the area and therefore the appeal for tourists

The local supply

There is a number of local manufacturers in the field of biomass and small wind systems willing to improve their business and upgrade their technologies

Great market potential



Job creation



Improvement of green economy

How to create the conditions for the market?

- 
- A large, stylized arrow that starts as a grey shape at the top left and curves downwards and to the right, ending as a white arrowhead pointing towards the text.

Toward market creation 4/5

****The state of play of the simplification process**

1. As consequence of the adoption of the Energy & Sust. Dev. Action Plan, the Province **introduced in the plan itself** a clause stating that for the application of wind systems along the coast – as defined in the project WICO - **the competent bodies have to simplify procedures** according to the indications of the project itself, with the purpose of favouring the deployment of renewable energy
2. The Province defined an **agreement** with the Municipalities of Cervia, Ravenna, and the Superintendence **for the simplification of procedures** for the application of small wind systems. The agreement **establishes a committee** composed by a representative per each Institution with the purpose of speeding and simplifying procedures and guaranteeing the environmental integrity and homogeneous evaluation (according to location and/or height)

Toward market creation 5/5

****The state of play of the simplification process**

3. At the moment Emilia-Romagna Region is reviewing and modifying its Territorial and Landscape Regional Plan (PTPR) and this represent an opportunity for Province of Ravenna to introduce some amendments. In fact it's useful to suggest to the Region a territorial classification based on the possibility to install along the coast line (according to specific rules) SWT.

This will represent a clear simplification that ensure sustainability of the technology toward environment and landscape.

Classification of Small Wind turbines (SWT)

- 1- Based on nominal output power
(typical of administration, but not correct for economical or technical application)
- 2- Based on swept area
(taken from IEC 61400 gives the possibility of making correct evaluation both for economical and AEO (annual energy output) purposes)
- 3- Based on site of application of the SWT
(this method might be useful for enviromental planner)

Critical issues for SWT

Feed in tariff or incentives
(different ways of evaluating such values)

Authorization procedure
(different paths, but mainly related to the environmental impact, grid requirements, noise emissions, ...)

Reliability of SWT
(the reference is IEC 61400, but there are country rules (MCS, SWCC), besides is mandatory CE label)

Critical issues for SWT

Wind resource assessment
(different methods of evaluating such values)

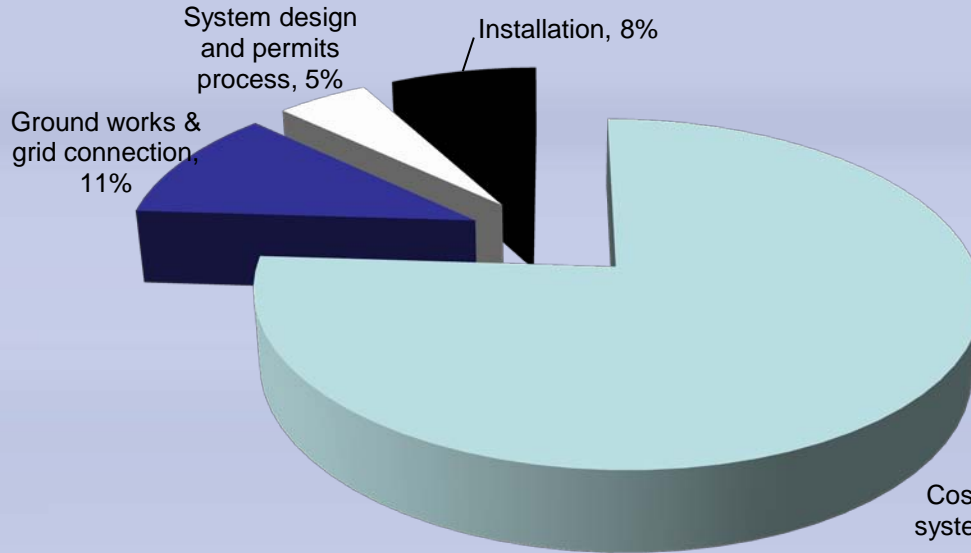
Installation procedure
(different ways mainly with or without crane also depending upon the type of tower)

O&M
(different contracts or services)

Financing from Bank

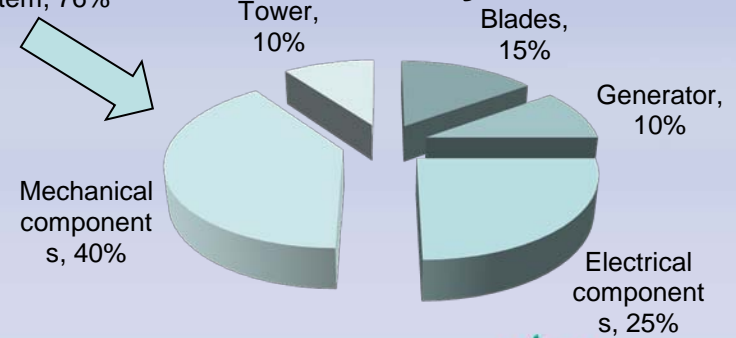
SWT Economics

SW total cost structure



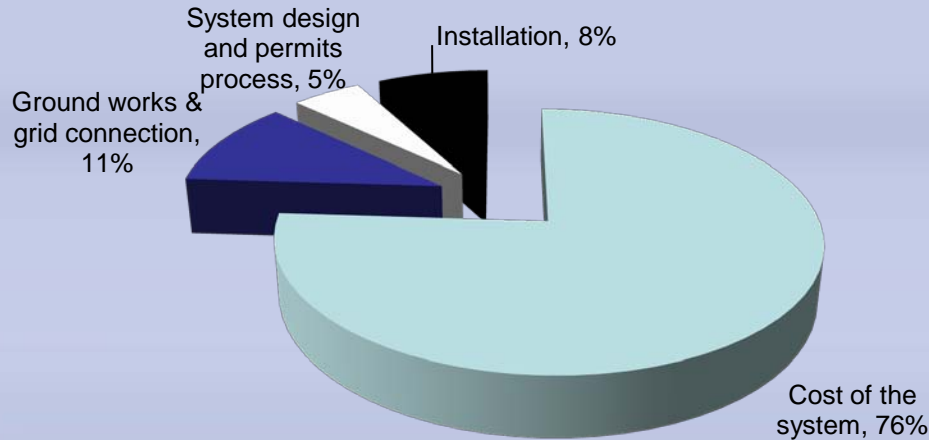
Cost of the system, 76%

Cost of the system

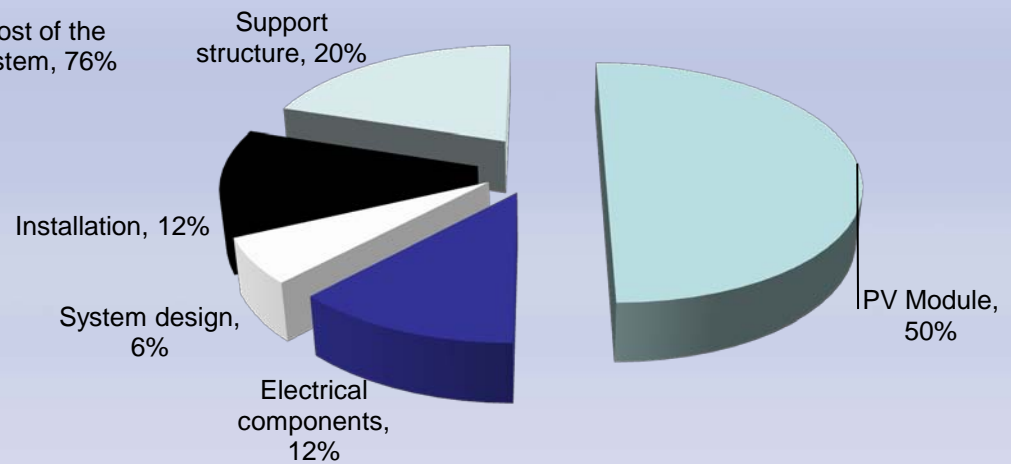


SWT Economics

SW total cost structure



PV cost structure



SWT Economics Assumptions

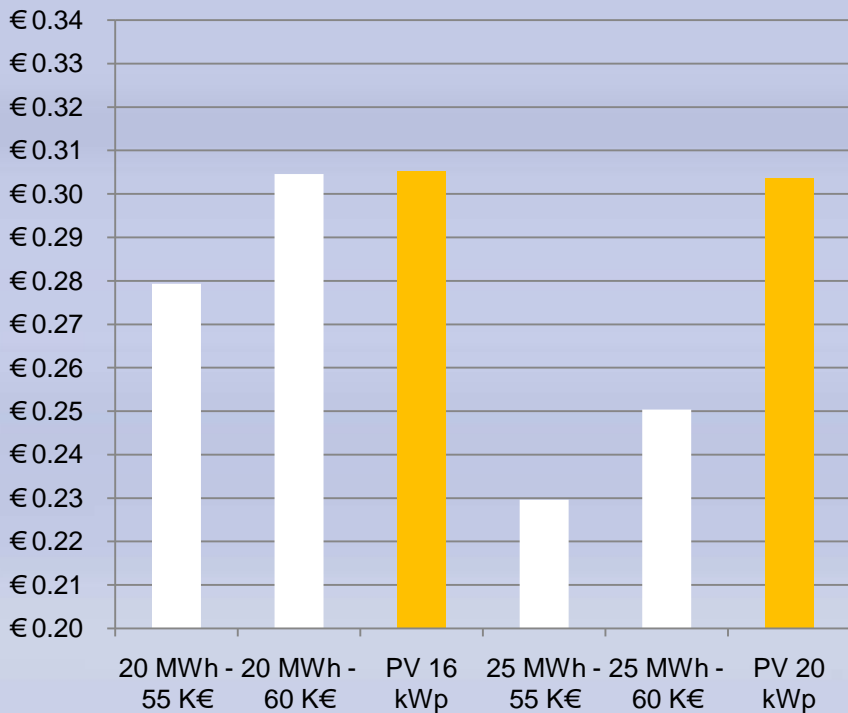
The model takes into consideration the following elements:

- Turbine characteristics
- Total purchase cost and O&M
- FIT
- Taxes (Corporate tax, local property tax, other taxes)

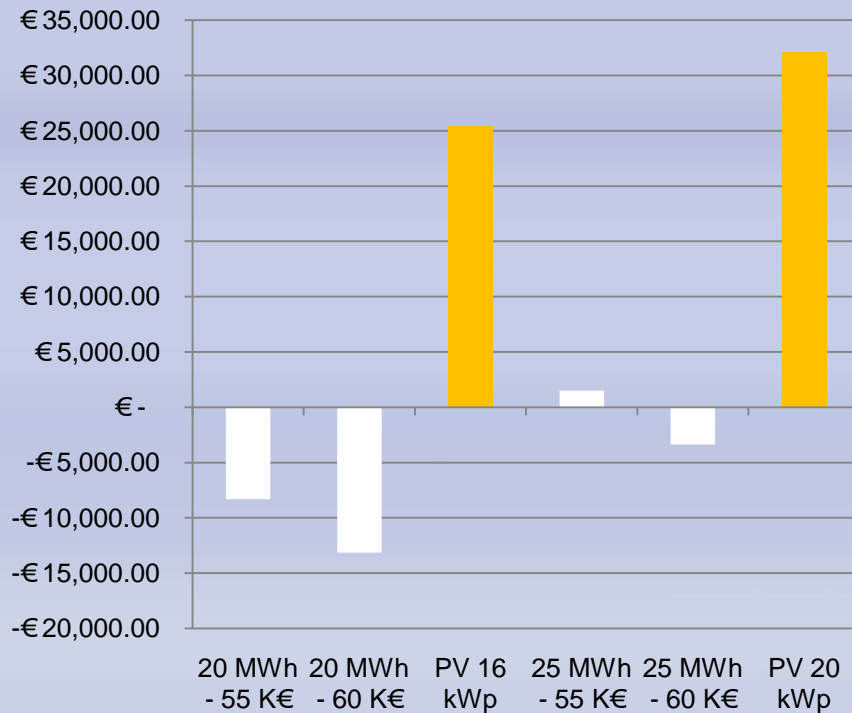
| CASE | A | B | C | | D | E | F |
|-----------------|------------|------------|------------|--|------------|------------|------------|
| | SW | SW | PV | | SW | SW | PV |
| Speed Or kWp | 4,2 m/s | 4,2 m/s | 16 | | 4,8 m/s | 4,8 m/s | 20 |
| Net AEO | 20.000 kWh | 20.000 kWh | 20.000 kWh | | 25.000 kWh | 25.000 kWh | 25.000 kWh |
| Price (VAT ex.) | 55.000 € | 60.000 € | 56.000 € | | 55.000 € | 60.000 € | 70.000 € |
| WACC % | 6% | | | | 6% | | |
| Lifetime | 20 | | | | 20 | | |

SWT Economics

Levelized Production Cost



Net Present Value



SWT Economics

SW costs about as much as/ less than PV

BUT

PV (by far) more profitable!

| | SW | PV |
|-------------------------|--------------------------------|--|
| FIT c€/kWh | 30 c€* Energy sold to the grid | 36,4 c€ * Energy generated + 10,11 c€ * Energy sold = |
| Total Revenue c€/kWh | 30 c€ | 46,51 c€* |
| Years | 15 | 20 |

* may vary depending on the nominal power and on the integration degree of the system with the building

Development of SWT market

Increase of employees
(R&D, manufacturing, installation, O&M, supply chain)

Different manufacturer
(this will have to increase the reliability and decrease the price)

Purchaser
(incentive and reliability of SWT will show to the customer and Banks that SWT are a green financial investment)

Aims of WiCo

Develop a Simplification of authorization procedure

Request a Mandatory certificate of reliability of the products

Promote different widespread applications:

-Beachshore

- Nearshore

Thank you for your attention!!