

ENERGY EFFICIENCY IN BUILDINGS



Webinar

Scenarios and Opportunities for Energy Efficiency in Construction in Buildings

WELCOME!



Ministerio de Economía
Argentina

Secretaría
de Energía



 **Zoomsustentable.**

Consulting Team



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Presenters

■ Objectives

- *Contextual assessment of the skills and knowledge gap, among energy efficiency professionals and technicians in the Building sector (EEB), considering educational programs at different educational levels:*
 - *Technical and Vocational Education,*
 - *Undergraduate degree (architecture and engineering) and*
 - *Posgraduate and other courses*
- *Recommendation of lines of action for the expansion of the EEB in Argentina, with a focus on the area of professional education.*



■ *Methodological approach*

- *Characterization of professional profile (s) in the sector of practicing professionals and market situation (goods, services and stakeholders of the value chain)*
- *Conducting surveys, interviews and stakeholder workshop.*
- *Survey and analysis of the supply of training and contents with a federal focus.*
- *Diagnosis of supply and demand, for the identification and dimensioning of the gap*
- *Analysis and characterization of the gap*
- *Recommendations to accompany the expansion of the EEB.*



■ *Argentinean Context*

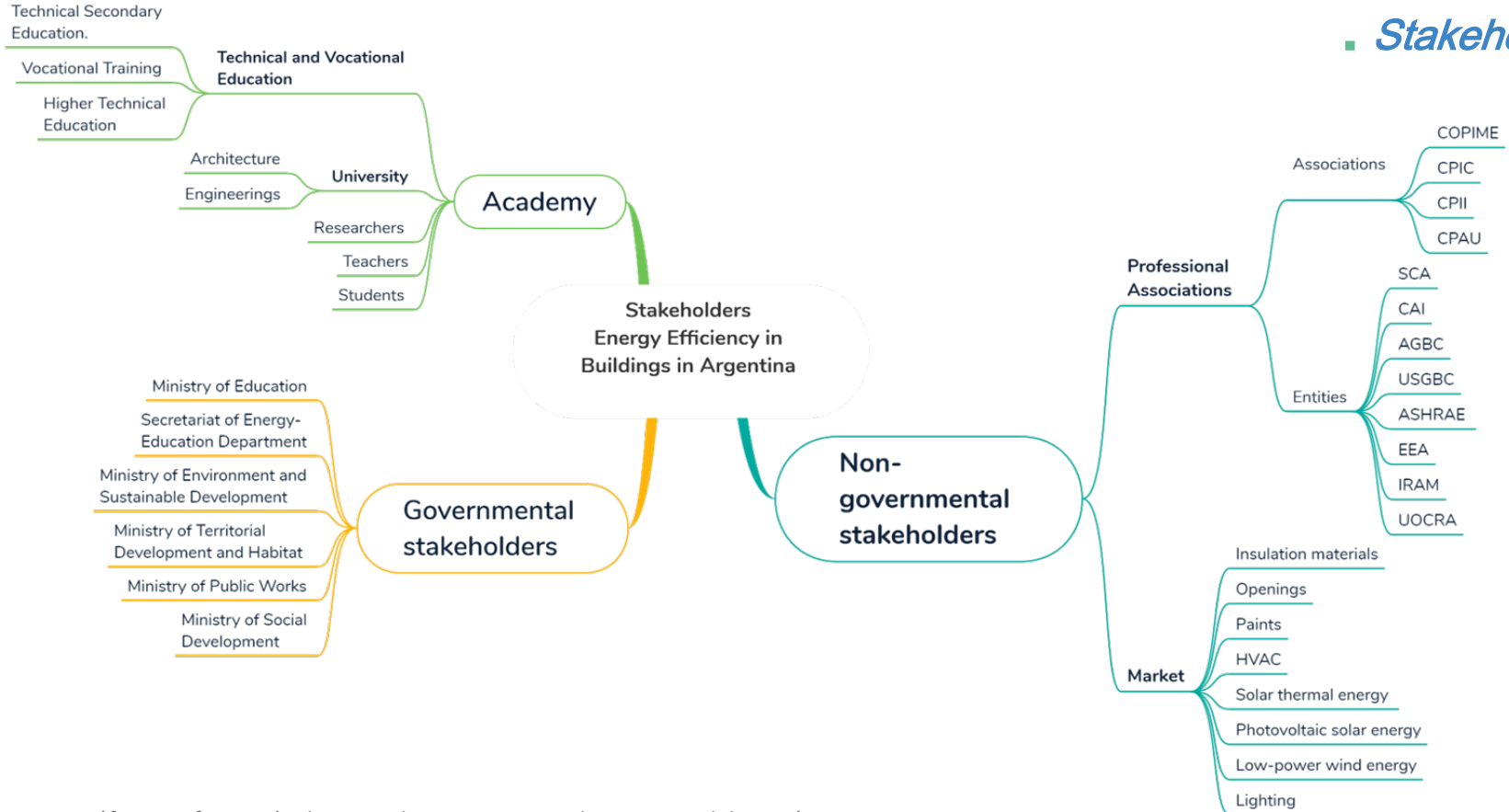
Buildings in Argentina ("residential" + "commercial and public") accounted for 33% of the country's total energy consumption during 2018 which, in turn, accounted for 20.8% of the country's GHG emissions

(-) lack of knowledge and public awareness on impacts of energy waste

(-) prevailing constructive logics with low efficiency materials, without considering energy saving & poor thermal performance

(+) Public policies such as the National Housing Labeling Program promote and drive base changes that allow the replication of other associated policies for the qualitative growth of the sector.

(+) Regulations (#13059 Buenos Aires Province, #4458 City of Buenos Aires, City of Rosario Ordinance No. 8757) compliant to IRAM Thermal Conditioning of Buildings and Windows Standards



■ Stakeholders

Gráfico: Conformación de Mapa de Partes Interesadas. Fuente: elaboración propia



■ Stakeholder Analysis Results

- *Perception diagnosis based on surveys and interviews in several regions within Argentina.*
- *Virtual Stakeholders workshop, id of barriers and opportunities:*
 - *Reduced and concentrated academic offer, dispersion in the professional task and isolation of cells or work groups with little or no mutual interaction between different regions; need to include EEB concepts in key careers curriculum.*
 - *Leading role of the private sector in the development of the materials and technologies market as well as in the consolidation of the demand for professionals with technical capacities.*
 - *Tax policies & subsidies electricity and gas tariff tables; laws and regulations of effective compliance, scientific based decision making; technically skills public servants to assure compliance with regulations.*



■ Educational System Structure

. *Results*

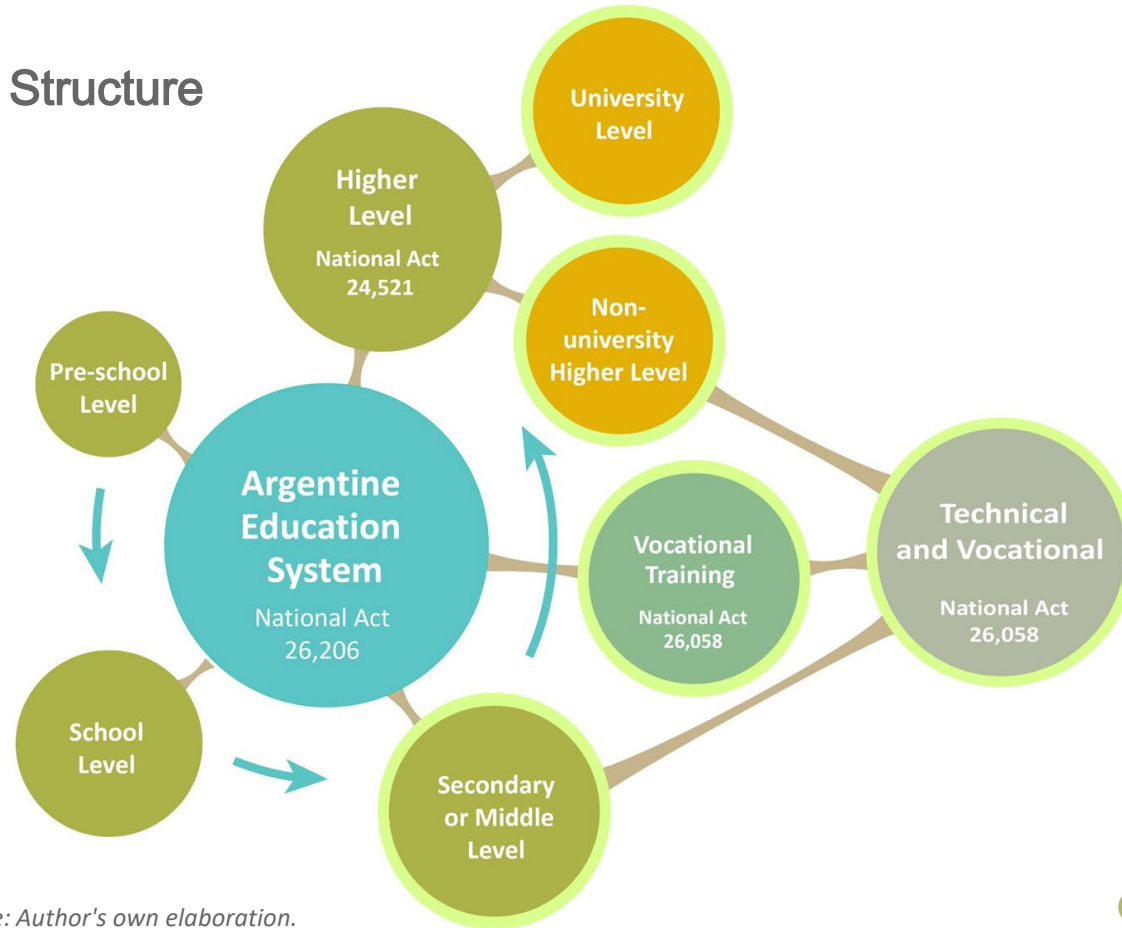
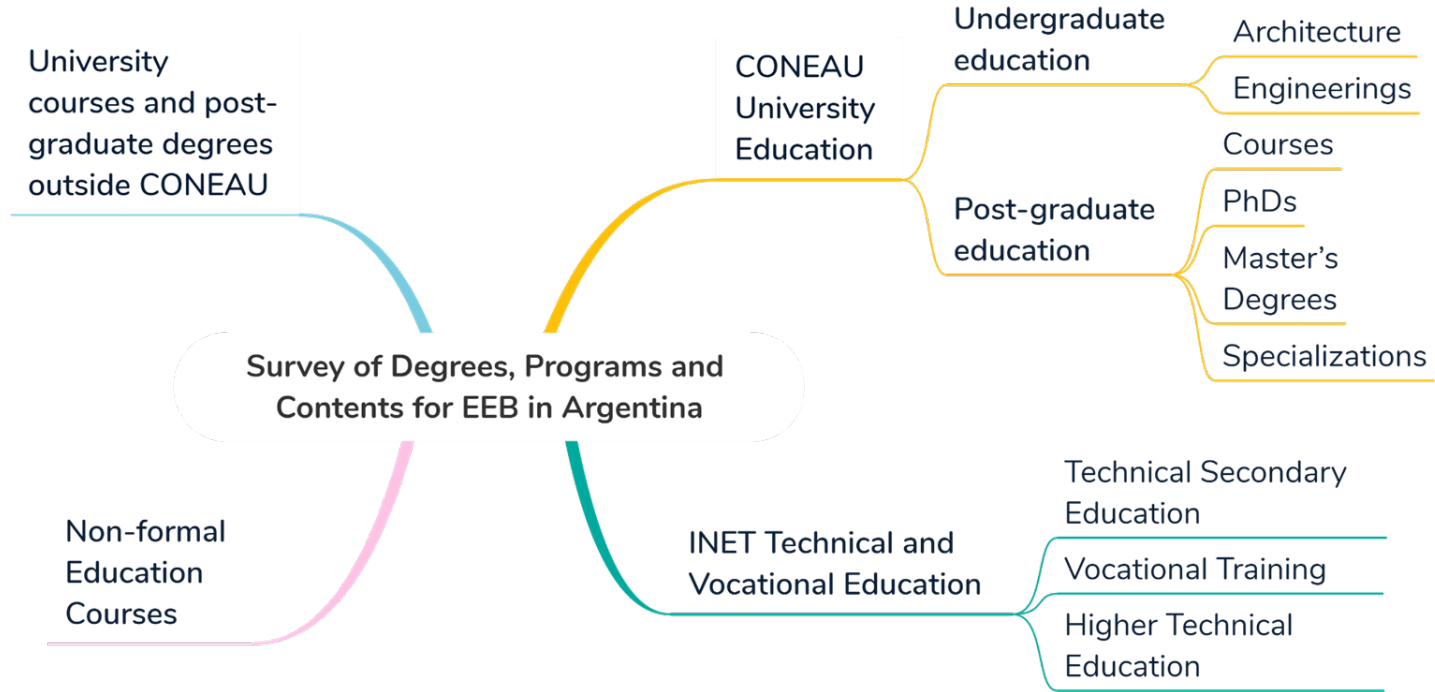


Figure: Argentine Education System. Source: Author's own elaboration.



Content Analysis





Undergraduate Level data gathering

. *Results*

- 12 strategic careers surveyed in 153 institutions. (Architecture and Engineering)
- Medium and high correlation in 30 institutions.
- Architecture presents greater proximity
- Only 4% of the careers present content consistent with the EEB.

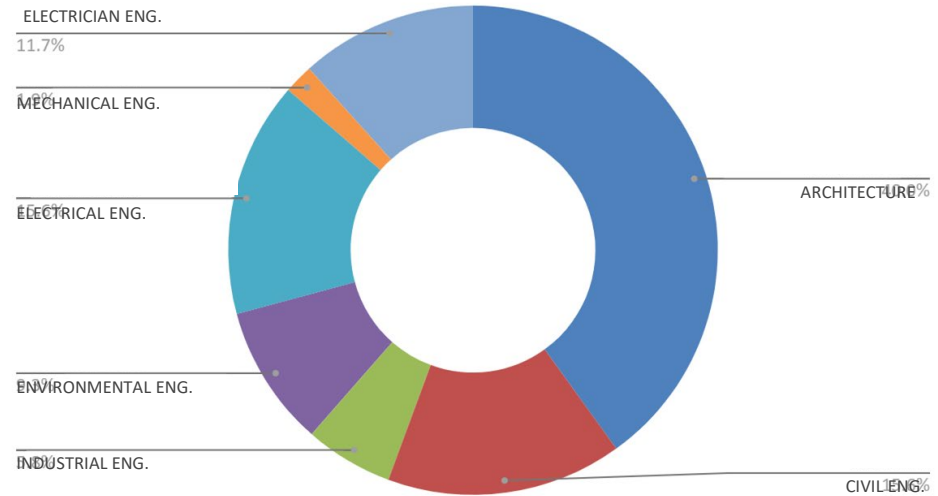


Figure: Proximity to EEB (%) in Undergraduate Programs. Percentage distribution of undergraduate programs. Source: Author's own elaboration.

> Posgraduate Level data gathering

. *Results*

- *Greater proximity to the EEB than at other levels (50% of the total surveyed, 182 courses)*
- *Topics and content of greater specificity in relation to other levels.*

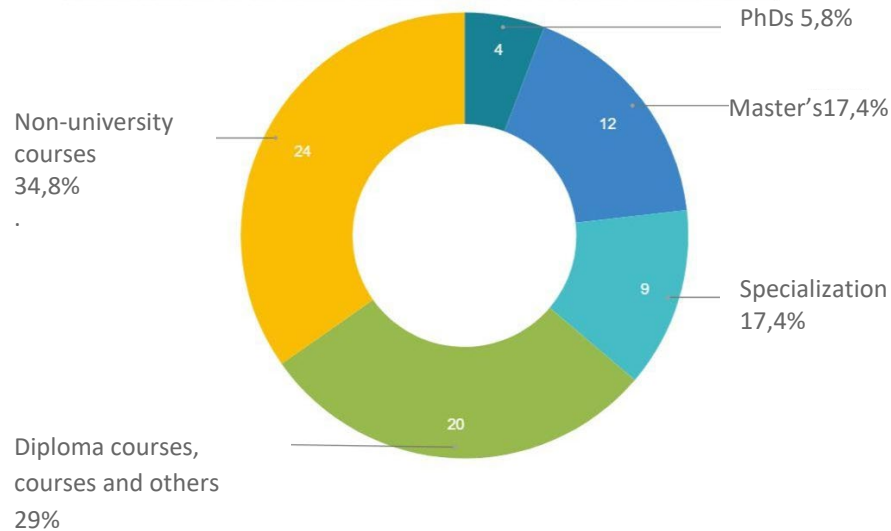


Figure: Academic level in post-graduate and other courses with proximity to EEB.
Source: Author's own elaboration.

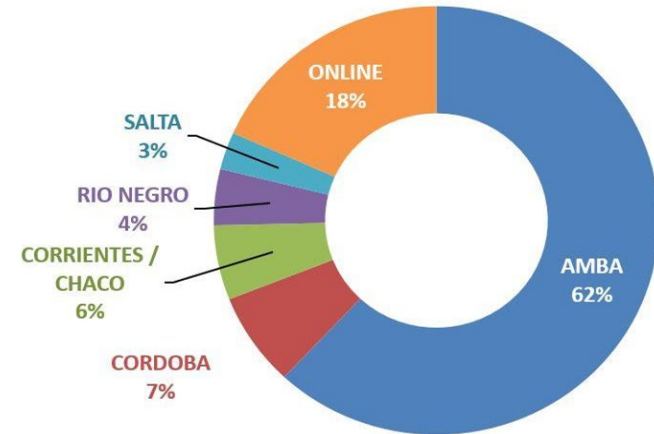


Gráfico: Distribución geográfica de la oferta educativa Cursos y Posgrados.
Fuente: elaboración propia



> Technical/Professional Level data gathering

- Scarce information available in relation to content in programs (56 different programs)
- Results: very low correlation to the EEB, especially in Higher Technique.

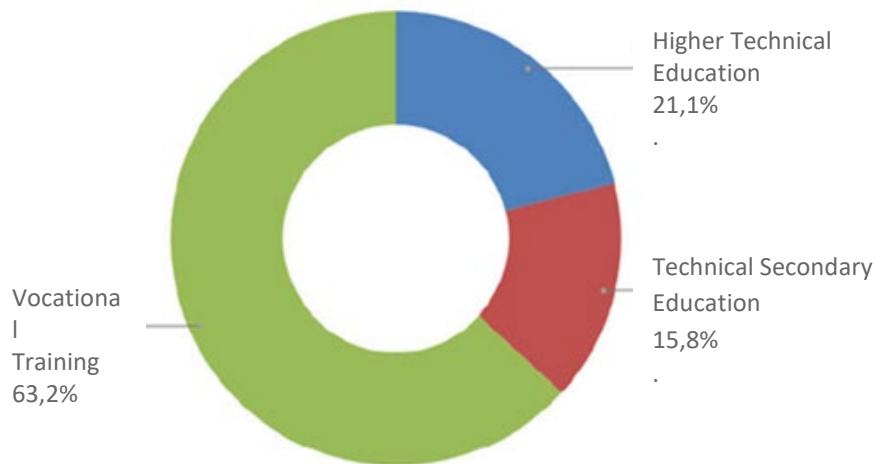


Figure: Distribution of degrees in Technical and Vocational Education according to content for EEB. Source: Author's own elaboration.

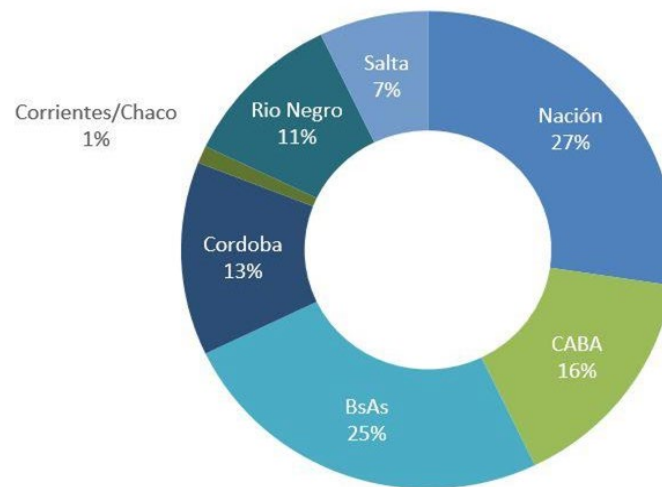


Gráfico: Distribución geográfica de la oferta educativa ETP para EEB. Fuente: elaboración propia



. General Results from Content Analysis

- *Very low frequency of appearance of EEB content at all educational levels.*
- *Lack of specific technical content.*
- *Not integrated as a cross-cutting topic in degree programs or in ETP frameworks and resolutions.*
- *Postgraduate and Other Courses presents higher correlation of specific contents ..*
- *Highly concentrated offer in AMBA Region*



Lines of action

■ *Training and Awareness Raising Axis*

- *Raise awareness (especially among officials and/or decision makers) by presenting **EEB** linked to: energy savings, increased housing comfort and climate change mitigation .*
- *Train officials to catalyze the application/ implementation of new **EEB** specific regulations.*
- *Raise awareness of the **student sector** (advanced secondary school) about the training existing programs in **EEB** to promote **career paths**.*
- *Train teachers of **ETP**, undergraduate and postgraduate courses **integrate** the topic in the **current teacher updating systems**.*



■ *Educational Policies Axis*

- *Offer more elective undergraduate subjects related to EEB.*
- *Offer "packages" of elective subjects (even in other degrees or institutions, in order to favour inter-institutional transversality).*
- *Consolidate the EEB orientation as part of the curriculum in Architecture and Engineering curriculum.*
- *Forming open program degrees (also referred to as "à la carte").*



Lines of action

■ *Educational Policies Axis*

- *Propose **contents** offered by undergraduate institutions linked to the **climatic zone** in which they are located.*
- *Incorporate **EEB related contents** in Technical and Vocational Education in line with the measures planned for the reduction of GHG emissions in the country (**NDCs**)*
- *Design pedagogical strategies that favour the **development of interdisciplinary work skills among professionals**.*
- *Ensure **access** to centralized/ **systematized and updated information on educational existing programs**. This is specially relevant in ETP, which presented the greatest lack of data.*



Lines of action

■ *Other Axis*

- *Accreditations axis (content adequacy accreditation , periodic curricular updating)*
- *Regulatory/State Axis (Benchmark successful EEB regulatory framework in the region (Chile, Peru) in order to adapt and update the regulatory framework, national manufacture of goods, technologies and services related to EEB, tax incentive for energy certified homes/buildings)*
- *Financial Axis (real value of energy, EEB principles/concepts in green credit lines taxonomy, massify energy certification in the real estate market)*

Concluding Remarks

- *The gap is multidimensional*
- *The potential of the combination of restrictive / regulatory measures ("push") and incentive and promotion measures ("pull") in the demand and supply of goods and professional services linked to EEC.*
- *Implementation of simple and known technology, whose production could be proposed to migrate to the national manufacture*
- *Have a stable and predictable political and regulatory framework that allows medium and long term planification .*

Perspectives

- *Existing public policies such as the National Housing Labeling Program promote and drive base changes that allow the replication of other associated policies for the qualitative growth of the sector.*
- *Retrofit or renewal is identified as a key vector, given the potential for improvement. This is something that professionals should be able to address, quantify and manage their continuous improvement.*
- *The capacity for the development of the sector, the commitment of practicing professionals, educators, researchers, technical teams and government officials genuinely interested in continuing their training and contributing content, time and will to accompany the expansive growth of the EEB in Argentina in such a way that it reaches its full potential.*

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¡Thank you!



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