



StoRES

Promotion of higher penetration of Distributed PV through storage for all

Priority Axis 2: Fostering low-carbon strategies and energy efficiency in specific MED territories: cities, islands and remote areas

2.2: To increase the share of renewable local energy sources in energy mix strategies and plans in specific MED territories

Deliverable n°: **2.4.2 & 4.3.2**

Deliverable Name: **Establishment of an international bi-annual conference in a MED venue & Consolidated report from workshops and international conference**

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5. Project Summary

The project addresses the development of an optimal policy for the effective integration of Renewable Energy Sources (RES) and Energy Storage Systems (ESS). The primary challenge is to achieve increased penetration of RES and predominantly Photovoltaics (PV), in the energy mix of islands and rural areas in the Mediterranean (MED) region without compromising grid stability. The main objective of StoRES is to boost self-consumption in the MED region with the integration of optimal storage solutions. Testing coupled PV-ESS solutions in different pilot sites and taking into account local particularities for optimization, current barriers concerning grid reliability with higher RES deployment will be eliminated. In addition to this, the development and integration of the proposed solution at both residential and community levels and the application of different policy scenarios will lift the barriers related to the grid integration of ESS and will extend the practical knowledge about this technology. It is expected that all the shortcomings regarding the intermittent nature of PV energy for increased penetration into the energy mix will be addressed whilst maintaining smooth operation of the grid.

The project started on the 1st of November 2016 and is expected to be completed within 36 months.

6. Introduction to Deliverable 2.4.2 & 4.3.2

In this document, a combined report focusing on the main findings and suggestions from organised workshops in the context of the StoRES project is issued and shared through all communication channels. This regards Deliverable 4.3.2. The report is conducted after the completion of all organised workshops in each participating project country, as well as the StoRES Final Event and the international conference held in Cagliari, Italy, in May 2019. Specifically, Deliverable 2.4.2 concerns the organization of a conference in a MED country to attract key decision-making bodies at country and regional level (MED/EU), aiming to establish a regular bi-annual event. The StoRES project's results and overall work done were presented at a dedicated international event (StoRES Final Event) in order to stimulate dialogue. The event was organised along with the abovementioned Conference.

7. International Event

7.1. SyNERGY MED 2019

The 1st International Conference on Energy Transition in the Mediterranean Area – SyNERGY MED 2019 was organized by the University of Cagliari (UNICA) and the Municipality of Ussaramanna (MoU) and co-organized by the StoRES Project Consortium on 28-30 May 2019. The Conference was held in Hotel Regina Margherita, Cagliari, Italy.

Figure 1 presents the Conference's logo and Figure 2 the Conference's online website (<http://convegni.unica.it/synergymed2019/>).



Figure 1: SyNERGY MED 2019 Conference logo.



Figure 2: SyNERGY MED 2019 Conference website.

The 1st International Conference on Energy Transition in the Mediterranean Area – SyNERGY MED 2019 was the starting point of a series of Conferences with the aim of establishing a major energy platform in the region. The Conference was focused on topics of interest to the Energy Challenges in the Mediterranean area. It intended to address the

vast technological changes in all areas of the electric energy business, products, equipment, methods, etc.

The Conference welcomed papers in topics such as (but not limited to):

- Renewable energy sources
- Smart Grids and Smart Cities
- Energy Efficiency
- Grid and market integration of RES
- Energy storage technologies, integration and utilization
- Demand Response
- Energy Forecasting
- Planning and operation of power systems in competitive markets
- Reliability assessment of power systems
- Security assessment and risk analysis
- Digitalization of power distribution
- Transactive energy and Blockchain technologies
- E-Mobility
- Power quality
- Energy Policy

The aim of the conference was to provide a forum for discussion among researchers, policymakers, regional and local authorities, renewable energy clusters and main actors/stakeholders about the energy technology challenges in these regions and the solutions for boosting economic and sustainable development.

This Conference significantly benefited engineers and technicians through state-of-the-art presentations by major equipment suppliers, researchers, utility specialists, invited speakers and discussions by international participants.

The Conference hosted **more than 70 attendees** from **9 different EU countries**. In the oral sessions, around **50 scientific papers** in the field have been presented. Accepted papers have been published in the digital library IEEE Xplore®.

In Appendix A, the Conference's call for papers is provided.

7.1.1. Conference Program

The programme included a plenary session, three Keynote Speeches of distinguished experts in the field, round tables and invited and submitted papers organized in parallel half-day sessions. A comprehensive choice of visits, banquets, get-together events and tours for delegates was provided to improve their experience in Cagliari. Furthermore, the social program of the Conference included a guided walking tour of Cagliari and a Conference Dinner at a local restaurant.

In Appendix B, the full Conference Program is provided.

The first day (28th May 2019) included the registration and the welcome address by On. Dott. Christian Solinas (President of the Regione Autonoma della Sardegna), Dott.ssa Anita Pili (Regional Minister for Industry – RAS), Dott. Alberto Scanu (President of Confindustria Sardegna), Prof. Maria del Zompo (Rector of the Università degli Studi di Cagliari), Prof. Corrado Zoppi (President of the Faculty of Engineering and Architecture, UNICA) Prof. George E. Georghiou (University of Cyprus – UCY), Prof. Grigoris Papagiannis (Aristotle University of Thessaloniki – AUTH) and Prof. Fabrizio Pilo (UNICA).

It also included a Keynote Speech on “Smart Grids and Smart Districts for Smart Cities” by Prof. Carlo Alberto Nucci of the Università di Bologna. In addition, a round-table discussion on “Energy Market: New Technologies and challenges for improving the access to Energy in the Mediterranean Area” was moderated by Prof. Lucia Ruggeri of the Università degli Studi di Camerino. The panelists were Dr Enrico Maria Carlini (Terna S.p.A.), Dr Marine Cornelis (Executive Director of NextEnergyConsumer), Prof. Christian Cristofari (University of Corsica Pascal Paoli), Prof. Manuela Giobbi (University of Perugia), Prof. Ivana Kunda (University of Rijeka), Prof. Carine Staropoli (Pantheon-Sorbonne University - Paris I) and Prof. Bertrand Raison (University of Grenoble). The Final Remarks chaired by Prof. Domenico Villacci (President Ensiel).

The second day (29th May 2019) included a Keynote Speech on “DC supergrids for large integration of renewable energy sources” by Prof. Bertrand Raison of the University of Grenoble - Les Alpes.

The following papers were presented:

- Session 1: “Microgrid modeling” chaired by Prof. Carlo Alberto Nucci of the Università di Bologna
 - “Re-Synchronization control strategy for master-slave controlled microgrids” - A. Cagnano, E. De Tuglie, A. Cervi, R. Stecca, R. Turri, A. Vian
 - “Enhanced Frequency Response of Inverter Dominated Low Inertia Power Systems” - M. Hadjikypris
 - “Validation of the dynamic model of the PrInCE Lab CHP through real-time measurements” - A. Vian, A. Cervi, R. Stecca, A. Cagnano, E. De Tuglie
 - “Virtual Inertia in a Microgrid with Renewable Generation and a Battery Energy Storage System in Islanding Transition” - J. Amankwah Adu, J. D. Rios Penaloza, F. Napolitano, F. Tossani
- Session 2: “Power Systems Optimization” chaired by Prof. Christian Cristofari of the University of Corsica Pascal Paoli

- "Decentralized Voltage Optimization based on Network Partitioning in Distribution Systems with DGs" - A. R. Di Fazio, M. Russo, M. De Santis
- "Concurrent control of MV and LV networks for ancillary services provision" - M. Agostini, F. Bignucolo, M. Coppo, J. M. Schwidtal, R. Turri
- "The Podcast Project: an Application of Volt/Var Optimization to the Electric Distribution Network of Sanremo (Italy)" - F. Silvestro, M. Crosa di Vergagni, F. D'Agostino, S. Massucco, P. Pongiglione, M. Saviozzi
- "Optimal placement of sectionalizing switches for radial distribution grids" - M. Pau, F. Ponci, A. Monti
- "Split-phase: a sustainable technical solution for low environmental impact power transmission lines" - R. Turri, R. Spezie, A. Donini, R. Cortina, L. Zuccolo
- Session 3a: "Energy Storage Part 1" chaired by Prof. George. E. Georghiou of the University of Cyprus
 - "A GaN-Based Battery Energy Storage System for Three-Phase Residential Application with Series Stacked devices and Three-Level Neutral Point Clamped Topology" - M. Moradpour, P. Ghani, P. Pirino, G. Gatto
 - "Provision of frequency regulation service and peak demand reduction by distributed Battery Storage Systems" - C. Yianni, G. E. Georgiou, V. Venizelou, V. Efthymiou
 - "SOC-based BESS control logic for dynamic frequency regulation in microgrids with renewables" - G. Graditi, R. Ciavarella, M. Di Somma, G. Guidi, M. Valenti
 - "System Implementation and Preliminary Results of a Community Battery Energy Storage System" - N. Chatzigeorgiou, S. Afxenti, K. Panagiotou, V. Efthymiou, G. E. Georghiou
- Session 3b: "Energy Storage Part 2" chaired by Prof. Alfonso Damiano of the Università degli Studi di Cagliari
 - "Sizing of Electrical and Thermal Storage Systems in the Nearly Zero Energy Building Environment – A comparative assessment" - V. Gjorgievski, A. Nousedilis, E. Kontis, G. Kryonidis, G. Barzegkar- Ntovom, S. Cundeva, G. Christoforidis, G. Papagiannis
 - "Performance Assessment of Electrical Storage on Prosumers Via Pilot Case Studies" - G. Barzegkar-Ntovom, E. Kontis, G. Kryonidis, A. Nousedilis, G. Christoforidis, G. Papagiannis
 - "Technical Assessment of Coupled PV and Battery Systems – A case study from the Mediterranean region" - S. Afxentis, N. Chatzigeorgiou, V. Efthymiou, I. Papageorgiou, G.

- Papagiannis, G. Christoforidis, J. Sancho, H. Rodrigues, C. Casimiro, N. Poize, T. Pristovnik, S. Mocci, A. Rubiu
- "Analysis of "Increase Self-Consumption" Battery Energy Storage System Use – A Residential Case Study in Cyprus" - N. Chatzigeorgiou, S. Afxentis, K. Panagiotou, G. E. Georghiou
 - Session 4: "Customer engagement and Demand Response" chaired by Prof. Roberto Turri of the Università di Padova
 - "Libra: a cloud-based platform for production and load aggregation" - G. Troglio, S. Bianchi, G. Viano
 - "Architectural Design of Decentralized Demand Response with Integrated Peer-to-Peer Technology" - V. Venizelou
 - "Addressing Demand Response Interoperability challenges for small prosumers – The DRIMPAC project concept" - D. Tzovaras, A. Papanikolaou, G. Pitsiladis, I. Damousis, G. E. Georghiou
 - "Improving Energy Efficiency in Smart-houses by Optimizing Electrical Loads Management" - C. L. Cabrita, J. Monteiro, P. J. S. Cardoso
 - "Phasor Data Concentrator functionalities to support a Multi-Agent Control System in Active Distribution Networks" - P. Castello, S. Mocci, S. Ruggeri, S. Sulis
 - Session 5: "Load Profiling for Customer Engagement" chaired by Prof. Grigoris Papagiannis of the Aristotle University of Thessaloniki
 - "Exploring the potential of metaheuristics-based clustering in load profiling applications" - I. P. Panapakidis, A. S. Bouhouras, G. Christoforidis
 - "A multipurpose ICT platform for supporting energy transition: first results in flexibility profiling" - U. Stecchi, Javier Gomez, Lourdes Gallego, F. Santori, Juan Rico
 - "Updated typical daily load profiles for LV distribution networks customers" - F. Pilo, G. Pisano, M. Troncia
 - "Non-intrusive loads monitoring techniques for house energy management" - B. Cannas, S. Carcangiu, A. Fanni, C. Muscas, G. Sias
 - Session 6: "Load and generation forecasting" chaired by Prof. Pierluigi Caramia Università degli Studi di Napoli Parthenope
 - "Electric vehicle load forecasting: a comparison between time series and machine learning approaches" - L. Buzna, P. De Falco, S. Khormali, D. Proto, M. Straka
 - "Probabilistic Harmonic Analysis for Waveform Distortion Assessment of Low Voltage Distribution Systems with Plug-in Hybrid Electric Vehicles" - P. Caramia, D. Proto, P. Varilone, A. Russo

- "Metaheuristics-based Input Selection for Neural Networks: Application in Short-Term Load Forecasting" - I. P. Panapakidis, Aggelos S. Bouhouras, G. C. Christoforidis
- "Evaluation of different PV power forecasting systems on grid- connected PV plants in the Mediterranean Area" - E. Collino, D. Ronzio, R. Bonanno, G. Partasides
- "Characterizing the solar irradiation by means of spectral measurements for modelling CPV production" - D. Ronzio, E. Collino
- Session 7: "Transmission systems" chaired by Prof. Gianni Celli of the University of Cagliari
 - "Critical Assessment of Potential Barriers for Integrating the Emerging Technologies in the Pan-European Network Considering the Future EU Grid Scenarios" - G. Graditi, R. Ciavarella, M. Di Somma, M. Hadjikypris, A. M. Khavari, M. Valenti
 - "Analysis of Sardinia-Italy Energy Flows with Future Transmission Investments for Increasing the Integration of RES" - P. Corona, E. Ghiani, J. Contreras
 - "Scheduled profile at TSO/DSO interface for reducing balancing costs" - N. Natale, F. Pilo, G. Pisano, G. G. Soma
 - "An integrated profit maximization model for retailers in deregulated energy markets" - I. Panapakidis, N. Koltsaklis, G. Christoforidis, C. Parisses
 - "Portfolio strategies for renewable energy share maximization" - S. Zedda

The third day (30th May 2019) included a Keynote Speech on "Monitoring and analysis of R&I projects on smart grids and vectors integration at European and global level" by Dr. Iva Gianinoni of the Ricerca sul Sistema Elettrico (RSE) SpA, Italy.

The following papers were presented:

- Session 8a: "Research projects for RES integration" chaired by Prof. Fabrizio Pilo of the University of Cagliari
 - "PANTERA-A Pan European Technology Energy Research Approach" - C. Papadimitriou, V. Efthymiou, M. Shalaby, S.Khadem, G. E. Georghiou
 - "An ecosystemic approach for energy transition in the Mediterranean region" - C. Echave, D. Ceh, A. Boulanger, J. Shaw-Taberlet
 - "Renewable Energy Community WebGIS as a capitalization tool for the Mediterranean Region" - A. Boulanger, M. Franchino, P. Zitella, D. Ceh, C. Echave, J. Shaw-Taberlet

- "Paglia-Orba – Focus on innovative CSP system integrated in highly flexible technological Smart Grid" - C. Cristofari, B. Lecoivre, G. A. Faggianelli, J. Canaletti
- Session 8b: "Research projects for RES integration" chaired by Prof. Fabrizio Pilo the University of Cagliari
 - "Social and economic impact of a waste-to-energy strategy applied to the winemaking chain: a case study in the Italian countryside" - D. Groppi, M. Lamagna, M. Carlucci, D. A. Garcia
 - "A methodology for Energy Planning in Small Mediterranean Islands, the case of the Gozo Region" - D. Groppi, D. Cassar, Erika Massa, E. Rikos, C. Perakis, A. Pfeifer, G. Krajacic, D. A. Garcia
 - "The POSEIDON Project: microgrid in port areas to improve energy efficiency by the integration of RES, flexible loads and smart mobility" - S. Mocci, M. Porru, A. Serpi, G. G. Soma
 - "Modelling and optimization approach of residential Energy Hub: the GHOTEM project" - A. Vian, F. Bignucolo, M. De Carli

Finally, a conclusion and final remarks session, during which the organization of the next Conference was also announced, was chaired by Prof. G. E. Georghiou (UCY), Prof. G. Papagiannis (AUTH) and Prof. F. Pilo (UNICA). The next Conference is expected to be organised in two years (2021) in Thessaloniki, Greece, where the AUTH is located.

7.1.2. Pictures

Figures 3 and 4 present some pictures taken during the Conference.



Figure 3: Audience during the Conference.



Figure 4: StoRES partners after the end of the Conference.

7.2. StoRES Final Event

The StoRES Final Event was organized by StoRES Project Consortium and co-organized by the UNICA and the MoU on 28th May 2019. The Conference was held in Hotel Regina Margherita, Cagliari, Italy. The event was entitled "Innovative solutions for fostering low-carbon strategies and increasing renewable energy sources in the energy mix of the MED area" with a full-day duration.

The main aims of the event were to present the StoRES project achievements and main results and to discuss complementarities with other MED projects from the renewable energy community of projects.

This event was relevant to the following groups:

- Policy makers
- Other projects' representatives
- MED programme representatives
- Public sector
- Academia
- Researchers and students
- Chambers and associations
- Non-profit organizations
- Private companies
- Citizens

The introduction panel included Prof. Fabrizio Pilo (Head of Dept. of Electrical and Electronic Engineering, UNICA, StoRES Associated Partner and Local Organizer), Marco Sideri (Mayor of MoU and StoRES Partner) Prof. George E. Georghiou (Director of FOSS Research Centre for Sustainable Energy, UCY and StoRES Project Coordinator), Nicolas Garnier (Interreg MED Programme - Joint Secretariat, Project Officer) and Danilo Čeh (Interreg MED Renewable Energy Community, Senior Project Manager).

The event included two different sessions with various presentations, specifically Session 1: Energy storage and the future of the grid, moderated by Prof. Grigoris Papagiannis (AUTH, StoRES partner) and Session 2: Innovative tools and methodologies for better RES governance in the MED, moderated by Alexia Boulanger (representative of the partner Environment Park in the Interreg MED Renewable Energy).

In Appendix C, the StoRES Final Event's program is provided.

Figures 5 to 8 present some pictures taken during the event, while a video covering the event can be found in the following link of youtube platform: <https://youtu.be/RTjd5ejT4pY>.



Figure 5: StoRES Final Event introduction panel.



Figure 6: Prof. Papagiannis (AUTH), moderator of Session 1: "Energy storage and the future of the grid".



Figure 7: Audience during the Final Event.



Figure 8: StoRES partners and attendees after the end of the event.

8. Organised Workshops in each country

In Deliverable 4.3.1 (Organization of workshops/meetings in each participating country), the dissemination activities carried out by project partners with regards to organising workshops are explicitly described. Specifically, in each country, different events with a varied content attended by participants from various areas of the energy sector in order to effectively rollout the results of the project to interested stakeholders have been organised.

Section 8.1 provides a consolidated summary of the main findings and suggestions occurred from the organisation of the abovementioned workshops.

8.1. Main findings and suggestions

The target audience of the organised workshops was very diverse and included (among others), the local Distribution System Operators (DSOs) / Transmission System Operators (TSOs), governmental, regional and national authorities, municipalities, service and equipment providers (i.e. installers, engineers), the scientific community (i.e. professors and students in universities, research institutes, etc.), non-governmental organisations (NGOs), various associations, local media, other interested parties and the general public.

Based on the analysis' results of the evaluation surveys which were carried out on-site right after the end of each event, it can be seen that, in general, all Workshops received very positive comments regarding all the evaluation parameters assessed and met the expectation of the audience in each country to the greatest possible extent. Specifically, among the aspects that gained the positive opinion of the participants were the effectiveness of transferring the speakers' knowledge to the audience, the detailed explanation of storage systems and its future potential in the grid, as well as the good rhythm and relation of presentations. It is also worth mentioning that many participants indicated that their knowledge on the challenges of ESS coupled with PV has been improved. The speeches' concreteness and the presentation of the developed tools (StoRES Living Lab and StoRES PV and Storage Online Optimisation Tool) were also highly appreciated.

Participants also had an opportunity to state any complaints, suggestions and comments, among which they stated that in possible future workshops they would like to be further informed about specific legislation suggestions, get more information about support schemes and see more examples of good practices. Some other suggestions from the audience regarded the use of more real data and examples as case studies, as well as providing more emphasis on real bottlenecks of energy storage. In addition, possible market modifications or other incentives that could

promote storage integration in Nearly Zero Energy Buildings (NZEBs) and the use of Electric Vehicles (EVs) should be discussed in subsequent workshops. A further insight on these issues could provide vital information regarding the viability of storage system applications integrated alongside PVs, so as to adapt the regulatory framework to the new electricity market's needs. It must be noted that the above presented findings slightly varied for each country.

Some further ideas about the possible improvements that could be done and mainly future work were mentioned, among others, such as the integration of weather forecast in storage plants, the balancing of residential and community storage systems in microgrid projects and the coupling of heat and electricity carriers in a more holistic approach, etc.

9. Conclusions

This document provides a combined report focusing on the main findings and suggestions from all organised workshops in the context of disseminating the StoRES project and transferring its outcomes. The report is conducted after the completion of all organised workshops in each participating project country, as well as the StoRES Final Event and the international conference held in Cagliari, Italy, in May 2019.

The establishment of a biannual event in a MED country is mentioned and the early details with regards to the organisation of the next Conference are introduced (Thessaloniki, 2021). Concerning the organised workshops in each country in the context of Deliverable 4.3.1 (Organization of workshops/meetings in each participating country), a summary of the main findings and suggestions is provided.

10. Appendix

Appendix A



Organisation: StoRES Consortium



Co-organised with:



INTERNATIONAL CONFERENCE

Call for papers

1st Conference on Energy Transition in the Mediterranean Area

28 – 30 May 2019
Hotel Regina Margherita
Cagliari, Sardinia - ITALY



EXECUTIVE ORGANISING COMMITTEE

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G. Papagiannis (Greece)
F. Pilo (Italy)

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GENERAL THEME

The 1st Conference on Energy Transition in the Mediterranean Area is the starting point of a series of Conferences with the aim of establishing a major energy platform in the region. The Conference will focus on topics of interest to the Energy Challenges in the Mediterranean area. It intends to address the vast technological changes in all areas of the electric energy business, products, equipment, methods, and so on. SyNERGY MED 2019 will provide a forum for discussion among researchers, policy-makers, regional and local authorities, renewable energy clusters and main actors/stakeholders about the energy technology challenges in these regions and solutions for boosting economic and sustainable development. The Conference will significantly benefit engineers and technicians through state-of-the-art presentations by major equipment suppliers, researchers, utility specialists, invited speakers and discussions by international participants. Accepted papers will be published in IEEE Xplore®.

Blue Mediterranean: The Mediterranean region is largely dependent on supply from third countries for oil, gas and coal; even though it has exceptional untapped potential for the deployment of renewable energy sources. Furthermore, most regions within the Mediterranean, particularly islands and rural areas are characterised by isolated or weak power networks, which either have a high carbon footprint or pose several market, technical and social barriers to the wider penetration of intermittent Renewable Energy Sources (RES).

PREFERENTIAL SUBJECTS

- Renewable energy sources
- Smart Grids and Smart Cities
- Energy Efficiency
- Grid and market integration of RES
- Energy storage technologies, integration and utilization
- Demand Response
- Energy Forecasting
- Planning and operation of power systems in competitive markets
- Reliability assessment of power systems
- Security assessment and risk analysis
- Digitalization of power distribution
- Transactive energy and Blockchain technologies
- E-Mobility
- Power quality
- Energy Policy

LANGUAGE

English both for presentation and manuscripts.

LOCATION

The 1st Conference on Energy Transition in the Mediterranean Area will be held in Cagliari - Sardinia, Italy. Sardinia is a beautiful island in Mediterranean, and offers many attractions: sun, sea, sights and natural landscapes of special charm. Cagliari, the regional capital of Sardinia, is a town full of fascinating history and friendly people. Located on the southern side of the island, Cagliari is linked to the mainland by the port and the airport. It owes its features to a melting pot of traditions, architectural styles and habits, influenced in turn by the former Roman, Byzantine, and Spanish dominations. A blend of the old and the new, Cagliari is at the same time a historical cultural city and a leading centre of the Sardinian economy. Get to know the city through three big themes: history, culture, and nature, which in Cagliari manifests itself above all in the beaches and humid zones which surround the city. Cagliari offers a lot both to casual tourists and people passionate about the zone. Cagliari, from the Phoenician period to the present day, has been a strategic area, a city in the centre of commercial and cultural traffic in the big "Mare Nostrum". Now Cagliari is a city that looks out onto the sea and is reflected in it.

PROGRAMME

The programme includes a plenary session, Keynote Speeches of distinguished experts in the field, invited and submitted papers organized in parallel half-day sessions. A comprehensive choice of visits, banquets, get-together events and tours for delegates and accompanying persons will give them a memorable experience in Cagliari. Conference schedule together with registration forms will soon be available on the website of the Conference.

SUBMISSION PROCEDURES

Prospective authors are invited to submit unpublished abstracts relevant to conference topics. Author's instructions are available on the website. One-page Abstracts should be submitted to the Conference Secretariat by uploading them onto the Conference website (www.convegni.unica.it/synergymed2019). Please refer to the deadlines below.

IMPORTANT DATES

28 February 2019	Deadline to submit Abstracts (1 page A4).
11 March 2019	Notification of Acceptance will be mailed to authors.
12 April 2019	Deadline to submit Full Papers (4-6 pages A4).
07 May 2019	Deadline for advance registration.

CONFERENCE VENUE

The Conference will take place at the Regina Margherita Conference Centre at the below address:

HOTEL REGINA MARGHERITA S.R.L.

VIALE REGINA MARGHERITA, 44

09124 CAGLIARI

Tel. +39070670342 - Fax +39070668325

www.hotelreginamargherita.com

HOW TO GET HERE

PUBLIC TRANSPORTATION: Public transport is an easy and quick way to reach Cagliari city centre from the airport or get to the airport from downtown: by train or by taxi your destination is no more than 10 minutes away (more details on <http://www.sogaer.it/en/and-airport>).

By CAR: From Cagliari-Elmas airport, follow the signs for "Cagliari Via Roma" (lato portici) and then the signs for "Bastione S. Remy". The Hotel is located 200m before the bastion, on Viale Regina Margherita.

HOTEL ACCOMODATION

The Conference Secretariat will propose different kind of solutions to accommodate the participants. Hotel reservation information will be soon available on the website of the Conference.

REGISTRATION

Registration fees cover Conference Proceedings and all social activities stated in the programme. Please, note that the prepaid advance registration, which saves you time and money, must be received before **07 May 2019**. All details concerning the registration fees are available on the website of the Conference. All authors whose papers are accepted must register (early registration) for the Conference in order to have their papers published in the Proceedings of SyNERGY MED 2019 (at least one author for each paper).

INQUIRIES

For further information please visit conference website:

<http://convegni.unica.it/synergymed2019/>

or contact SyNERGY MED 2019 Secretariat:

Email: synergymed2019@unica.it

Appendix B



Conference Program

May 28	
08:30	Registration
13:30	Welcome Buffet
15:00	Welcome Address (CASTELLO room)
15:15	<p>On. Dott. Christian Solinas – President of the Regione Autonoma della Sardegna Dott.ssa Anita Pili – Regional Minister for Industry – Regione Autonoma della Sardegna Dott. Alberto Scamù - President of Confindustria Sardegna Prof. Maria del Zompo - Rector of the Università degli Studi di Cagliari Prof. Corrado Zoppi - President of the Faculty of Engineering and Architecture, Università degli Studi di Cagliari Prof. George E. Georgiou, Prof. Grigoris Papagiannis, Prof. Fabrizio Pilo - Chairmen SyNERGY MED 2019</p>
15:45	Keynote: Smart Grids and Smart Districts for Smart Cities (CASTELLO room)
16:00	Prof. Carlo Alberto Nucci - Università di Bologna
16:00	Coffee break
16:00	Round Table – ENERGY MARKET: New Technologies and challenges for improving the access to Energy in the Mediterranean Area (CASTELLO room)
16:00	Moderator: Prof. Lucia Ruggeri - Università degli Studi di Camerino
16:00	Panelists:
16:00	<ul style="list-style-type: none"> Dr. Enrico Maria Carlini, System & Market Operations, Director at Tema S.p.A. Dr. Marine Cornelis, Executive Director, NextEnergyConsumer Prof. Christian Cristofari, University of Corsica Pascal Paoli Prof. Manuela Giobbi, University of Perugia Prof. Ivana Kunda, University of Rijeka Prof. Carine Staropoli, Pantheon-Sorbonne University - Paris I Prof. Bertrand Raison, University of Grenoble
16:00	Final Remarks
16:00	Prof. Domenico Villacci, President Eniel
18:00	Guided Walking Tour of Cagliari
20:00	



May 29	
09:00	Keynote: DC supergrids for large integration of renewable energy sources (VILLANOVA room)
09:30	Prof. Bertrand Raison – University of Grenoble – Les Alpes
09:30	Session 1 – Microgrid modeling (VILLANOVA room)
09:30	Chairman Prof. Carlo Alberto Nucci - Università di Bologna
09:30	Re-Synchronization control strategy for master-slave controlled microgrids
09:30	A. Cagnano, E. De Tuglie, A. Cervi, R. Stecca, R. Turri, A. Vian
09:30	Enhanced Frequency Response of Inverter Dominated Low Inertia Power Systems
09:30	M. Hadjikypris
09:30	Validation of the dynamic model of the PrinCE Lab CHP through real-time measurements
09:30	A. Vian, A. Cervi, R. Stecca, A. Cagnano, E. De Tuglie
09:30	Virtual Inertia in a Microgrid with Renewable Generation and a Battery Energy Storage System in Islanding Transition
09:30	J. Amankwah Adu, J. D. Rios Penalosa, F. Napolitano, F. Tossani
09:30	Session 2 – Power Systems Optimization (STAMPACE room)
09:30	Chairman Prof. Christian Cristofari - University of Corsica Pascal Paoli
09:30	Decentralized Voltage Optimization based on Network Partitioning in Distribution Systems with DGs
09:30	A. R. Di Fazio, M. Russo, M. De Santis
09:30	Concurrent control of MV and LV networks for ancillary services provision
09:30	Marco Agostini, Fabio Bignucolo, Massimiliano Coppo, Jan Marc Schwidtal, Roberto Turri
09:30	The Podcast Project: an Application of Volt/Var Optimization to the Electric Distribution Network of Sanremo (Italy)
09:30	F. Silvestro, M. Crosa di Vergagni, F. D'Agostino, S. Massucco, P. Pongiglione, M. Saviozzi
09:30	Optimal placement of sectionalizing switches for radial distribution grids
09:30	M. Pau, F. Ponci, A. Monti
09:30	Split-phase: a sustainable technical solution for low environmental impact power transmission lines
09:30	R. Turri, R. Spezie, A. Donini, R. Cortina, L. Zuccolo
11:00	Coffee Break
11:15	Session 3a – Energy Storage Part 1 (VILLANOVA room)
11:15	Chairman Prof. George E. Georgiou – University of Cyprus
11:15	A GaN-Based Battery Energy Storage System for Three-Phase Residential Application with Series-Stacked devices and Three-Level Neutral Point Clamped Topology
11:15	M. Moradpour, P. Ghani, P. Prino, G. Gallo
11:15	Provision of frequency regulation service and peak demand reduction by distributed Battery Storage Systems
11:15	C. Yianni, G. E. Georgiou, V. Venizelou, V. Ethymiou
11:15	SOC-based BESS control logic for dynamic frequency regulation in microgrids with renewables
11:15	G. Graditi, R. Ciavarella, M. Di Somma, G. Guidi, M. Valenti
11:15	System Implementation and Preliminary Results of a Community Battery Energy Storage System
11:15	A. Armenakis, N. Chatzigeorgiou, S. Afxenti, K. Panagiotou, V. Ethymiou, G. E. Georgiou
11:15	Session 4 – Customer engagement and Demand Response (STAMPACE room)
11:15	Chairman Prof. Roberto Turri – Università di Padova
11:15	Libra: a cloud-based platform for production and load aggregation
11:15	G. Troglio, S. Bianchi, G. Viano
11:15	Architectural Design of Decentralized Demand Response with Integrated Peer-to-Peer Technology
11:15	V. Venizelou
11:15	Addressing Demand Response Interoperability challenges for small prosumers – The DRIMPAC project concept
11:15	D. Tzovaras, A. Papanikolaou, G. Pitsiladis, I. Damousis, G. E. Georgiou
11:15	Improving Energy Efficiency in Smart-houses by Optimizing Electrical Loads Management
11:15	C. L. Cabrita, J. Monteiro, P. J. S. Cardoso
11:15	Phasor Data Concentrator functionalities to support a Multi-Agent Control System in Active Distribution Networks
11:15	P. Castello, S. Mocchi, S. Ruggeri, S. Sulis
13:00	Lunch
14:00	

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14:00 15:30	<p>Session 3b – Energy Storage Part 2 (VILLANOVA room) Chairman: Prof. Alfonso Damiano – Università degli Studi di Cagliari</p> <p>Sizing of Electrical and Thermal Storage Systems in the Nearly Zero Energy Building Environment – A comparative assessment <i>V. Gjorgievski, A. Noudilis, E. Kontis, G. Kryonidis, G. Barzegkar-Ntovom, S. Cundeve, G. Christoforidis, G. Papagiannis</i></p> <p>Performance Assessment of Electrical Storage on Prosumers Via Pilot Case Studies <i>G. Barzegkar-Ntovom, E. Kontis, G. Kryonidis, A. Noudilis, G. Christoforidis, G. Papagiannis</i></p> <p>Technical Assessment of Coupled PV and Battery Systems – A case study from the Mediterranean region <i>S. Alexantis, N. Chatzigeorgiou, V. Elthymiou, I. Papageorgiou, G. Papagiannis, G. Christoforidis, J. Sancho, H. Rodrigues, C. Casimiro, N. Poize, T. Pristovnik, S. Mucci, A. Rublu</i></p> <p>Analysis of "Increase Self-Consumption" Battery Energy Storage System Use – A Residential Case Study in Cyprus <i>N. Chatzigeorgiou, S. Alexantis, K. Panagiotou, G. E. Georgioli</i></p>	<p>Session 5 – Load Profiling for Customer Engagement (STAMPACE room) Chairman: Prof. Grigoris Papagiannis - Aristotle University of Thessaloniki</p> <p>Exploring the potential of metaheuristics-based clustering in load profiling applications <i>I. P. Panapakidis, A. S. Bouhouras, G. Christoforidis</i></p> <p>A multipurpose ICT platform for supporting energy transition: first results in flexibility profiling <i>U. Stecchi, Javier Gomez, Lourdes Gallego, F. Santori, Juan Rico</i></p> <p>Updated typical daily load profiles for LV distribution networks customers <i>F. Pilo, G. Pisano, M. Troncia</i></p> <p>Non-intrusive loads monitoring techniques for house energy management <i>B. Cannas, S. Carcangiu, A. Fanni, C. Muscas, G. Sias</i></p>
15:30 15:45	Coffee break	
15:45 17:30	<p>Session 6 – Load and generation forecasting (VILLANOVA room) Chairman Prof. Pierluigi Caramia - Università degli Studi di Napoli Parthenope</p> <p>Electric vehicle load forecasting: a comparison between time series and machine learning approaches <i>L. Buzna, P. De Falco, S. Khormali, D. Proto, M. Straka</i></p> <p>Probabilistic Harmonic Analysis for Waveform Distortion Assessment of Low Voltage Distribution Systems with Plug-in Hybrid Electric Vehicles <i>P. Caramia, D. Proto, P. Varlone, A. Russo</i></p> <p>Metaheuristics-based Input Selection for Neural Networks: Application in Short-Term Load Forecasting <i>I. P. Panapakidis, Aggelos S. Bouhouras, G. C. Christoforidis</i></p> <p>Evaluation of different PV power forecasting systems on grid-connected PV plants in the Mediterranean Area <i>E. Collino, D. Ronzio, R. Bonanno, G. Partasides</i></p> <p>Characterizing the solar irradiation by means of spectral measurements for modelling CPV production <i>D. Ronzio, E. Collino</i></p>	<p>Session 7 – Transmission systems (STAMPACE room) Chairman Prof. Gianni Celli – Università degli Studi di Cagliari</p> <p>Critical Assessment of Potential Barriers for Integrating the Emerging Technologies in the Pan-European Network Considering the Future EU Grid Scenarios <i>G. Graditi, R. Ciavarella, M. Di Somma, M. Hadjikypris, A. M. Khavari, M. Valenti</i></p> <p>Analysis of Sardinia-Italy Energy Flows with Future Transmission Investments for Increasing the Integration of RES <i>P. Corona, E. Ghiani, J. Contreras</i></p> <p>Scheduled profile at TSO/DSO interface for reducing balancing costs <i>N. Natale, F. Pilo, G. Pisano, G. G. Soma</i></p> <p>An integrated profit maximization model for retailers in deregulated energy markets <i>I. Panapakidis, N. Kotsakis, G. Christoforidis, C. Parisses</i></p> <p>Portfolio strategies for renewable energy share maximization <i>S. Zedda</i></p>
20:00 23:00	Social Dinner in the city center	



May 30 09:00 09:30	<p>Keynote: Monitoring and analysis of R&I projects on smart grids and vectors integration at European and global level (CASTELLO room) <i>Dr. Iva Gianinoni – Ricerca sul Sistema Elettrico (RSE) SpA, Italy</i></p> <p>Session 8a – Research projects for RES integration (CASTELLO room) Chairman Prof. Fabrizio Pilo – Università degli Studi di Cagliari</p> <p>PANTERA-A Pan European Technology Energy Research Approach <i>C. Papadimitriou, V. Elthymiou, M. Shalaby, S. Khadem, G. E. Georgioli</i></p> <p>An ecosystemic approach for energy transition in the Mediterranean region <i>C. Echave, D. Ceh, A. Boulanger, J. Shaw-Taberlet</i></p> <p>Renewable Energy Community WebGIS as a capitalization tool for the Mediterranean Region <i>A. Boulanger, M. Franchino, P. Zitella, D. Ceh, C. Echave, J. Shaw-Taberlet</i></p> <p>Paglia-Orba – Focus on innovative CSP system integrated in highly flexible technological Smart Grid <i>C. Cristofari, B. Lecoeuvre, G. A. Faggiani, J. Caneletti</i></p>
11:00 11:30	Coffee Break
11:30 12:45	<p>Session 8b– Research projects for RES integration (CASTELLO room) Chairman Prof. Fabrizio Pilo – Università degli Studi di Cagliari</p> <p>Social and economic impact of a waste-to-energy strategy applied to the winemaking chain: a case study in the Italian countryside <i>D. Groppi, M. Lamagna, M. Carlucci, D. A. Garcia</i></p> <p>A methodology for Energy Planning in Small Mediterranean Islands, the case of the Gozo Region <i>D. Groppi, D. Cassar, Erika Massa, E. Rikos, C. Perakis, A. Pfeifer, G. Krajacic, D. A. Garcia</i></p> <p>The POSEIDON Project: microgrid in port areas to improve energy efficiency by the integration of RES, flexible loads and smart mobility <i>S. Mucci, M. Porru, A. Serpi, G. G. Soma</i></p> <p>Modelling and optimization approach of residential Energy Hub: the GHOTEM project <i>A. Vian, F. Bignucolo, M. De Carli</i></p>
12:45 13:00	<p>Conclusion and final remarks (CASTELLO room)</p> <ul style="list-style-type: none"> Prof. G. E. Georgioli – University of Cyprus Prof. G. Papagiannis - Aristotle University of Thessaloniki Prof. F. Pilo – Università degli Studi di Cagliari
13:00 14:00	Lunch

Appendix C



Project co-financed by the European
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StoRES Final Event

**“Innovative solutions for fostering low-carbon strategies and increasing
renewable energy sources in the energy mix of the MED area”**

28 May 2019

Venue: Hotel Regina Margherita, Viale Regina Margherita, 44, 09124 Cagliari CA, Italy

AIMS

The main aims of the event are to present the StoRES project achievements and main results and to discuss complementarities with other MED projects from the renewable energy community of projects.

TARGET GROUPS

This event is relevant to the following groups:

- Policy makers;
- Other projects' representatives;
- MED programme representatives;
- Public sector;
- Academia;
- Researchers and students;
- Chambers and associations;
- Non-profit organizations;
- Private companies;
- Citizens.

Registration: <https://www.eventbrite.co.uk/e/innovative-solutions-for-increasing-res-in-the-energy-mix-of-the-med-area-registration-56973064971>

Facilitator: Eliza Loucaidou (Communication Manager)





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Agenda

08.30 – 09.00	Arrival of the Participants - Registration
09.00 – 09.30	Welcome and introduction <ul style="list-style-type: none"> • Prof. Fabrizio Pilo, Head of Dept. of Electrical and Electronic Engineering, University of Cagliari, StoRES Associated Partner and Local Organizer • Marco Sideri, Mayor of Municipality of Ussaramanna, StoRES Partner • Prof. George E. Georghiou, Director of FOSS Research Centre for Sustainable Energy, StoRES Project Coordinator • Nicolas GARNIER Interreg MED Programme - Joint Secretariat, Project Officer - Chargé de Projet • Danilo Čeh – Interreg MED Renewable Energy Community, Senior Project Manager
09.30 – 11.15	Session 1 “Energy storage and the future of the grid” Moderated by Prof. Grigoris Papagiannis, Aristotle University of Thessaloniki
09.30 – 10.00	“Implementation of battery storage in the Med Region: lessons learnt and prospects”, Prof. George E. Georghiou, Director of FOSS Research Centre for Sustainable Energy, StoRES Project Coordinator
10.00 – 10.15	“Penetration of renewable energy sources in the future of the grid”, Ivana Ostoic, Preko Municipality
10.15 – 11.05	Panel discussion
11.05 – 11.15	Conclusions
11.15 – 11.30	Coffee break





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11.30 – 13.15	<i>Session 2 “Innovative tools and methodologies for better RES Governance in the MED” – Moderated by Alexia Boulanger</i>
11.30 – 11.40	“Tools for smart energy planning in MED islands” – Daniele Groppi, PhD Student, La Sapienza University
11.40 – 11.50	“Sustainable forestry management to increase RES in energy mix” – Sebastiano Sferlazza, Researcher, University of Palermo
11.50 – 12.00	“Local fiscal policies implemented in the MED area” – Francesco Filippi, Director for Projects and Quality, MUSOL Foundation
12.00 – 12.10	“Role of advocacy processes for the diffusion of RES” – Sergio Andreis, Director of Kyoto Club
12.10 – 13.00	Panel discussion
13.00 – 13.15	Conclusions
13.15 – 15.00	<i>Lunch</i>

