

STRATEGIC DEVELOPMENT PROGRAMME

ENERGY AND ECONOMY REPUBLIC OF ARMENIA 2026-2035

National Energy and Infrastructure Master Plan



500

\$ billion - central GDP target

10

GW AI

21

GW generation

ADKARS Strategic Publication

Yerevan, Republic of Armenia | August 2026

Strategy at a Glance

Key parameters of the Armenia 2035 central scenario. All values are strategic targets/working assumptions and are subject to annual recalibration.

Economic outcome

Indicator	2035
Central GDP target	\$500 billion
Conservative GDP	\$350 billion
Central demographic assumption	~3.5 million
GDP per capita	~\$143 thousand

Energy and AI

Indicator	2035
AI load	~10 GW
Potential gross AI revenue	\$650-700 billion/year
Final domestic consumption	~104-105 TWh
Required gross generation	~113 TWh
Installed generation	~21 GW
Nuclear generation	~14 GW
Solar generation	~5 GW
BESS	>=3 GW / ~15-18 GWh
Energy CAPEX	~\$100-150 billion

Contents

The document is structured in two levels: an Executive Summary for rapid reading and the full Master Plan for ministers, experts and project teams.

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PART I

EXECUTIVE SUMMARY

Programme outcome, productive engine and energy infrastructure



Objective -> productive engine -> energy infrastructure

1 Programme outcome - an economy of approximately \$500 billion

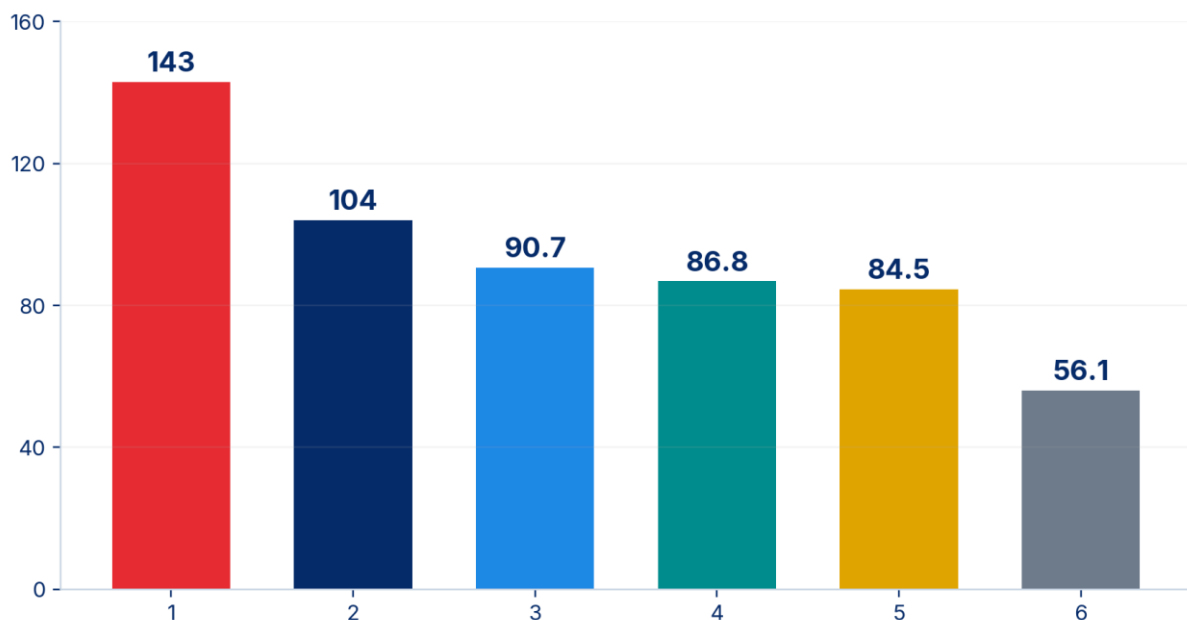
The principal objective of this programme is not to build a predetermined number of power plants. Energy is the enabling instrument. The end result is the creation by 2035 of a fundamentally new Armenian economy based on high-performance computing, AI, new industry, engineering capabilities and national ownership of productive assets.

CENTRAL TARGET: ~\$500 BILLION GDP BY 2035

The conservative scenario is set at approximately \$350 billion. The accelerated/upside scenario allows GDP to exceed \$500 billion under more favourable AI economics, higher utilisation of computing capacity and expansion of downstream industries.

GDP per capita and the international scale of the target

According to the World Bank, Armenia’s population in 2025 is approximately 3.087 million. The central planning scenario uses an indicative population of about 3.5 million by 2035. With GDP of \$500 billion, this corresponds to approximately \$143,000 of nominal GDP per capita; at \$350 billion, about \$100,000 per person.



Comparison of the central target with actual 2024 GDP per capita in selected developed economies.

Source of comparative data: World Bank, World Development Indicators, 2024. Armenia 2035 is a strategic target, not a forecast of country rankings.

1 - Armenia 2035 Central

2 - Switzerland 2024

3 - Singapore 2024

4 - Norway 2024

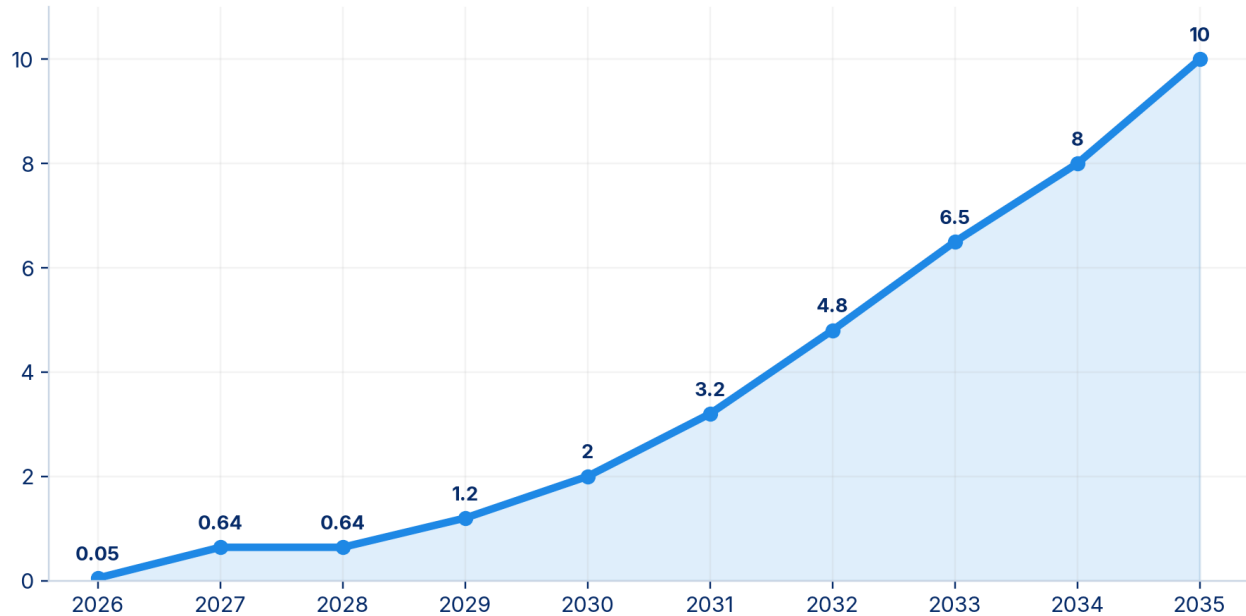
5 - United States 2024

6 - Germany 2024

The comparison is shown in current US dollars and illustrates the scale of the target. The final macroeconomic model should separately track nominal USD, constant-dollar GDP and PPP.

2 Economic engine - 10 GW of AI

The central scenario envisages the development in Armenia of up to 10 GW of AI/HPC infrastructure by 2035. This load becomes not a secondary consumer, but the country's principal new productive sector.



Target trajectory of AI load, 2026-2035, GW.

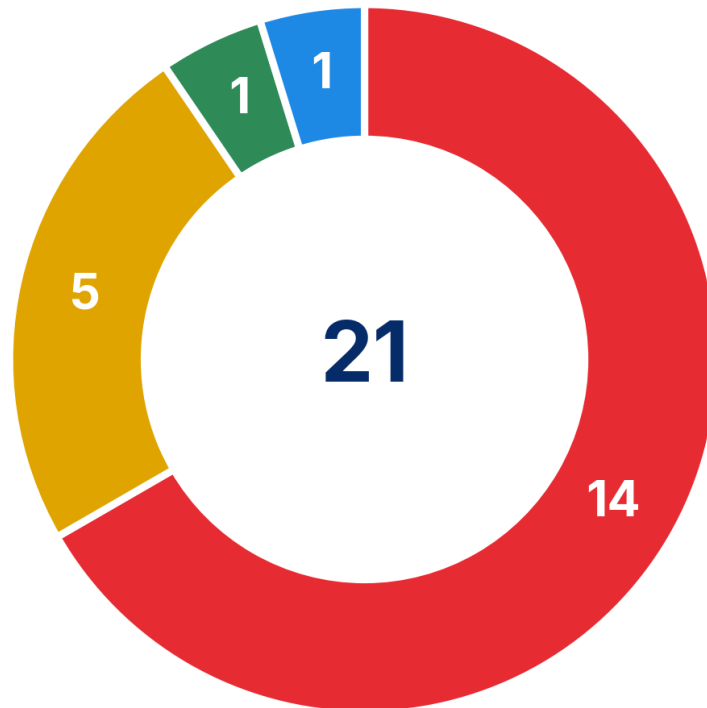
A previously developed model is used as a strategic planning benchmark: approximately 300 MW of AI infrastructure can generate around \$20 billion of potential annual gross revenue. This translates into approximately \$65-70 billion per 1 GW and about \$650-700 billion of gross AI revenue at 10 GW.

10 GW AI -> ~\$650-700 BILLION POTENTIAL ANNUAL GROSS REVENUE

Gross revenue is not GDP. GDP is determined by the value added created within Armenia. The central macroeconomic model therefore separates gross compute revenue, domestic value added, downstream AI and national income.

3 Energy system 2035

To supply AI, new industry and the traditional economy, by 2035 Armenia requires approximately 104-105 TWh of final domestic demand and about 113 TWh of gross generation. Indicative peak demand reaches approximately 14 GW, while the firm system requirement is around 16 GW.



Central architecture of installed generation in 2035, GW.

1 - 14 GW nuclear generation

2 - 5 GW solar generation

3 - 1 GW modern CCGT as strategic reserve

4 - 1 GW system-forming hydropower

~21 GW GENERATION + >=3 GW BESS / 15-18 GWh + up to ~1 GW PUMPED STORAGE

Storage is accounted for separately from primary generation. Local data-centre UPS/BESS is not included in the national BESS target.

4 Nuclear programme - the foundation of firm generation

The central target is approximately 14 GW of nuclear capacity by 2035. The preferred technological architecture is fast-spectrum reactors combined with a closed nuclear fuel cycle. The strategy is technology-specific and supplier-neutral: it defines the required technology attributes, but does not preselect a manufacturer, country or commercial project.

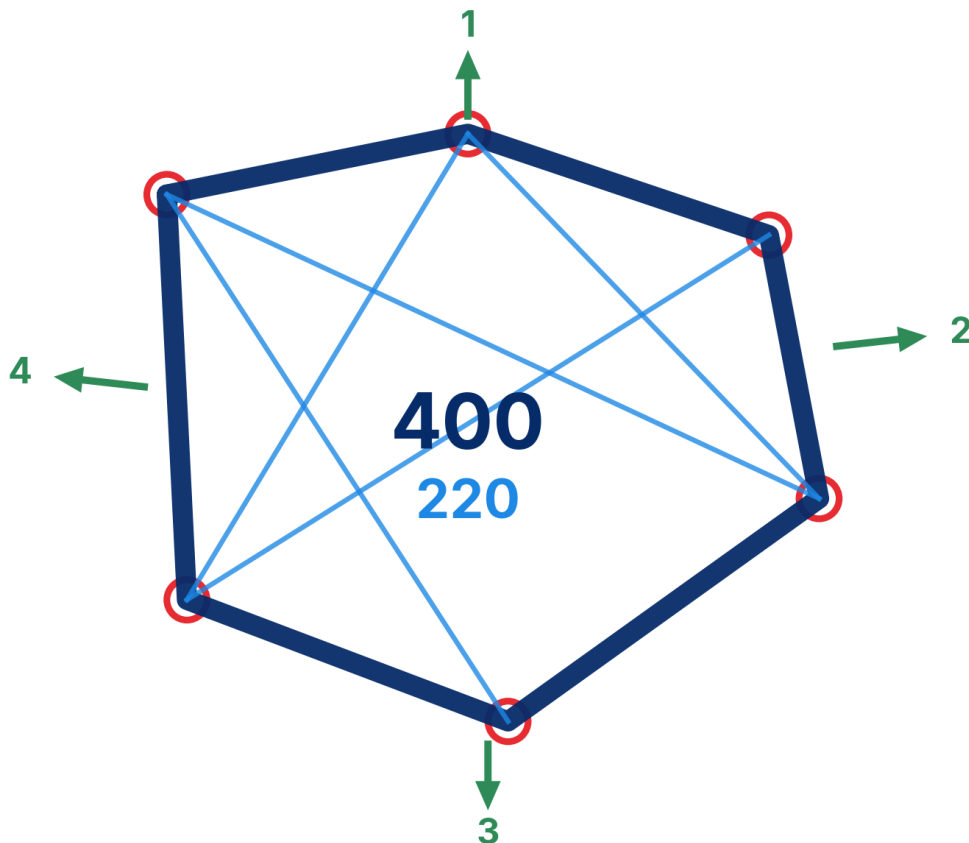
A reactor of approximately 1 GW is used as the principal planning unit. The preferred range for a serial unit is approximately 800-1,200 MW. Units of 600-800 MW may be used for the first phase if a mature smaller technology can materially accelerate the first commissioning.



Planning architecture: four Nuclear Energy Campuses with a combined capacity of approximately 14 GW.

At an average serial unit size of around 1 GW, approximately 13-14 new units will be required. The programme must be structured as fleet deployment: one principal standardised design, several parallel sites, early reservation of manufacturing slots and concurrent licensing.

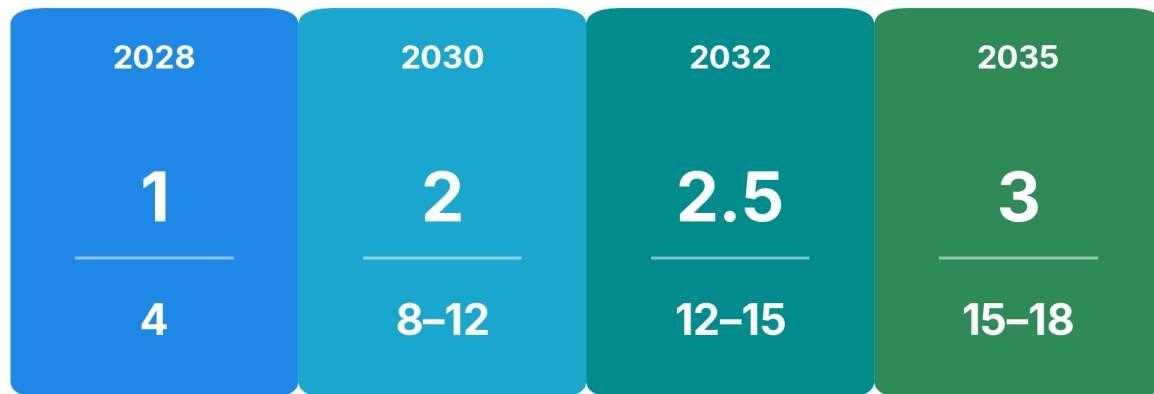
5 Grid, storage and the transitional gas bridge



Strategic topology: 400 kV as the National Backbone, 220 kV as the regional high-power network; the four external directions are designated by the numbers 1-4.

1 - northern direction: Georgia	2 - eastern direction: Azerbaijan, subject to appropriate conditions
3 - southern direction: Iran	4 - western direction: Turkey, subject to appropriate conditions

The storage system follows the trajectory: about 1 GW / 4 GWh by 2027-2028, 2 GW / 8-12 GWh by 2030, around 2.5 GW / 12-15 GWh by 2032, and at least 3 GW / 15-18 GWh by 2035.



Target trajectory for system BESS. The upper number is the year, the central number is power, and the lower number is energy capacity.

During the transition period 2028-2032, the system should have access to approximately 1.5-2 GW of modern high-efficiency CCGT with net efficiency of around 58-60% or higher under project conditions. By 2035, approximately 1 GW of the best CCGT capacity is retained as strategic reserve.

6 National ownership, GNI and national wealth



Self-reinforcing investment cycle. The stages are explained below.

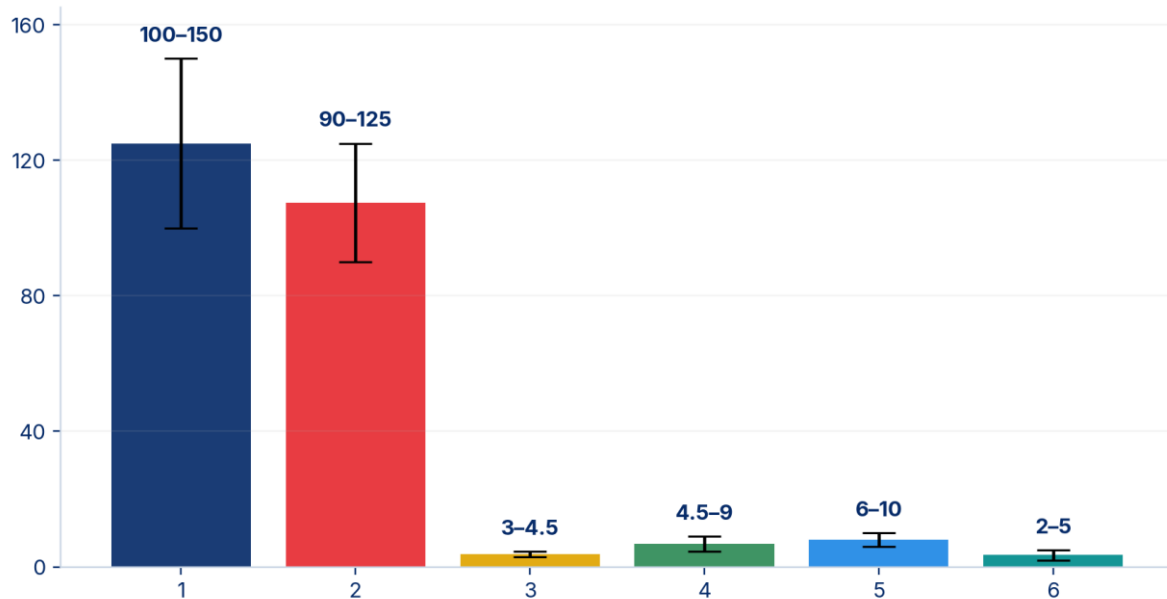
1 - national capital	2 - AI infrastructure
3 - global compute revenue	4 - profit and dividends
5 - new energy and industrial assets	6 - growth of national wealth

GDP measures the value produced within the country. Equally important for the state are GNI/National Income Retention and National Productive Wealth - the share of income generated and assets economically owned by Armenia.

GLOBAL TECHNOLOGY + GLOBAL MARKETS + NATIONAL ENERGY + NATIONAL EQUITY = NATIONAL WEALTH

Strategic AI infrastructure should be treated as a national productive asset. State or national equity participation does not mean operational management by ministries: Ownership ≠ Operations. The optimal model is a commercial SPV, a professional operator, global technology partners and global customers.

7 Investment scale and the role of the state



Indicative investment ranges. The numbering is explained below; values are in \$ billions.

1 - entire energy programme

3 - solar generation

5 - transmission backbone

2 - nuclear programme before full financing costs

4 - BESS

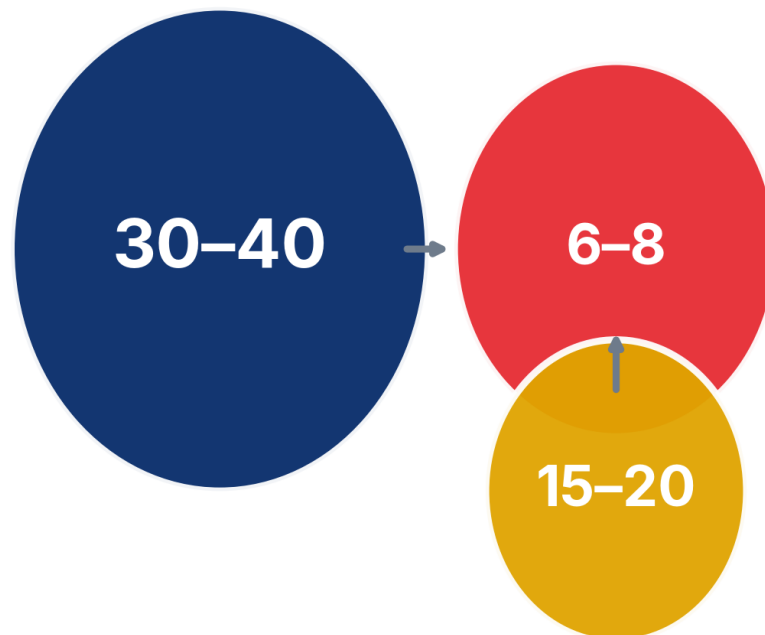
6 - international interconnections

Preliminary energy CAPEX is approximately \$100-150 billion before full financing costs. AI data centres and new industry are not included in this energy CAPEX. This is the investment scale of the economy, not the amount of state budget expenditure.

Financing should combine project finance, PPA, ECA, private capital, sovereign/national equity, institutional capital and selective state guarantees. Where supported by a commercially sound model, state AI CAPEX should be treated as an investment rather than current budget consumption.

8 Implementation, workforce and security

To manage the programme, the creation of a National Energy Transformation Authority (NETA) is proposed - a compact, professional national PMO with a direct Government mandate and the principle One Programme - One Master Plan - One Integrated Schedule.

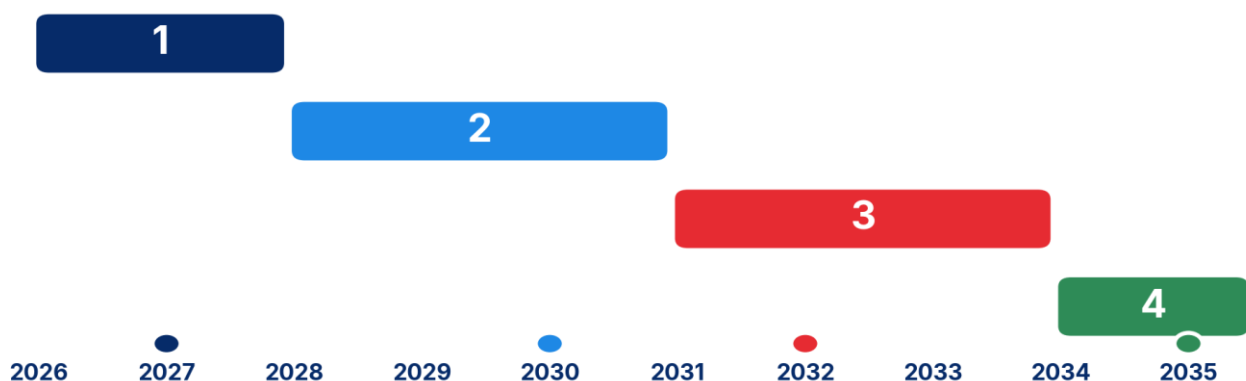


Workforce planning targets: total training/retraining, permanent nuclear operations and peak nuclear construction; values are in thousands of people.

- 1 - 30-40 thousand trained/retrained technical specialists
- 2 - 6-8 thousand specialists for operation and support of the nuclear complex
- 3 - 15-20 thousand workers in nuclear construction during peak years

The baseline grid reliability criterion is N-1; selective N-2 applies to critical assets. The system must withstand the sudden loss of the largest unit of approximately 1 GW through BESS, hydro/pumped storage, CCGT, interconnectors and controllable AI load.

9 Roadmap and principal risks



Four implementation phases for 2026-2035. The phases are explained below.

- | | |
|---|--|
| 1 - 2026-2027: Design, Decisions & De-Risking | 2 - 2028-2030: Bridge & Infrastructure Build-Out |
| 3 - 2031-2033: Nuclear & AI Scale-Up | 4 - 2034-2035: Full-System Transformation |

By the end of 2027, the programme must be organisationally and contractually launched. By 2030, the transition platform must be built - 4 GW of solar, 2 GW of BESS, a modern gas bridge and key 400-kV infrastructure. By 2032, the programme must demonstrate not merely one new reactor, but the ability to deliver serial rollout.

Five existential risks: delay to the nuclear programme; insufficient state execution capacity; misalignment between AI and energy; changes in AI economics; and GDP growth without commensurate growth in national wealth.

AMBITION MUST BE MAXIMISED. RISK MUST BE MANAGED.



PART II

STRATEGIC AND ECONOMIC MODEL

From electricity to compute, national income and productive wealth



National Value Added per MWh becomes one of the principal economic KPIs

10 Energy as a productive factor of the new economy

In the traditional energy model, electricity is treated as a utility product. In the AI economy, electricity becomes a primary productive resource that can be transformed into computing services, models, software and high-technology industrial products.

Armenia's strategic objective is not to maximise electricity exports as such, but to maximise the national value added created by each MWh. Electricity exports retain a balancing and commercial role, but are secondary to converting energy domestically into higher-value products.

ELECTRICITY -> COMPUTE -> AI PRODUCTS -> ADVANCED INDUSTRY

11 AI revenue model and macroeconomic scenarios

The working benchmark of 300 MW of AI $\approx$ \$20 billion of annual gross revenue is used as a scenario parameter. It is not a guaranteed market forecast. Every project FID requires a separate commercial model covering pricing, utilisation, refresh cycle, financing and customer concentration.

Indicator	Conservative	Central	Upside
AI power 2035	up to ~10 GW	~10 GW	>10 GW
Gross AI revenue	below \$650 billion	~\$650-700 billion	> \$700 billion
GDP target	~\$350 billion	~\$500 billion	> \$500 billion
Ownership	mixed	significant national share	expansion of national equity
Energy system	scales with demand	~21 GW	>21 GW with confirmed load

\$350 billion and \$500 billion are strategic target figures, not official macroeconomic forecasts. They must be recalculated annually in a dedicated Armenia Economic Transformation Model 2035.

12 GDP, GNI and National Productive Wealth

GDP measures value created within the country regardless of the nationality of the owner. If a data centre is located in Armenia, its local value added is included in GDP. However, repatriated profits affect national income and the balance of payments. The strategy therefore introduces three levels for measuring success.

Level	Key question	Strategic KPI
GDP	How much value is produced in Armenia?	\$350-500+ billion
GNI / Income Retention	How much income remains in the national economy?	National Income Retention Ratio
Productive Wealth	Which productive assets are owned by Armenia?	National Productive Asset Value

National ownership is particularly important in those parts of the value chain where the principal margin is generated. The country should not finance energy, grid, land and regulatory infrastructure if the entire equity upside of the computing business systematically remains outside Armenia.

13 Sovereign AI Infrastructure SPV

For major national AI projects, dedicated commercial SPVs are appropriate. The state or a national investment vehicle may hold a controlling or otherwise significant stake while operational management is entrusted to a professional team. The state does not need to finance 100% of the capital.

state or national-investor equity;
strategic/co-investor equity;
project debt and equipment financing;
long-term compute contracts and PPAs;
an independent Board and audited accounts;
a hardware-refresh reserve and limits on sovereign guarantees.

Core principle: State captures upside without absorbing unlimited downside.

14 National Transformation Fund

A portion of dividends and retained earnings from nationally owned AI assets should be converted into long-term national capital. A National Transformation Fund is therefore considered, with an investment mandate covering energy, the next wave of AI, education, science, industry and national intellectual property.

During the first 10-15 years, a significant share of new AI income should be reinvested rather than used to create permanent current-budget obligations. Technology-cycle excess returns should be converted into assets with multi-decade lives.

AI INCOME SHOULD BUILD ASSETS, NOT PERMANENT EXPENDITURE COMMITMENTS

15 Downstream AI and new industry

Ten GW of computing infrastructure creates a platform for higher levels of the value chain: model development, inference services, AI agents, engineering, fintech, medical AI, scientific computing, cloud services and software. The central working target assumes approximately \$50-80 billion of additional downstream AI value added by 2035.



In parallel, 2-2.5 GW of new industrial load should be used for deep processing of copper, molybdenum, special alloys, high-purity metals and other energy-intensive, high-value-added products. The central indicative contribution of new industry is approximately \$30-50 billion of GDP per year.

16 Demography and productivity

A high-productivity export economy weakens the traditional constraint of a small domestic market. The central demographic assumption of approximately 3.5 million people by 2035 is treated as a result of economic attraction: return of some citizens who have left the country, inflow of specialists and lower emigration pressure.

At \$500 billion of GDP and a population of 3.5 million, economic output reaches approximately \$143,000 per person. Even with 4 million residents, the same GDP corresponds to about \$125,000 per person.

PART III

DEMAND AND ENERGY BALANCE 2035

Physical model of load, generation, peak demand and firm capacity



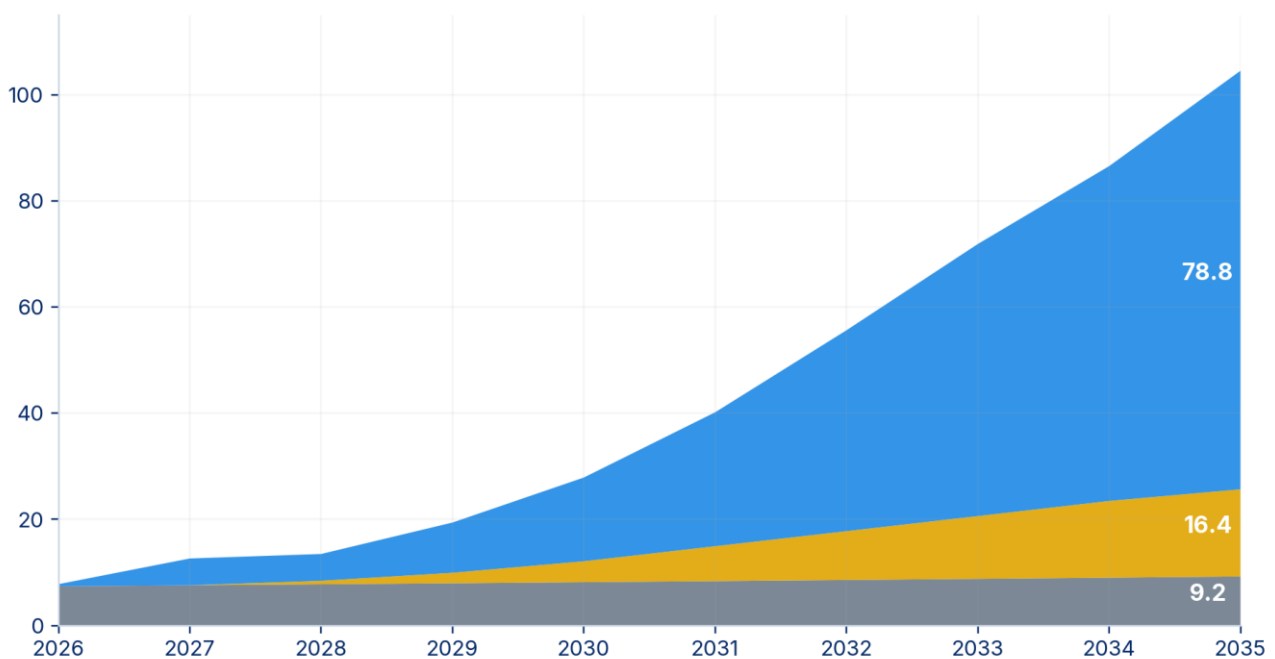
Energy is designed around confirmed economic demand

17 AI load trajectory

Year	AI, GW	AI, TWh
2026	0,05	0,394
2027	0,64	5,046
2028	0,64	5,046
2029	1,2	9,461
2030	2,0	15,768
2031	3,2	25,229
2032	4,8	37,843
2033	6,5	51,246
2034	8,0	63,072
2035	10,0	78,840

For AI energy-demand calculations, an average annual utilisation of 90% of installed capacity is used. A bankable model for each project requires separate load profiles and contractual utilisation assumptions.

18 Structure of final demand



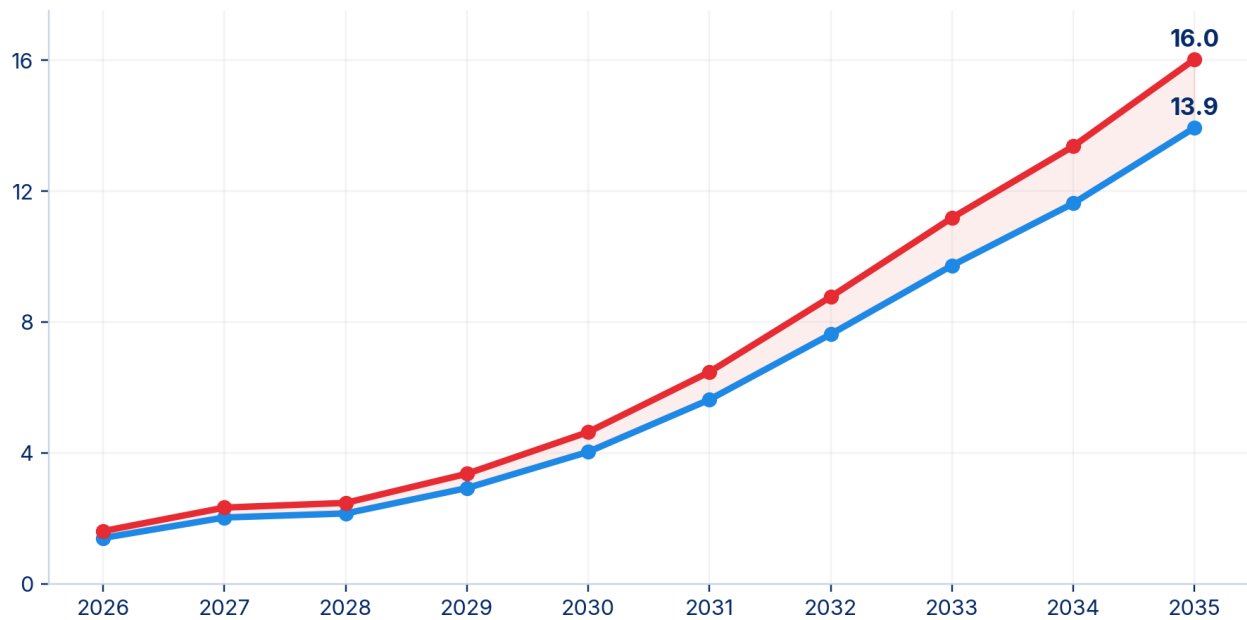
Growth in final domestic demand, 2026-2035; colours correspond to the traditional economy, new industry and AI.

Year	Traditional economy, TWh	New industry, TWh	AI, TWh	Total final demand, TWh	Gross generation, TWh
2026	7,400	0	0,394	7,794	8,418
2027	7,585	0	5,046	12,631	13,641

Year	Traditional economy, TWh	New industry, TWh	AI, TWh	Total final demand, TWh	Gross generation, TWh
2028	7,775	0,657	5,046	13,477	14,556
2029	7,969	1,971	9,461	19,401	20,953
2030	8,168	3,942	15,768	27,878	30,108
2031	8,372	6,570	25,229	40,171	43,385
2032	8,582	9,198	37,843	55,623	60,073
2033	8,796	11,826	51,246	71,868	77,618
2034	9,016	14,454	63,072	86,542	93,466
2035	9,242	16,425	78,840	104,507	112,867

To convert final demand into gross generation, a strategic allowance of 8% is used for system losses and own use. In the full 8760 model, this parameter must be replaced by a component-level calculation.

19 Peak and firm system requirement



Blue line - estimated system peak; red line - firm capability with a 15% reserve margin, GW.

By 2035, the estimated peak approaches 14 GW and the firm requirement approaches 16 GW. This is what drives the need for a large nuclear base, hydro, strategic CCGT and system flexibility.

2035: ~14 GW PEAK -> ~16 GW FIRM CAPABILITY

20 Gross generation



Required gross generation, 2027-2035, TWh.

Growth from approximately 14 TWh in 2027-2028 to approximately 113 TWh in 2035 represents an almost complete change in the scale of Armenia's national power system within a single decade.

21 The 8760 model as the source of truth

All subsequent FIDs must be based on a single Official Armenia Energy System Model 2035. It must model every hour of the year, outages, solar profiles, hydrology, BESS, pumped storage, gas, international flows, transmission constraints, AI load, industrial load and reserve requirements.

AC load flow and N-1 / selective N-2;
 transient and voltage stability;
 short-circuit and reactive power;
 LOLE/EENS and reserve margin;
 ELCC for BESS and solar;
 economic dispatch and fuel balance;
 stress cases - nuclear delay, low hydro, gas disruption, interconnector outage.

22 AI demand response as a system asset

At 10 GW of AI, even 5% of controllable load provides about 500 MW, while 10% provides about 1 GW. This is comparable to the largest serial reactor and can be critically valuable during the first minutes and hours of a system disturbance.

Critical SLA workloads must not be interrupted. Flexibility is provided by training workloads, batch computing and other deferrable tasks. The system operator requests an MW response, while the data centre's internal scheduler determines which workloads to adjust.

23 Secondary use of heat

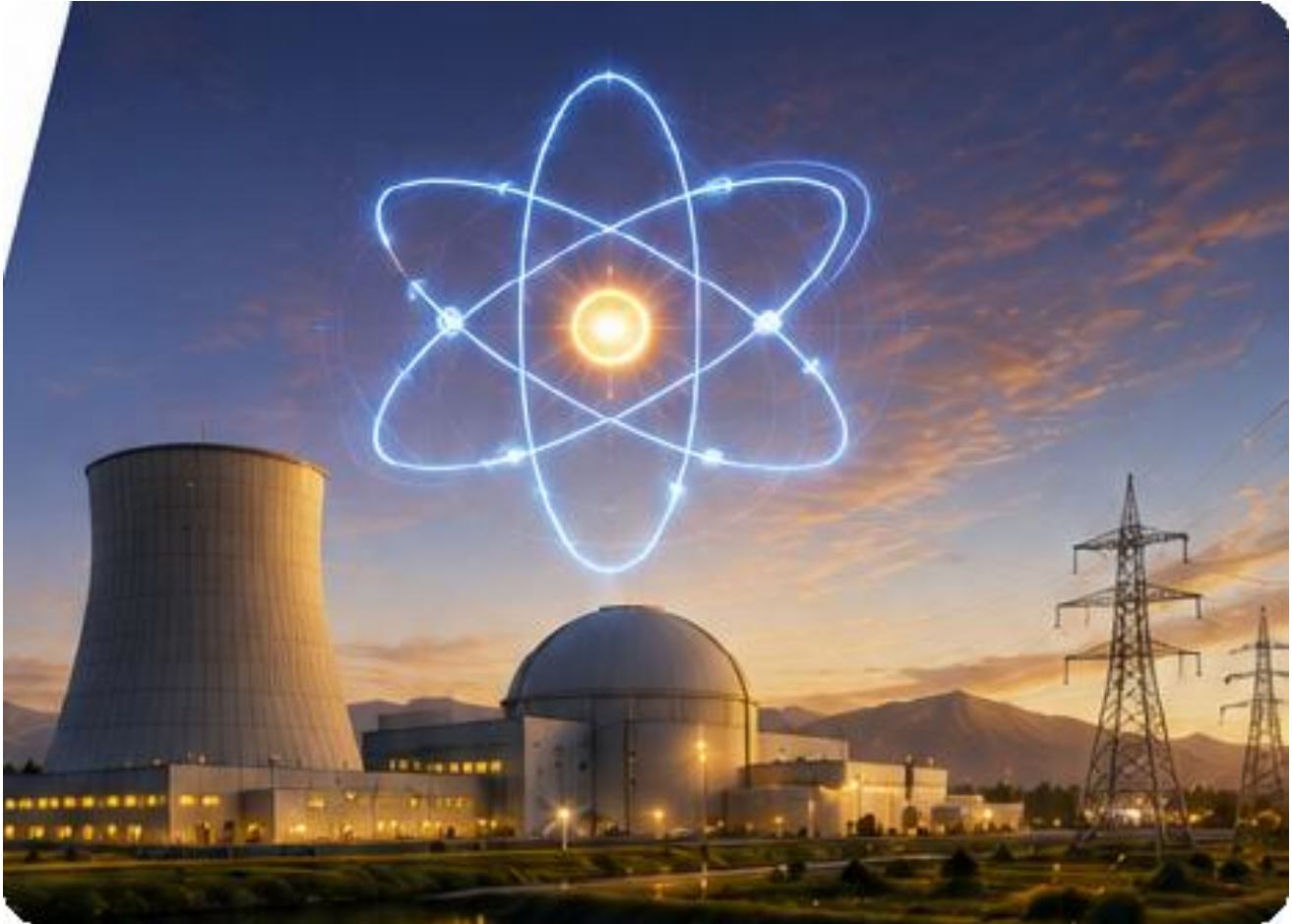
Waste heat from AI data centres, CCGT and selected industrial facilities should be treated as a co-product for greenhouses, crop drying, low-temperature heat supply and industrial processes. Economic assessment must use correct system boundaries: this concerns cascading use of energy and greater useful utilisation of the primary resource, not thermodynamic efficiency above 100%.



PART IV

14-GW NUCLEAR PROGRAMME

Fast-spectrum fleet, closed fuel cycle, 1-GW serial units and several parallel campuses



Not to build one NPP, but to create Armenia's nuclear industry

24 Status of the target

Approximately 14 GW of nuclear capacity by 2035 is a system requirement of the central scenario. This must be distinguished from the contracted construction schedule. Actual CODs depend on technology, licensing, sites, supply chain, financing and FID.

For programme management, the System Requirement Schedule and Contracted Construction Schedule are maintained in parallel. The difference between them is called the Nuclear Capacity Gap.

25 Technology principle

Fast-spectrum / fast-neutron reactors combined with a closed nuclear fuel cycle form the basis of the target system. Mature technology families are acceptable if they meet criteria for safety, industrial readiness, serial deployment, fuel availability and a realistic licensing pathway.

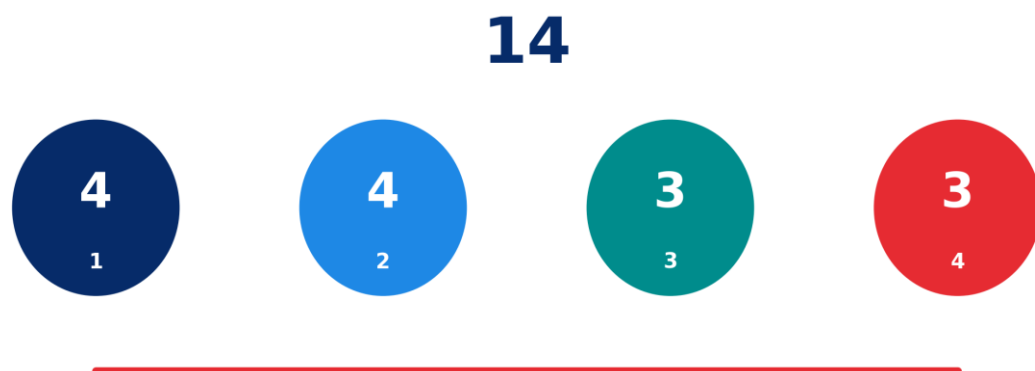
The strategy is supplier-neutral: no manufacturer, country or specific commercial reactor project is preselected. The technology competition must compare the outcome of the full fleet, not simply the appeal of an individual reactor.

26 Serial unit size

The principal planning unit is approximately 1 GW of electrical capacity. The preferred range is 800-1,200 MW. Units of 600-800 MW may be used in the first phase if they can materially accelerate deployment of a mature technology.

The advantage of a larger unit lies primarily in economies of scale: lower specific CAPEX, fewer units, and less infrastructure and O&M per unit of capacity. This should not be confused with thermodynamic efficiency, which depends on the technology and cycle parameters.

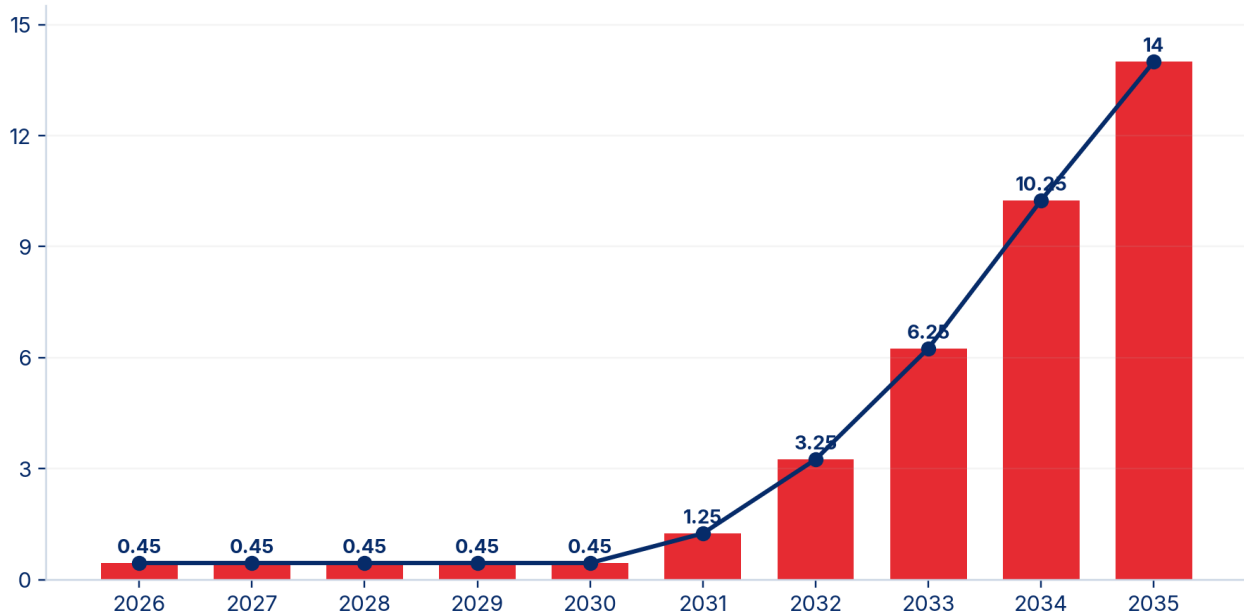
27 Nuclear Energy Campus architecture



A preliminary architecture of 3-4 Nuclear Energy Campuses, each of approximately 3-4 GW, should be assessed. Specific sites are to be determined through a national siting study covering seismicity, geology, water, grid access, environmental assessment and physical security.

Deployment across several sites reduces construction concentration risk, provides geographic diversification and enables parallel construction.

28 Target commissioning trajectory



System-required trajectory of total nuclear capacity, GW.

Year	Total nuclear capacity, GW	Status
2026	~0,45	existing NPP
2027	~0,45	technology/siting
2028	~0,45	licensing/early works
2029	~0,45	construction of the first series
2030	~0,45	full construction
2031	~1,25	first new unit, accelerated target
2032	~3,25	fleet ramp-up
2033	~6,25	serial commissioning
2034	~10,25	intermediate strategic milestone
2035	~14	central target

A 2031 target for the first new fast-spectrum block is exceptionally aggressive. If the first COD slips to 2032-2033, contingency measures must automatically increase gas, BESS, imports and solar and/or defer the COD of some major loads.

29 Fleet construction and standardisation

The programme cannot be executed sequentially - first Unit 1 and only then a decision on Unit 2. By the time the first reactor enters service, subsequent units must already be at different stages of construction, manufacturing and licensing.

one principal reactor platform for the first mass-deployment wave;
 maximum commonality of the reactor island and key systems;
 a single fuel strategy;
 repeatable documentation and training;
 framework procurement and manufacturing-slot reservation;
 strict design freeze and change control.

FIRST REACTOR = FIRST PRODUCT OF A WORKING FLEET PROGRAM

30 Closed fuel cycle and the energy resource in spent fuel

A fast reactor alone does not enable repeated use of nuclear material. The strategic benefit requires a closed/recycling fuel cycle. Spent fuel from the existing NPP cannot be loaded directly into a new fast reactor: characterisation, reprocessing/recycling, fuel fabrication, safeguards and international compliance are required.

Based on previously collected data, 2,484 spent-fuel assemblies were located at the NPP site at the beginning of 2024. A rough planning estimate of heavy-metal mass is approximately 285-300 tonnes; the exact figure must be confirmed by the operator and regulator.

Scenario utilisation of energy potential	Indicative electrical energy	Equivalent at 14 GW and 90% capacity factor
~50%	~1,300 TWh	~12 years
~70%	~1,850 TWh	~17 years
~90%	~2,400 TWh	~22 years

This is a high-level physical scenario estimate, not a currently commercially available fuel programme. Decision-making requires a dedicated Metsamor Spent Fuel Energy Potential Study.

31 CAPEX and cost of capital

For the first units, a conservative planning range of approximately \$6-8 billion/GW is retained. For the serial phase, the programme should aim for \$4-6 billion/GW or lower where supported by technology and contracts. For approximately 13.5 GW of new capacity, initial reactor-fleet CAPEX is about \$81-108 billion; including development, licensing, first cores, training, security and contingency, a reasonable programme envelope before financing is approximately \$90-125 billion.

Overnight/EPC CAPEX and Total Financed Investment Cost must be shown separately. In capital-intensive nuclear projects, WACC and the construction period can add tens of percent to total cost.

32 Demand-backed nuclear financing

Large AI clusters create anchor demand. The financing logic should be: confirmed major load -> long-term PPA -> bankable cash flow -> project finance -> FID for the next unit.

For a unit of approximately 1 GW at a 90% capacity factor, annual generation is about 7.9 TWh. Long-term AI PPAs allow serial construction to be linked to real contracted demand.

33 Contingency - if less than 14 GW is commissioned by 2035

If the actual nuclear fleet in 2035 is, for example, 8-10 GW, the strategic objective is not cancelled. The gap is temporarily covered by a combination of modern CCGT, imports, accelerated solar/BESS, AI demand response and adjustment of major-load CODs. Construction of the remaining nuclear capacity continues.



PART V

GRID, STORAGE AND FLEXIBLE GENERATION

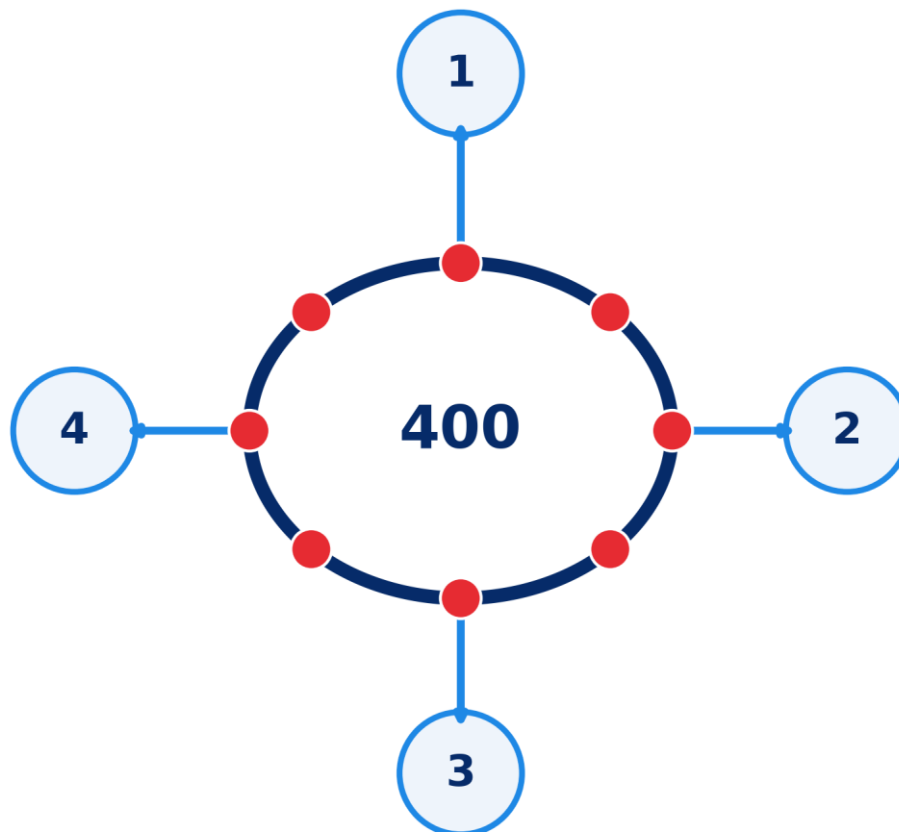
400-kV backbone, BESS, pumped storage, solar, hydro, modern gas and international integration



Power Ready Before Compute Ready

34 400 kV - National Energy Backbone

With 14 GW of nuclear, 5 GW of solar and 10 GW of AI, the grid must carry multi-GW power flows between regions. 400 kV becomes the national backbone and 220 kV the regional high-power network. The principal geometry is North-South + East-West.



Exact routes and ratings should not be politically fixed in advance. Armenia National Grid Master Plan 2035 must first be completed, including 8760 flows, AC load flow, N-1/selective N-2, transient/voltage stability, short circuit, reactive power, loss optimisation and economic transmission planning.

35 AI & Hyperscale Data Center Grid Code

Large loads above 100 MW require a dedicated connection study. For facilities of around 300 MW and above, two physically independent supply routes, a dedicated substation, local UPS/BESS, telemetry, controlled load shedding and pre-agreed restoration protocols are appropriate.

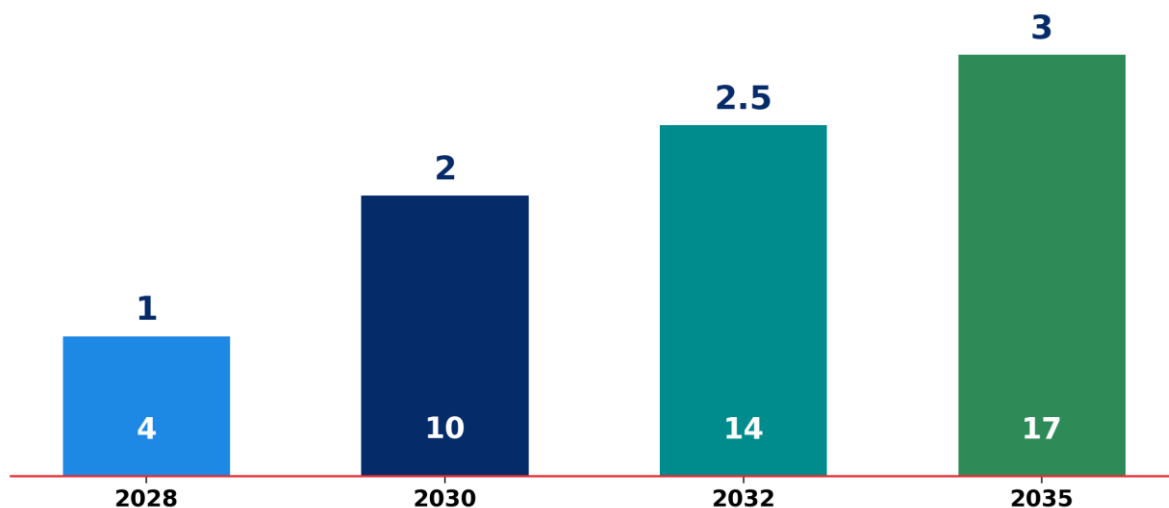


Five mandatory readiness gates. Explained below.

1 - confirmed customer/load	2 - PPA / allocation of generation	3 - transmission backbone ready
4 - local UPS/BESS and redundancy	5 - compute COD	

36 BESS

BESS performs several functions simultaneously: fast frequency response, contingency reserve, voltage support, solar integration, black start, energy shifting and congestion relief. Commercial arbitrage must not consume 100% of battery capability if this compromises the security reserve.



The 3-GW figure for 2035 is the central target, not a ceiling. The final volume must be confirmed through 8760/ELCC/LOLE/EENS and network studies.

37 Vorotan Pumped-Storage Hydropower Plant

Vorotan is considered as a strategic energy hub: existing hydropower, potential pumped storage, a 400-kV node, Syunik metallurgy, solar and the connection with Iran. The first pumped-storage stage is approximately 300-400 MW; potential expansion to about 1 GW is subject to feasibility confirmation.

The feasibility study should compare 6-, 8- and 12+ hour storage options and should not assume unverified efficiency figures in advance. Criteria include geology, hydrology, environmental impact, CAPEX, cycle efficiency, flexibility value and black-start capability.

38 Solar generation



Trajectory: approximately 1.1 GW in 2026, 1.5 in 2027, 2 in 2028, 3 in 2029, 4 in 2030 and about 5 GW in 2035. At a 22% capacity factor and 95% utilisation, 1 GW of solar delivers approximately 1.83 TWh of useful annual generation; 5 GW delivers about 9.15 TWh.

Solar is not counted one-for-one as firm capacity. Its system value increases when combined with BESS, pumped storage, transmission and flexible AI demand.

39 Hydropower generation

The high-level target of approximately 1 GW of system-forming hydro applies to primary generation and excludes pumped storage. Priorities are modernisation of existing hydropower plants, a national hydro audit, improved reliability and the ability to provide rapid frequency support and black start.

40 Modern gas generation

The system should not routinely rely on technologically obsolete gas generation with efficiency around 33%. The target standard for modern CCGT is approximately 58-60% net efficiency or higher under project conditions. Existing sites, gas supply, water infrastructure and grid connections may be reused through repowering.

During the 2028-2032 transition period, approximately 1.5-2 GW of modern available gas capacity should be maintained, including efficient existing assets, repowering and new capacity where required. By 2035, approximately 1 GW is retained as strategic reserve.

If the aggressive nuclear schedule is achieved, the central peak gas requirement for the power sector may be approximately 1.1 bcm/year. If nuclear is delayed, actual requirements will be higher; gas-security planning must therefore include a contingency envelope.

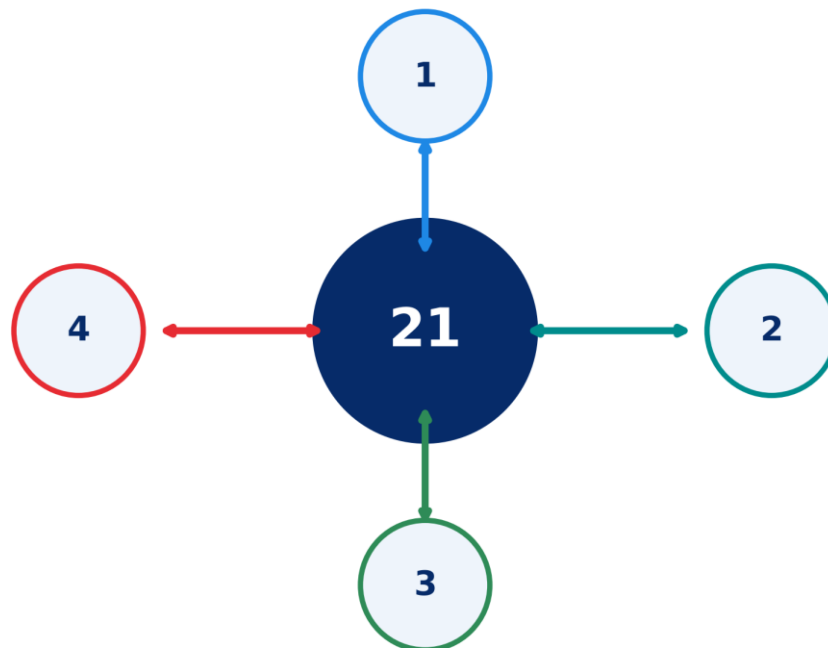
41 Gas diversification

The strategic architecture includes a direct long-term supply route from Iran and a potential route from Azerbaijan subject to appropriate political and commercial conditions, together with open and non-discriminatory access to transport infrastructure. No single source should become a single point of failure.

42 International integration

Four potential directions are Georgia, Iran, Turkey and Azerbaijan. International interconnectors increase security, export, import and transit potential, but supplement rather than replace Armenia's own firm generation.

A reliability margin must be preserved on cross-border lines: strategic resilience is more important than operating interconnectors continuously at 100% commercial utilisation.



PART VI

FINANCING AND INVESTMENT MODEL

How to mobilise \$100-150 billion of energy CAPEX without turning the programme into a state-budget project

100-150

90-125

The state creates bankability and retains strategic upside

43 Preliminary CAPEX

Area	Indicative CAPEX, \$ billion	Note
Nuclear programme	~90-125	programme CAPEX before financing
Solar ~5 GW	~3-4,5	predominantly private/project finance
CCGT / repowering	~1,2-2,5	transition reserve
BESS 15-18 GWh	~4,5-9	cost is changing rapidly
Pumped storage	~0,8-1,5+	after feasibility
Hydro modernization	~0,3-0,8	following audit
Grid	~6-10	scale: 21 GW / 14 GW peak
Interconnectors	~2-5	depends on the routes
Digital grid / cyber	~0,3-0,7	SCADA/EMS/PMU/SOC
Studies / PMO / licensing	~0,3-0,8	project development capability

INDICATIVE: ~\$100-150 BILLION OF ENERGY INVESTMENT BY 2035

The ranges should not be mechanically added together as an approved budget: several elements overlap, some assets already exist, and costs will be refined after FEED/feasibility studies. AI and industrial CAPEX are outside this energy envelope.

44 State as mobilizer, not sole payer

The state should finance and guarantee primarily those elements that create a system-wide enabling effect: the grid, project preparation, regulation, selected strategic infrastructure assets and selective guarantees. Solar, a substantial share of BESS, AI and industry should attract private/project capital.

45 PPAs and anchor demand

The key to bankability is long-term contracted demand. AI and large industry should support generation build-out through PPA/take-or-pay structures. Nuclear financing is particularly sensitive to stable cash flow and the cost of capital.

46 Sovereign AI investment

National participation in AI is not an alternative to international capital. The optimal formula is National Ownership + Global Capital + Global Technology + Global Customers. State capital can earn a commercial return where project risk is isolated through an SPV and contractually limited.

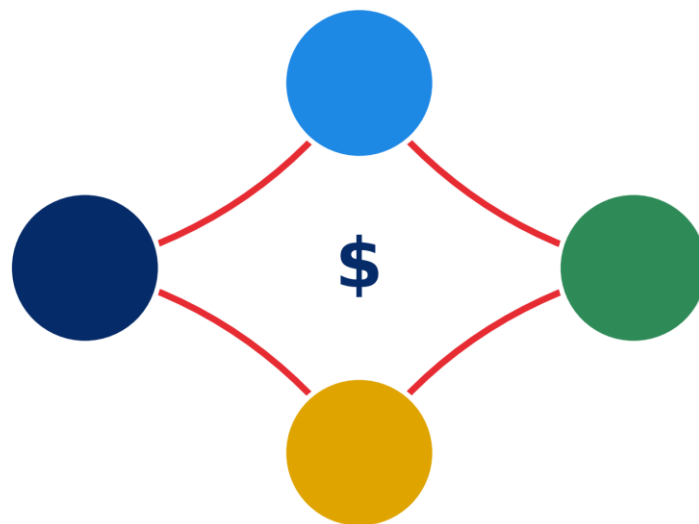
project-level debt and equity limits;
customer commitments / pre-sales;
hardware refresh reserve;
vendor guarantees;
a limit on total sovereign exposure;
audited accounts and an independent Board.

47 Sovereign Exposure

A dedicated Total Sovereign Exposure KPI should aggregate direct public debt, guarantees, contingent liabilities, take-or-pay commitments and minimum revenue guarantees. The scale of assets built and the scale of state risk are not the same thing.

48 National Transformation Fund

The Fund should receive a portion of dividends from nationally owned AI assets and invest them in the next wave of productive assets. This is the mechanism for converting the short technology cycle of GPUs into long-lived assets in nuclear power, the grid, science and industry.



PART VII

INSTITUTIONS AND IMPLEMENTATION

NETA, a single model, project registers, decision gates and personal accountability



One Program - One Master Plan - One Integrated Schedule

49 National Energy Transformation Authority

NETA is established as a compact professional PMO with a direct Government mandate. It does not replace ministries, the regulator, the system operator or the Ministry of Finance; its function is to integrate the single national programme.

Program Office	Principal functions
Nuclear	14-GW fleet, siting, technology, fuel cycle, financing
Grid	400/220 kV, corridors, interconnectors, Grid Master Plan
Storage & Flexibility	BESS, pumped storage, ancillary services, demand response
Thermal & Fuel	CCGT, repowering, gas diversification
Renewables	solar, distributed generation, integration
AI & Industrial Power	load pipeline, Grid Code, PPA, Power Ready
Finance & Investment	project finance, SPV, guarantees, sovereign exposure
Digital Energy	8760 model, digital twin, data, dashboard

50 Single mathematical model

There must not be a situation in which the nuclear programme, the grid, the economy and investors use different demand forecasts. NETA maintains the Official Armenia Energy System Model 2035 and publishes an agreed scenario set annually.

51 Strategic Power Demand Register

Each major load project is classified as Confirmed, Probable or Strategic. MW, TWh, location, COD, financing, PPA, grid connection and responsible party are recorded for each project. This protects the country against both underbuilding and overbuilding.

52 National Energy Project Pipeline

All generation, grid and storage projects pass through the stages: Concept -> Feasibility -> Development -> Bankable/FID-ready -> Under Construction -> Commissioned. An announcement or MoU is not treated as firm future capacity.

53 Decision Gates

Gate	Purpose
G0	Strategic Need
G1	Pre-Feasibility
G2	Site & Grid
G3	Commercial Structure
G4	FEED / Technical Freeze

Gate	Purpose
G5	Financing
G6	FID
G7	Construction
G8	COD / Acceptance

Irreversible CAPEX is not committed until critical conditions have been resolved. Reversible enabling decisions - studies, land reservation, corridors and licensing preparation - should, however, be taken rapidly.

54 Integrated Master Schedule and critical path

A single master schedule shows AI COD, industrial COD, nuclear, CCGT, solar, BESS, grid, interconnectors and pumped storage. If a data centre is ready before its substation, the project is not in fact ready.

Every critical item has an owner, deadline, risk, mitigation and escalation procedure. Key long-lead items include nuclear equipment, 400-kV transformers, HVDC, pump-turbines, switchgear and BESS PCS.

55 Personal accountability and governance rhythm

Each major project should have one Project Director accountable for schedule, budget, risk and decisions. Weekly Project Reviews, Monthly Programme Reviews and Quarterly Government Reviews provide different levels of control without micromanagement.

56 First 100 days

1. establish NETA and appoint its leadership;
2. approve the official 2035 demand scenario;
3. launch the 8760 model and National Grid Master Plan;
4. start the nuclear technology/siting process;
5. approve BESS Phase I;
6. launch Vorotan feasibility;
7. conduct the gas fleet audit;
8. establish the Strategic Power Demand Register;
9. approve the Large AI Load Grid Code;
10. develop the standard PPA framework;
11. create the Integrated Master Schedule;
12. launch the workforce census.

PART VIII

WORKFORCE, ENGINEERING AND SCIENTIFIC BASE

30-40 thousand trained specialists and a national engineering capability of Armenia's own

30-40

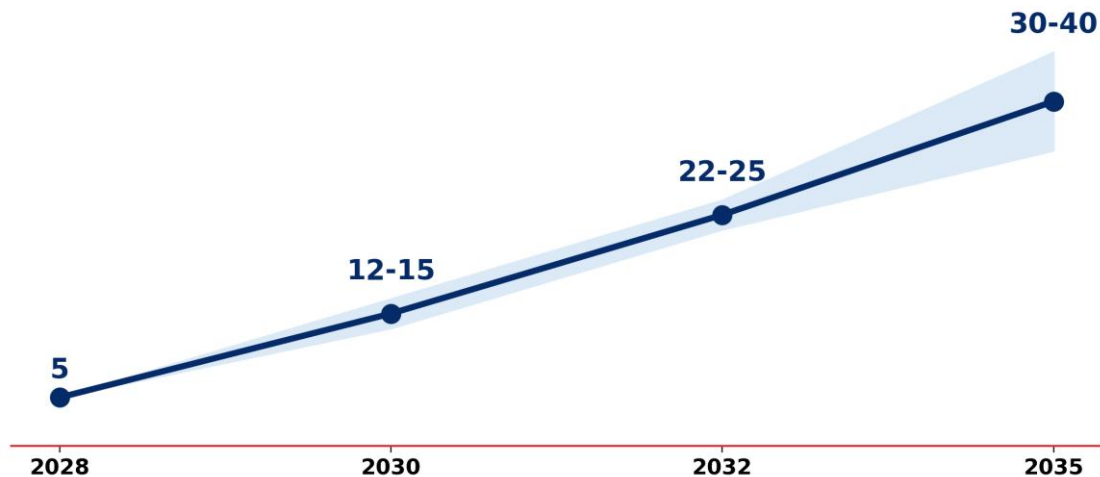
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2

3

Equipment can be purchased. Capability must be built.

57 Scale of the workforce programme



By 2035, approximately 30-40 thousand specialists at different levels must be trained or retrained. This does not mean 40 thousand permanent jobs solely in energy: part of the workforce will be employed in construction, industry, AI infrastructure and contractor organisations.

58 Nuclear operations and construction

Permanent operation and support of a 14-GW nuclear complex may require approximately 6-8 thousand highly qualified workers. During peak years, simultaneous construction at several campuses may require approximately 15-20 thousand construction workers and installation specialists.

59 Three levels of training

Level	Focus
University	nuclear, power systems, materials, automation, cybersecurity
Technical College	electricians, high-voltage technicians, instrumentation, NDT, HVAC
Apprenticeship	nuclear-grade welding, pipefitting, construction trades, commissioning

A highly skilled nuclear-grade welder or NDT specialist can be as scarce and important to the programme as an engineer with a master's degree. TVET is therefore no less important than the university system.

60 Nuclear Training Academy

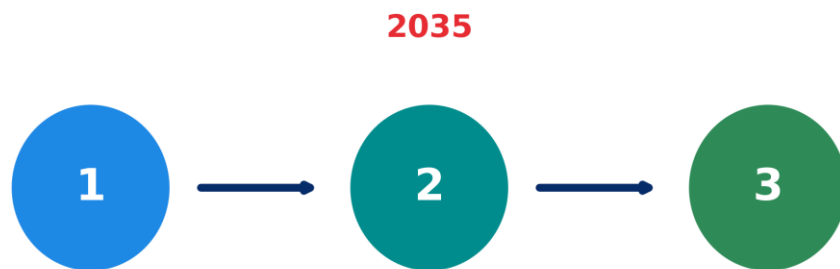
Before the first new unit is commissioned, a Nuclear Training Academy must be established with full-scope simulators, radiation protection, maintenance, I&C, emergency response and cybersecurity training. Operators begin training years before fuel loading.

61 National Engineering Centres

National Power System Studies Centre - load flow, stability, LOLE/EENS, digital twin;
 National Welding & NDT Centre - certification and nuclear-grade QA;
 Nuclear Materials Laboratory - corrosion, radiation effects, fuel/material studies;
 AI Infrastructure & Energy Engineering programme - HV, UPS, BESS, liquid cooling, data-centre architecture.

62 Knowledge Transfer

Every major technology/EPC contract must include a measurable Training & Knowledge Transfer Plan: number of specialists trained, national instructors created, documentation transferred and functions localised. A generic reference to technology transfer without KPIs does not constitute fulfilment.



PART IX

ENERGY SECURITY AND RESILIENCE

N-1, selective N-2, black start, cyber, strategic spares and system mission continuity



The system must be designed so that the country continues to function on a bad day

63 National Energy Security Design Basis

In 2026, an official list of design-basis events must be approved: loss of the largest reactor, a 400-kV line, a key substation, an interconnector, BESS, a gas route, a control centre, telecoms, a major cyberattack, earthquake, extreme weather and total blackout.

64 Defense in Depth



Seven layers of response to a major system imbalance. Explained below.

1 - automatic regulation and inertia

3 - hydro / pumped storage

5 - international import

7 - controlled load shedding as the last resort

2 - BESS

4 - CCGT

6 - AI demand response

65 N-1 and selective N-2

N-1 becomes a mandatory Grid Planning Criterion for new system-forming assets. Selective N-2 applies to Nuclear Energy Campuses, the largest AI clusters, control centres, key 400-kV nodes and selected interconnectors.

66 Largest Single Contingency - approximately 1 GW

With a serial reactor of around 1 GW, the system must immediately stabilise the loss of 1 GW of generation. The first seconds are covered by BESS; then hydro/pumped storage; then CCGT and imports; in parallel, Flexible Compute Reserve may be activated.

67 Black-start architecture

Several geographically independent black-start islands are required, using hydropower, pumped storage, BESS and specially prepared CCGT. The target principle is the independent ability to begin restoration from the north, centre and south and subsequently synchronise the islands.

68 Control centres and telecoms

A 21-GW system must have a Primary National Control Center and a fully functional Secondary/Emergency Control Center in a different geographic area and on independent infrastructure. Critical functions use a dedicated Energy Telecommunications Backbone along physically independent routes.

69 Cybersecurity by Design

IT and OT are segregated;
Zero Trust and least privilege;
24/7 Energy SOC;
offline/immutable backups;
supplier cybersecurity and controlled remote access;
regular red-team and recovery exercises;
safe operation does not depend on external cloud services.

70 Strategic Spares

A National Strategic Transformer Reserve and Critical Spare List should be established for 220/400-kV transformers, circuit breakers, protection systems, bushings, BESS PCS, critical pumps and control components. For equipment with multi-year lead times, the strategy of “if it fails, we will order a new one” is unacceptable.

71 Seismicity, water and climate

All critical assets undergo site-specific seismic hazard assessment and geotechnical qualification. Water Security Plans are prepared for nuclear facilities, CCGT and data centres. Climate resilience addresses extreme heat/cold, wildfire, drought, flooding, snow and icing.

72 National exercises

At least once a year, National Energy Resilience Exercises should be conducted, including cyber incidents, gas disruption, interconnector outage, 1-GW generation loss and simulated total-system restoration on the National Digital Twin.

PART X

ROADMAP 2026-2035 AND NATIONAL RISK REGISTER

Annual milestones, critical paths, early warnings and pre-planned mitigation



Identify Early - Quantify - Mitigate - Preserve Optionality

73 Four implementation phases



1 - 2026-2027: Design, Decisions & De-Risking

3 - 2031-2033: Nuclear & AI Scale-Up

2 - 2028-2030: Bridge & Infrastructure Build-Out

4 - 2034-2035: Full-System Transformation

74 H2 2026 - organise

approve the 2035 strategic architecture;
 establish NETA and the Integrated Master Schedule;
 launch the National Grid Master Plan;
 begin nuclear technology screening, siting and fuel-cycle studies;
 confirm BESS Phase I at approximately 1 GW / 4 GWh;
 launch Vorotan feasibility and the gas fleet audit;
 begin the workforce census and training programme.

75 2027 - year of irreversible strategic decisions

nuclear technology down-selection;
 initial 2-4 Nuclear Campus candidates;
 licensing framework;
 long-lead procurement reservations;
 Grid corridors;
 gas transition programme;
 first binding AI/PPA structures;
 BESS construction.

If fundamental decisions slip into 2028-2029, the 2035 target begins to move physically out of reach.

76 2028-2030 - transition platform

By 2030: approximately 2 GW of AI, 4 GW of solar, 2 GW / 8-12 GWh of BESS, a modern gas bridge, the first major 400-kV infrastructure and full-scale construction of the first nuclear series.

77 2031-2033 - scale nuclear and AI

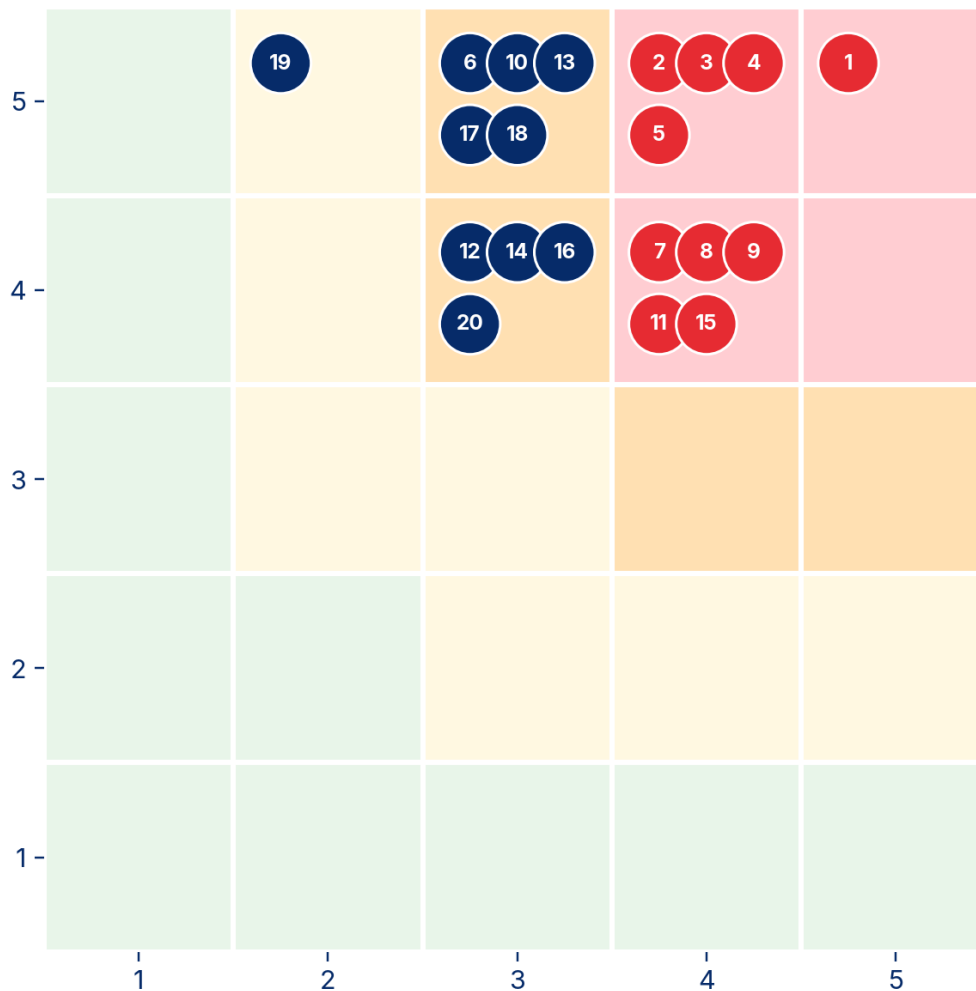
AI milestones: 3.2 GW in 2031, 4.8 GW in 2032 and 6.5 GW in 2033. Nuclear: first accelerated COD around 2031, approximately 3-3.5 GW total by 2032 and around 6 GW by 2033. By 2032, serial rollout must have been demonstrated.

78 2034-2035 - full transformation of the central scenario

2034: approximately 8 GW of AI and around 10 GW of nuclear. 2035: approximately 10 GW of AI, 14 GW of nuclear, 5 GW of solar, ≥ 3 GW of BESS, around 21 GW of generation and a central economic target of approximately \$500 billion GDP.

79 Critical paths

Critical Path	Key sequence
Nuclear	technology -> siting -> licensing -> long-lead -> construction -> fleet COD
Grid	study -> corridor -> land -> transformer -> construction -> energisation
AI	customer -> PPA -> power allocation -> grid -> local resilience -> compute COD
Workforce	skills forecast -> training -> certification -> operating teams
Finance	commercial structure -> PPA -> debt/equity -> financial close -> FID



80 Top-20 Risk Register

#	Risk	P	I	Score
1	Delay to the nuclear programme	5	5	25
2	Insufficient maturity of fast-spectrum technology	4	5	20
3	Insufficient state execution capacity	4	5	20
4	Misalignment between AI and energy	4	5	20
5	Financing / high WACC	4	5	20
6	Decline in AI economics / GPU pricing	3	5	15
7	Grid delivery delay	4	4	16
8	Long-lead equipment bottlenecks	4	4	16
9	Workforce shortage	4	4	16
10	Weak governance of state AI ownership	3	5	15
11	GPU obsolescence	4	4	16
12	Customer concentration	3	4	12

#	Risk	P	I	Score
13	Insufficient gas bridge in the event of nuclear delay	3	5	15
14	Storage gap	3	4	12
15	CAPEX inflation	4	4	16
16	Land/corridor delays	3	4	12
17	Geopolitical risk	3	5	15
18	Cyber disruption	3	5	15
19	Seismic/natural hazards	2	5	10
20	Overbuilding / underbuilding	3	4	12

81 Five existential risks

1. We fail to build the nuclear programme at the pace required by the economy.
2. The state governance system cannot manage the parallel delivery of projects at this scale.
3. AI and energy develop out of sequence, creating a Power Readiness Gap or stranded assets.
4. AI economics changes faster than the investment model is updated.
5. Armenia creates very large GDP but fails to accumulate commensurate national wealth and national income share.

82 Stress Tests

Nuclear schedule: -1 / -2 / -3 years;

AI revenue: lower pricing, lower utilization, faster hardware obsolescence;

Gas security: loss of one source and higher bridge requirement;

Grid: delay of critical corridor/transformer;

GDP/GNI: lower value added and lower national ownership;

Financing: higher WACC and delayed financial close.

For each stress case, the response is defined in advance: additional gas, BESS, imports, adjustment of AI COD, adjustment of FID, an increased capital buffer or a change in ownership structure.

83 Risk ownership and monthly review

Each strategic risk has one Risk Owner. NETA reviews the Top 20 every month, including current score, trend, velocity, mitigation and deadline. Commercial projects have predefined Kill Criteria so that sunk cost does not dictate continuation of inefficient investment.

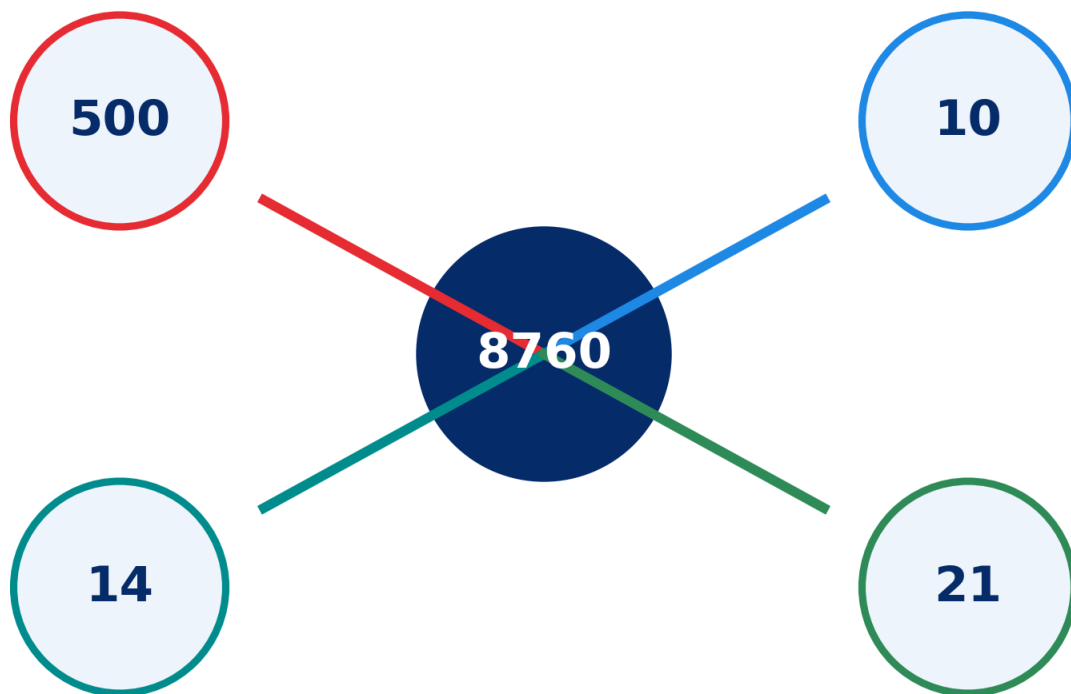
A SERIOUS STRATEGY DOES NOT PROMISE THAT EVERYTHING WILL GO ACCORDING TO PLAN. IT KNOWS IN ADVANCE WHAT TO DO WHEN THE PLAN DEVIATES.



PART A

APPENDICES

Numerical assumptions, tables, studies, KPIs and sources



All key figures must be verifiable and updated annually

Appendix A1. Principal numerical assumptions

Parameter	Central assumption
AI 2035	10 GW
AI utilization	90%
Traditional demand growth	2.5%/year
New industry utilization	75%
System losses / own use	8% strategic assumption
Reserve margin	15%
Solar capacity factor	22%
Solar useful utilization	95%
New nuclear capacity factor	~90%
CCGT net efficiency	~58-60%+
GDP target	~\$500 billion
Conservative GDP	~\$350 billion
Population planning case	~3.5 million

Appendix A2. Annual table of key capacities

Year	AI, GW	Nuclear, GW	Solar, GW	BESS, GW
2026	0,05	0,45	1,1	-
2027	0,64	0,45	1,5	construction ~1
2028	0,64	0,45	2,0	~1
2029	1,2	0,45	3,0	1-2
2030	2,0	0,45	4,0	~2
2031	3,2	1,25	4,0	~2,3-2,5
2032	4,8	3,25	4,2	~2,5
2033	6,5	6,25	4,5	~2,5-3
2034	8,0	10,25	4,7	~3
2035	10,0	~14	5,0	>=3

Appendix A3. List of mandatory studies 2026-2028

1. Armenia National Grid Master Plan 2035;
2. Official 8760 Energy System Model;

3. National Nuclear Siting Study;
4. Fast-Spectrum Technology Maturity & Licensing Study;
5. Metsamor Spent Fuel Energy Potential Study;
6. Nuclear Fuel Security & Closed Fuel Cycle Roadmap;
7. Vorotan Pumped Storage Feasibility Study;
8. National Hydro Audit;
9. Gas Fleet Keep/Repower/Retire Audit;
10. Gas Security & Diversification Study;
11. National Energy Workforce Census;
12. AI & Hyperscale Grid Code Study;
13. National Black-Start & System Restoration Study;
14. National Energy Cybersecurity Architecture Review;
15. Armenia Economic Transformation Model 2035.

Appendix A4. Programme KPIs

KPI	Purpose
Power Readiness Ratio	firm power available by required date / confirmed strategic demand
Nuclear Capacity Gap	system-required nuclear - contracted construction schedule
Nuclear Delivery Ratio	contracted/FID nuclear / system-required nuclear
Storage Readiness Ratio	available storage / system requirement
National AI Ownership Ratio	share of large-scale AI capacity under national ownership
National Income Retention Ratio	share of generated income retained in the national economy
Total Sovereign Exposure	direct debt + guarantees + contingent liabilities
Schedule Reliability	share of critical milestones delivered on time
Skills Gap to 2035	skills gap in critical professions
National Value Added per MWh	economic value of electricity use

Appendix A5. Methodological qualifications

The 2035 figures are strategic targets/scenarios, not approved state forecasts.

Exact network ratings, sites, line routes and nuclear block designs are determined only after engineering studies and licensing.

The AI revenue model is a planning benchmark and must be replaced with project-level commercial models before FID.

The central GDP target requires a dedicated Input-Output/National Accounts model separating gross revenue from domestic value added.

CAPEX ranges exclude full financing costs unless stated otherwise.

International connections and gas sources depend on political, technical and commercial conditions.

Appendix A6. Sources and database

External reference sources used in this edition:

World Bank, World Development Indicators - Armenia population 2024-2025 and international GDP per capita indicators for 2024;

IAEA - reference information on fast reactors, nuclear infrastructure, safeguards and spent fuel;

OECD Nuclear Energy Agency - nuclear construction, financing, cost of capital and fleet economics;

National energy data of the Republic of Armenia - for baseline generation, grid and existing infrastructure;

ADKARS strategic working model 2026 - AI revenue, demand, capacity, CAPEX and economic transformation scenarios.

Conclusion

Armenia should not design its energy system around today's economy. It should build the infrastructure for the economy it intends to have in ten years. The central logic of the programme is simple: abundant reliable energy creates compute; compute creates export revenue and downstream industries; national participation converts part of that revenue into domestic capital; capital finances the next wave of energy, industry and knowledge.

ARMENIA 2035: ~\$500 BILLION GDP | ~10 GW AI | ~21 GW ENERGY SYSTEM

**The principal objective is not merely to provide a location for the new global AI economy.
Armenia must become one of its owners.**

