

NPP PROJECTS IN TURKEY

Republic of Turkey

Ministry of Energy and Natural Resources

Nuclear Energy Project Implementation Department

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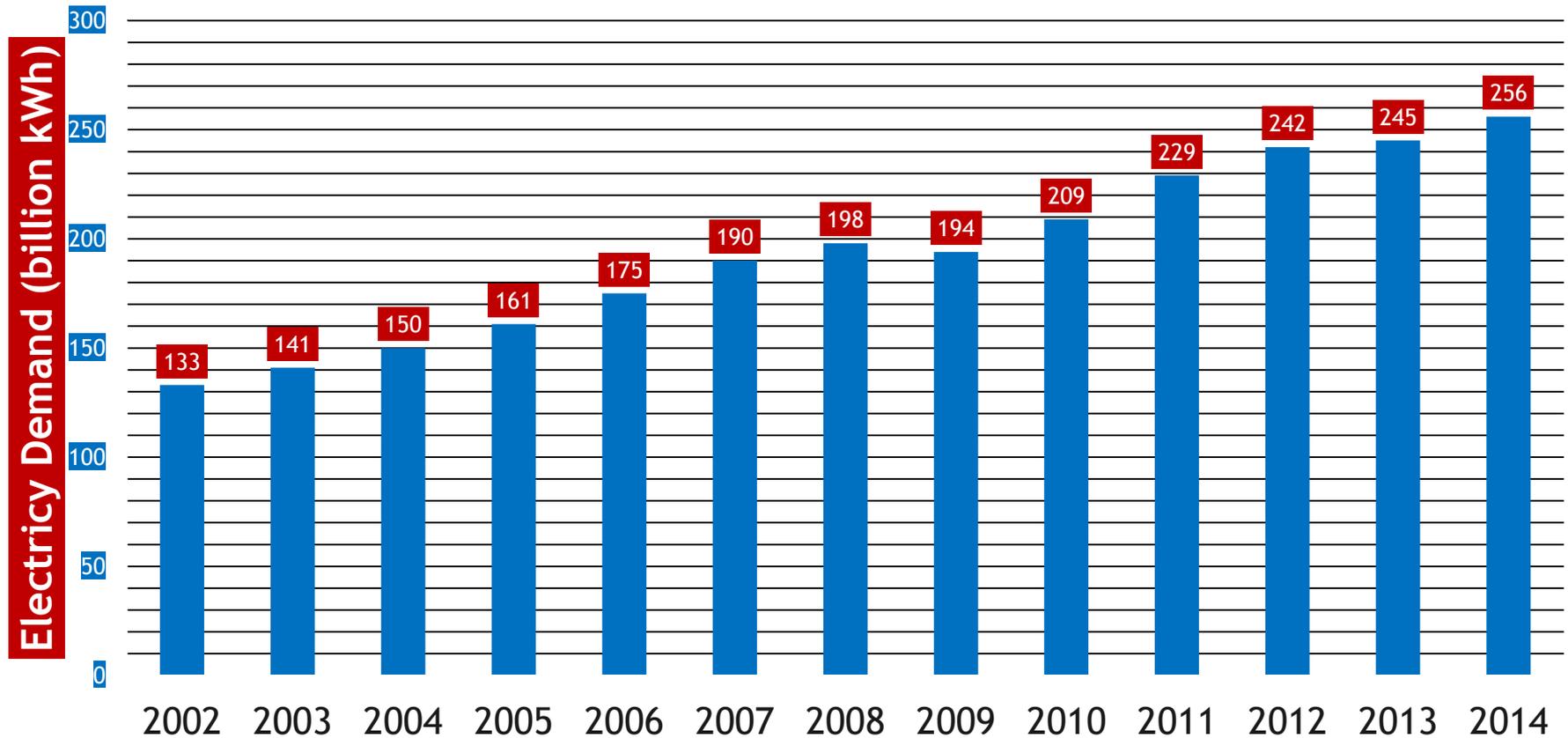
Turkey as a new comer!

- Area: 783,562 km² (37th)
- Population: 78 million + 2 million refugees* (17th, 2014)
 - 26% of population is under 15 ages.
 - 8% of population is above 65 ages.
- GDP: 753 billion \$ (17th, 2014)
- GDP per capita: ~10.000 \$ (64th, 2014)
- Installed power: 69.5 GWe (2014)
- Electricity Consumption: 257 billion kWh (2014)

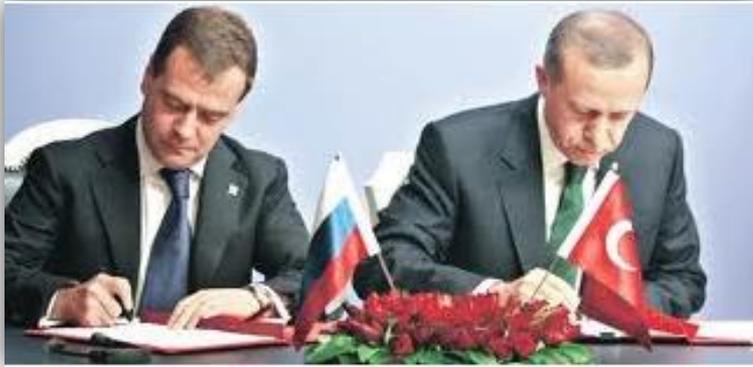


Turkey as a new comer!

Average annual electricity demand growth rate: 5.6% (2002-2014)



Akkuyu NPP Project



IGA with Russian Federation on May 12,
2010.

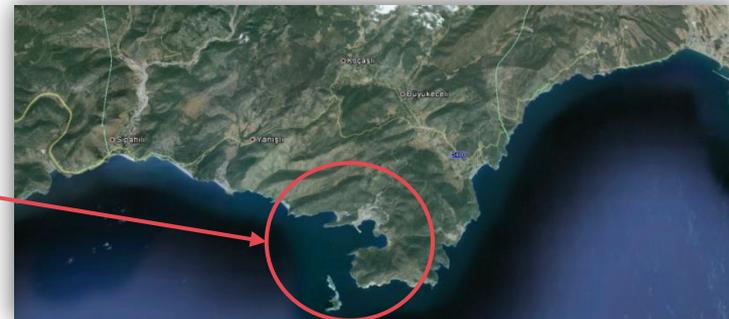
4 units of VVER 1200

60 years

4800 MW
(Total
Capacity)

20 billion
USD

35 billion
kWh

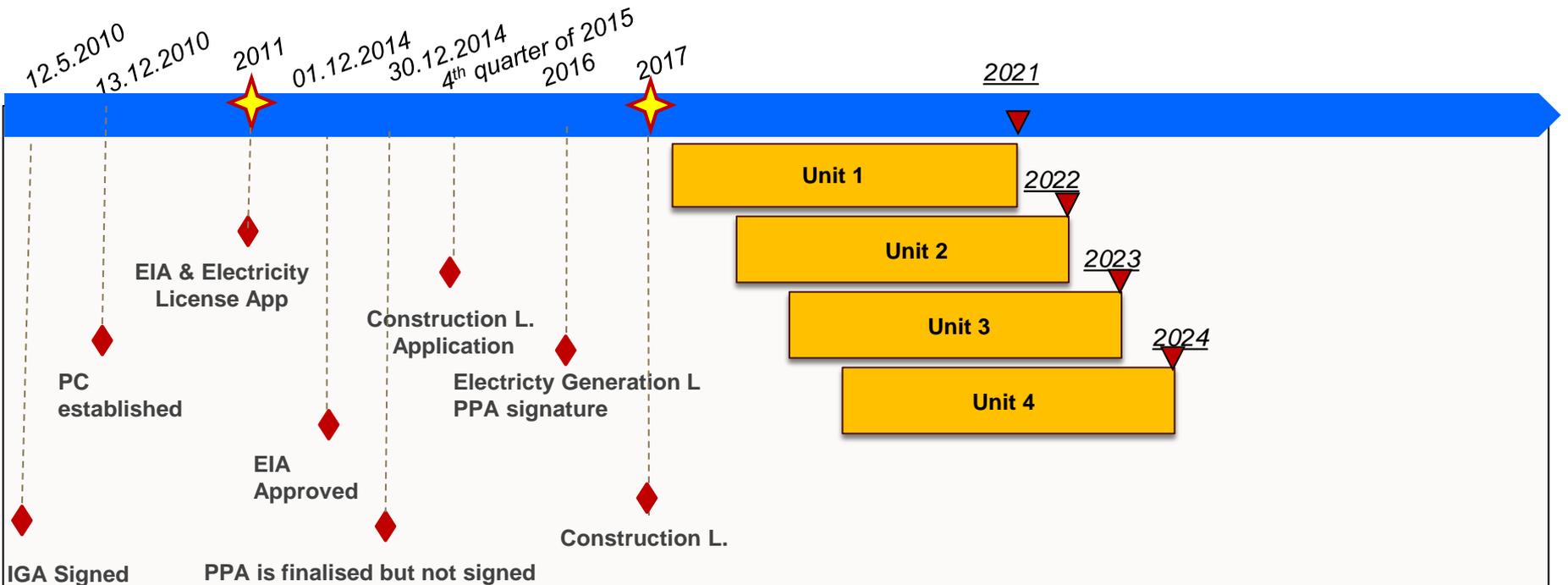


Akkuyu NPP Project

Pre Construction

Construction

Operation



Sinop NPP Project



IGA with Japan on May 3, 2013.

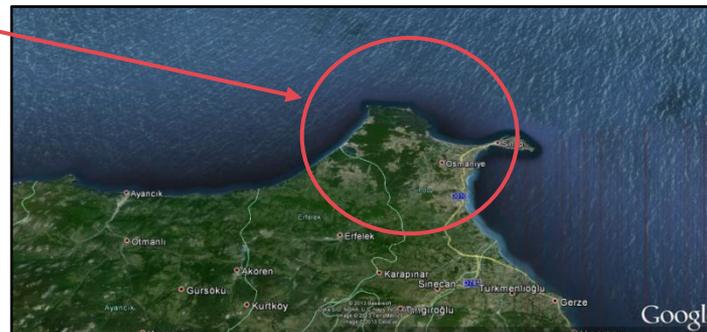
4 units of ATMEA 1

60 years

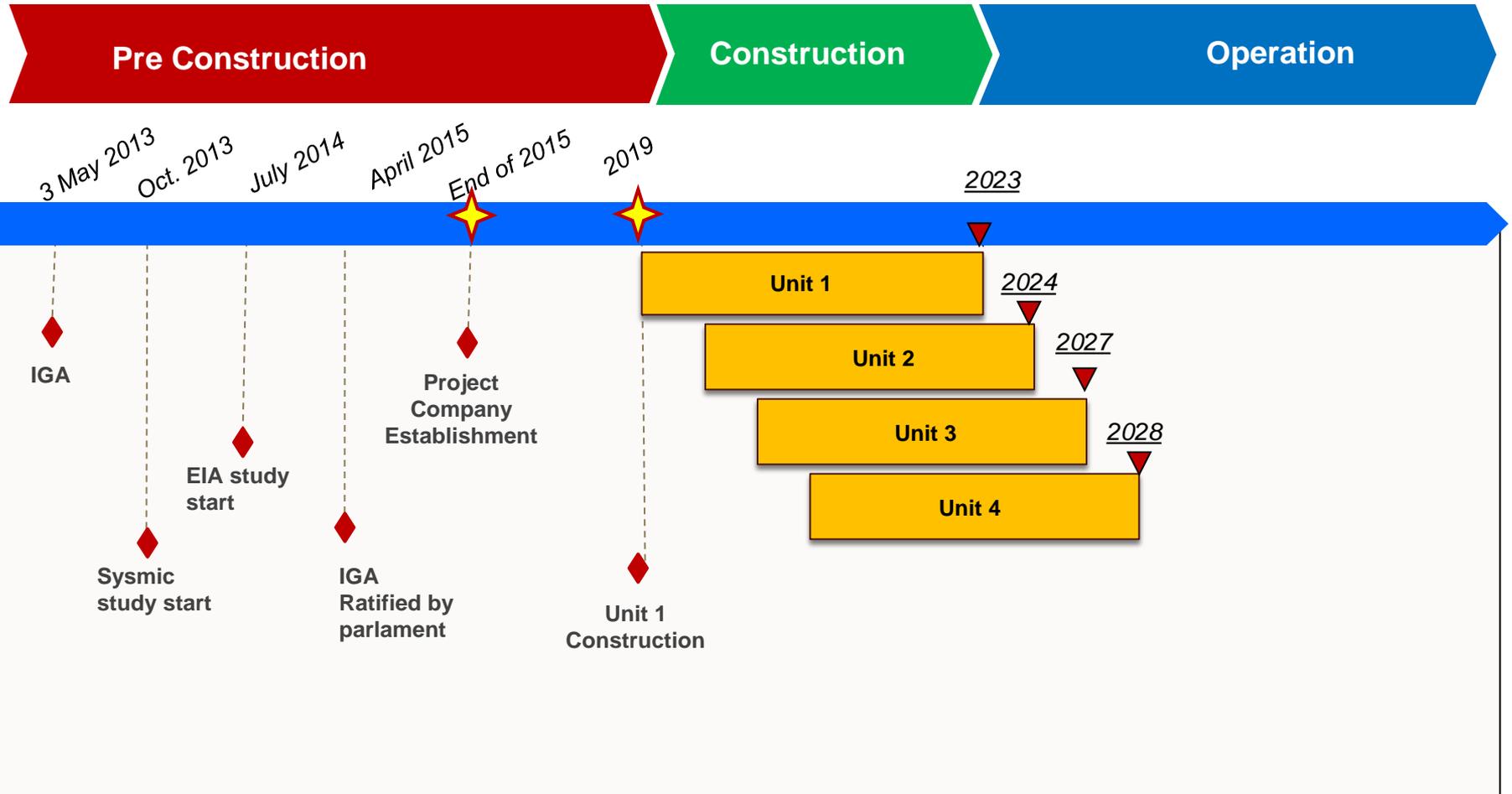
4480 MW
(Total
Capacity)

22 billion
USD

33 billion
kWh



Sinop NPP Project



Third NPP Project

- MoU was signed between EÜAŞ, Westinghouse and SNPTC on November 24th 2014 for the Third NPP Project.
- Development report for the project has been submitted by Westinghouse and SNPTC to EÜAŞ on June 4th 2015.
- The review and assessment of the report continues.

Localization of NPP Projects

- In order to determine local industrial capacity, online survey has been conducted to firms.
- 546 firms have filled the survey forms.
- 278 firms visited to inspect their capabilities.
- Following works will be gap analysis of firms and development of plans to reach localization targets.

Localization Project 1

- In 2014, the first project has been submitted to the Ministry of Economy by Ankara Chamber of Industry together with 33 participating firms.
- Target of the first phase is to identify and analyze the “needs” of the firms (gap analysis) by November 2015.
- Target of the second phase is to arrange training, foreign marketing, partnership, and B2B meetings during 2 years project period.

Localization Project 2

- In August 2015, the second project has been submitted to the Ankara Development Agency within the Ministry of Development by Ankara Chamber of Industry.
- Target of the first phase is to study the feasibility of establishing a training center for training and certifying nuclear supply chain staff by November 2015.
- The project period will be determined following the feasibility study.

Localization Project 3

- In July 2015, the third project has been submitted to the Ministry of Science Industry and Technology under the coordination of Ankara Chamber of Industry.
- The project period is 5 years following the completion of the project assessment by December 2015.
- Target of the project is to establish a local nuclear supply chain through public – private partnership.

Localization Projects

Projects	Phases	Budgets
Project 1 (URGE)	Gap Analysis and Training	400.000 \$
	Foreign Market Development	2.500.000 \$
Project 2 (Guided)	Feasibility Study	225.000 \$
	Establishment of the training center	To be determined
Project 3 (Cluster)	Establishment and development of nuclear cluster	8.300.000 \$

Challenges in Localization

- Standardization (GOST, ASME).
- Certification of products and quality management systems of firms.
- Costs (general incentives and large market volume).
- No purchase guarantee by utilities.
- Local capability in material and metallurgy technology.
- Qualified technical human resources.

Opportunities in Localization

- Turkey has a bridge position connecting Middle East, Asia and Europe.
- Turkey is geographically close to new comer countries in the region.
- Turkey can be a manufacturing center in the region.
- Many competent Turkish firms are ready to establish partnerships with foreign firms.

Qualifications of Local Firms

- Production of energy and power cables, cable ducts, transformers etc. in compliance with international standards.
- Production of pipes and fittings for NPPs.
- Production of pumps and valves in compliance with API and other international standards.
- Production of pipes, pumps and valves for international natural gas and oil pipeline projects.

Qualifications of Local Firms

- Advanced machining, welding, heat treatment and casting capabilities.
- Firms operating worldwide in construction sector especially in construction of industrial facilities.
- Production of heat exchangers, boilers and pressurized vessels with ASME and other international standards for oil refineries and thermal power plants.

Qualifications of Local Firms

- Valuable experience in software sector and especially simulation.
- Participation to aviation, defence, and satellite projects with national software companies.
- Manufacturing of steam turbine blades for thermal power plants.

Qualifications of Local Firms

- Experienced firms having AQAP 2110 and AS 9100 certificates who work in industries such as aviation and defence.
- Experienced companies in thermal power plant construction and assembly of turbines and generators.

Conclusion

- There are many stakeholders involved.
- There are many firms and institutions willing to make contribution.
- There are many actions to be taken in the short, medium and long terms.
- Cooperation is inevitable; deciding who will do what?

Conclusion

- Avoidance of duplicated activities (time and human resources).
- Localization activities should be completed in accordance with NPP project schedules.
- Implementation by the firms under coordination by the Ministry of Energy and Natural Resources.



THANK YOU!