
**QUESTIONS-ANSWERS BOOK
REGARDING COMPLEX
(CONSOLIDATED) SAFETY UPGRADE
PROGRAM OF POWER UNITS OF
NUCLEAR POWER PLANTS OF UKRAINE
(CCSUP) AND ECOLOGICAL
ASSESSMENT OF CCSUP**

Questions-Answers Book Addendum: 2018



**SE NNEGC “ENERGOATOM”
Complex (Consolidated) Safety Upgrade Program of Power Units
of Nuclear Power Plants of Ukraine**



The present document, “The Questions–Answers Book regarding the Complex (Consolidated) Safety Upgrade Program of the Operated Power Units of Nuclear Power Plants and CCSUP Environmental Assessment. Addendum to the Questions–Answers Book: 2018» developed by SE NNEGC “Energoatom” to perform the CCSUP Environmental and Social Action Plan (ESAP) and the Stakeholder Engagement Plan (SEP).

The document is the fourth addendum to the initial Questions–Answers Book published in 2011. Three previous addendums to it are kept available by the links

http://energoatom.kiev.ua/en/actvts-16/integrated_security_program-161/p/questions_answers_book_addendum_2015-4982 ;

http://energoatom.kiev.ua/en/actvts-16/integrated_security_program-161/p/questions_answers_book_addendum_2016-4025;

http://energoatom.kiev.ua/en/actvts-16/integrated_security_program-161/p/ccsup_and_ccsup_ea_questions_answers_book_addendum_2017-2085

Similar to the initial Questions–Answers Book and the previous addendums, this document provides personified questions, proposals and comments in the original language received in written or oral form with a reference to the summarized questions and professional answers systemized by topical areas and set out in the Ukrainian and English languages (in the Ukrainian and English versions of the document, accordingly).

The document was prepared with the expert support of the PMU Consultant - a Consortium of companies AJC Developpement and EDF (France) and “AESCAR” Company (Ukraine).

CONTENT

1. List of acronyms	4
2. List of incoming correspondence / measures	5
3. Personalized questions, suggestions and comments	6
4. List of thematic areas	10
5. Generalized questions, suggestions, comments and answers to them.....	11
(1) EA organization.....	11
(2) PC process organization	11
(3) Legislative issues of the project, feasibility study and CCSUP EA expertise	11
(4) Completeness of the EA materials	11
(5) Goals of CCSUP	11
(6) Completeness of CCSUP.....	11
(7) ZNPP operation	11
(8) RNPP operation	11
(9) KhNPP operation	11
(10) SUNPP operation.....	12
(11) Investigations, experiments and equipment testing, planned prophylactic and capital repairs	12
(12) Rad-wastes management	12
(13) Spent nuclear fuel management	12
(14) Nuclear safety	12
(15) Radiation safety	12
(16) Fire protection safety.....	12
(17) General industrial safety	13
(18) Physical protection	13
(19) Emergency readiness	13
(20) General issues on environmental impact assessment	13
(21) Geological conditions and seismic impacts.....	14
(22) Assessment of impacts on social environment	14
(23) Assessment of impacts on atmospheric environment	14
(24) Assessment of impacts on aquatic environment	14
(25) Assessment of impacts on flora and fauna	15
(26) Assessment of mutual impacts of power units and technogenic environment	15
(27) Issues of NPPs impacts in transboundary context	15
(28) Human resources coverage	16
(29) Work with public, informing the population.....	16
(30) Social-economic risk compensation	17
(31) Financial-economic aspects of CCSUP implementation	17
(32) Technical aspects and progress of CCSUP implementation.....	18
(33) Other social-economic issues	19
(34) Other nuclear energy issues	20
(35) Other issues not connected to the CCSUP elaboration and implementation	22
6. List of references	24

1. List of acronyms

NPP	Nuclear power plant;
CP	Cooling pond;
SP	Set capacity;
SNF	Spent nuclear fuel;
PH	Public hearings;
SINRSU	State Inspectorate for Nuclear and Radiation Safety of Ukraine;
EA	Ecological Assessment;
SAR	Safety analysis report;
ZNPP	Zaporizhzhya nuclear power plant;
DC	Decommissioning;
MZ	Monitoring Zone;
MM	Mass-media;
CF	Capacity factor;
PC	Public consultations;
CCSUP	Complex (Consolidated) Safety Upgrade Program of Power Units of Nuclear Power Plants of Ukraine;
NCRE	National Committee for regulating energy market;
NGO	Non-governmental organizations;
ESAP	Environmental and Social Action Plan of CCSUP
PPR	Planned-prophylactic repair;
RAW	Radioactive wastes;
RNPP	Rivne nuclear power plant;
RP	Reactor plant;
SSNF	Storage for spent nuclear fuel;
FS	Feasibility Study;
TPP	Thermal power plant;
KhNPP	Khmelnitsky nuclear power plant;
SUNPP	South-Ukrainian nuclear power plant

2. List of incoming correspondence / measures

No request	Received (date)	Organization / Measure	Respondent	Address / Holding place
43	31.10.2018	Briefing on CCSUP and its ESAP		Kiev, Simyi Prahovyh str., 6, "SE NNEGC "Energoatom"
44	26.11.2018	Public meeting on CCSUP and ESAP realization issues, t. Energodar		Energodar town, Tsentralna str, 6, SS ZNPP cultural and business center
45	27.11.2018	Public meeting on CCSUP and ESAP realization issues, t. Yuzhnoukrainsk		Yuzhnoukrainsk town, Shevchenko ave., 8a, S SUNPP information center «Impuls»
46	29.11.2018	Public meeting on CCSUP and ESAP realization issues, t.Varash		Varash town, Maydan Nezalezhnosti, 5, SS RNPP information center «Polissya»
47	30.11.2018	Public meeting on CCSUP and ESAP realization issues, t. Netishyn		Netishyn town, Lisova st., 6, SS KhNPP information center

3. Personalized questions, suggestions and comments

No	No request	Personalized questions, suggestions and comments	General. No
468	43	Какая общая стоимость КСПБ?	31.28
469	43	Будуть проведені слухання у містах-супутниках АЕС, що цікавить громадськість?	29.20
470	43	На следующий год запланировано 6 млрд. грн.?	31.29
471	43	Какие наиболее крупные работы запланированы на 2019 год?	32.10
472	43	Будет ли обсуждаться с Кредиторами выделение новых кредитных средств, в связи с увеличением общей стоимости КСПБ?	31.30
473	44	Яким чином здійснюється контроль за виконанням Програми - міжнародні організації, хтось це контролює, на станціях?	32.11
474	45	...З (подачі) організацій екологічних України, були до нас претензії пред'явлені, що Компанія і наша країна не відповідає вимогам Еспо... Конвенції. Я прочитала, що зараз у світі такі (транскордонні) консультації здійснюються. Які консультації, хто (проводить) і чи є до нас претензії у інших країн..?	27.1
475	45	...З (подачі) організацій екологічних України, були до нас претензії пред'явлені, що Компанія і наша країна не відповідає вимогам... Орхуської Конвенції.	29.21
476	45	Чому до роботи атомних станцій не залучаються науковці Одеського політеху, які готують спеціалістів для атомних станцій?	34.28
477	45	Громадськість, подивившись телеканал ZIK, де говорилося про перспективи ядерної енергетики в Україні, вона дуже занепокоїлася з приводу, чи не планує наша станція створення радіоактивних відходів у Ташлику? Створення могильника відходів радіоактивних?	12.3
478	45	...Наступне питання стосується всіх міст-супутників в зв'язку із їх і нашою відмінністю, – міста стають такими депресивними, не тільки місто, а і 30 км зона. Як ви бачите вихід із цього стану, адже хай через рік чи через 10, 20 атомну станцію прийдеться закривати? Але велика кількість населення, вони не мають можливостідесь працювати, це питання треба підіймати ще на вчора, тобто: залучення інвестицій, переїзд робочих з атомної станції, наприклад, на такі підприємства, як зборочні цехи. Взагалі, треба якось думати вже сьогодні, щоб не було, що наше процвітаюче місто - 40 тисяч, - залишиться таким «мертвим» баластом.	33.28
479	45	Весь світ відмовляється від енергоблоків такого типу - мільйонників, які є у нас, тому що вони є не такими мобільними в своїй експлуатації, як блоки меншої сили. Які погляди на альтернативну енергетику у Южно-Українську - чи це не розглядається, а розглядається тільки добудова таких мільйонників?	34.29
480	46	Підвищення безпеки АЕС – це дуже важливий захід, так. Можливо відмовитися від тих кредитних коштів, які власно надходять на реалізацію підвищення безпеки АЕС? Можливо таке, чи ні?	31.31
481	46	На даний момент залишилося приблизно 300 з гаком незакінчених заходів по КЗПБ. На вашу думку, які основні ключові заходи залишилися не реалізованими саме для Рівненської атомної електростанції?	32.12
482	47	Перше – це ліс. Якщо б ви сіли на вертольот і облетіли вокруг атомної електростанції, ви побачили би, що той ліс, який був навпроти атомної електростанції і посажений 20 років назад, - бо я була присутня уже при тому, як його садили, - його вирубили в цьому році. Оставили тоненьку смужку вокруг озера. Поїхали за грибами, виїхали за ОПУ - опять рубка	25.2

No	No request	Personalized questions, suggestions and comments	General. No
		лісу. Вокруг лісів не залишилось!.. В связи с экологической ситуацией запретить в санитарной зоне АЕС вирубку леса.	
483	47	...В нас місток, який построєний через річку Горинь, знаходиться в аварійному стані... - це місточок, який обіцяли, збирали підписи. Єдино, куди пішли ці гроші?.. Во-всяком случаї до мостика не дійшло, туди гроші так і не виділені... В цей рік підварили трішки обмеження, тому що там зламалося до такої степені, що велосипедисти нириали у воду. Більше там нічого не було зроблено.	33.29
484	47	Річка Горинь у нас стала дуже сильно заростати. Якщо ми хочемо, щоб на очистку і на охолодження атомної електростанції вистачило води, треба, напевно, звернути увагу і на це. Почистити хоча б один раз русло, даже отут, біля містка, тому що місток дуже зарос, річка дуже заросла.	24.15
485	47	Років п'ять назад почалася розбудова другої гілки КНС нашого міста (м.Нетішин), але після цього – це все пішло у воду... Річ в тому, що проблема КНС перед містом повстане найближчим часом. І вона іноді вже стоїть, тому що ми можемо іноді відчувати те, що то там, то там прорвало, труби старіють і так далі. КНС навіть збудували одне маленьке спорудження, було, від атомної електростанції. Зараз там стоїть жилий дім і цю КНС просто знесли і все, щоб вона не мішала, але це питання буде стояти.	33.30
486	47	Наше місто росте і того тепла, яке було раніше, нам його не вистачає.... Ми ніколи не мерзли, атомна працює дуже гарно і ми вдячні за те, що ми живемо тут, можна сказати, як в раю. Чому? Тому, що в нас не було такого, щоб ми замерзали і платили за це мільйони. Но вже зараз треба думати про те, щоб робити другу гілку теплопостачання для міста...	33.31
487	47	Треба планувати зараз, причому розбудувалося настільки у нас багато - зараз у нас кожен кусочок стараються зайняти, збудувати там великі магазини і так далі. Кожен магазин – це велика витрата тепла, набагато більше ніж на жилий масив... Тому, що як можна міряти тепло тут ось в квадратних метрах, а не в метрах кубічних? Якщо так би було, то і сплачували більше. Тому що ви грієте метри кубічні, ви ж грієте об'єм, а не метри квадратні.	35.16
488	47	30 км зона. Виділяються завжди гроші. Ми, чогось взагалі, не почули, куди ці гроші 30 км зони, ми, як населення хотіли б почути, куди ці гроші пішли? И непосредственно, при нашей атомной электростанции, мы не в курсе того, куда они идут? Именно у нас? Потому что, я знаю, в Славуте построили школу, там сделали дороги, там сделали дороги, в село провели дорогу. А в місті – про це можно, якби докладніше?	30.8
489	47	Земля меняется, и мы все это знаем. Если, кто не смотрит - можете каждую неделю открыть, за неделю есть экологические новости, и посмотрите, что происходит каждую неделю с нашей землей? Почему я обращаю на это внимание, почему? Потому что идет разлом, это говорит профессор, россиянин. Идет разлом от Италии и до Байкала, т.е. сейчас будет меняться земная кора. Вы знаете – Африка пополам, Америку там немножко смоеет, поэтому волноваться нечего про ее экономику и так далее, даже про нас. Можно про экономику думать, но это такое дело. Главное, я считаю, что должен быть обязательно - проводится постоянный мониторинг земли под атомными электростанциями, как изменяется земная кора у нас тут.	21.2
490	47	...Вырос очень большей процент тепловых электростанций. Я понимаю, за атомные электростанции получают – 0,54 грн. - платят за электроэнергию, а ТЭС – 1,76 грн., а ТЭЦ – 2,15 грн. Получается, что	34.19

No	No request	Personalized questions, suggestions and comments	General No
		население фактически... - я понимаю - это политика, но все-таки эту политику надо ломать, - почему мы должны платить за то, что..? Я считаю, что лучше уж развивать и вправду атомную электроэнергетику.	
491	47	В зв'язку з воєнним станом в нашій країні, в зону ризику попали ЗАЕС і ЮУ АЕС, так як є воєнний стан в Запорізькій області. Що робить НАЕК «Енергоатом» по поведі наших РАЕС та ХАЕС по захисту наших станцій?	18.2
492	47	Наші працівники - інженери, майстри, електрослюсаря, - мають дуже низкі зарплати. Вони звільняються, їдуть до Польщі, в Чехію. Виходить, що ці працівники, які несуть роботу на атомних станціях, практично оголюють експлуатацію на наших атомних станціях. Чому не піднімають зарплати для працівників і що робиться для цього?	28.7
493	47	В нас на ХАЕС, в п'ятницю по телебаченню показують повністю роботи, експлуатацію на нашій атомній станції, і сказали, що в нас будуть будувати сонячну і вітряну станції. Я слухала, як ви виступали і про це все розказували, сказали, що на це йдуть багато грошей: на будівництво, на експлуатацію і таке інше. В мене таке питання, ну може у нас і є такі землі непотрібні для сільського господарства, може й можна десь побудувати ті сонячні станції, але, так думаю, вони не потрібні тут у нас на Хмельницькій станції. Чого? Хай збудують третій блок. Нащо нам, якась там сонячна станція, що буде давати 15 МВт, а то може і менше - і що воно буде нам давати? Я рахую, я знаю, я розмовляла зі своїми пенсіонерами - вони також кажуть, що гроші тратити на будівництво цих сонячних і вітряних станцій не має сенсу. Хай будують третій блок.	35.17
494	47	...Питання... про долю ХАЕС-3, ХАЕС-4...Що зроблено за 2018 рік і які плани на найближче майбутнє - на 2019 рік?	34.30
495	47	Наша зустріч збігається сьогодні із міністерською конференцією МАГАТЕ, знаємо, що там є представники Енергоатому. Власне, що ви очікуєте від цієї зустрічі, чи там розглядається питання виконання програми безпеки на АЕС світу і України зокрема, чи там виключно конференція, на якій розглядаються наукові досягнення атомників, в такому руслі?	34.31
496	47	...Також хотіли почути про програму німецьку "Twinning", власне та програма у сфері стандартизації. Наскільки вона важлива для України і для атомної енергетики? Чи вона наблизить нас дійсно до того енергетичного мосту, про який так багато говорять?	35.18
497	47	Взагалі у нас співпраця з атомною станцією тривалий час була дуже така плідна, були угоди - я маю на увазі 30-км зону АЕС, не всю область Хмельницьку, – були угоди і була передплата - невеликої кількості газет була передплата кожного видання, - тобто атомна станція була зацікавлена, щоб інформація про роботу станції, різні болючі питання, які ставлять люди, поширювалась через місцеві засоби інформації. Останнім часом - я можу сказати те, що це більше 10 років, - немає такої співпраці. Ми по своїх можливостях висвітлюємо діяльність атомної станції, стараємося брати інформацію, інформаційний центр надає її, але хотілось би, щоб ця робота була поставлена на більш солідну основу. Тому що останнім часом нас на прес-конференції не запрошують, дуже рідко ми буваємо на станції - хіба що на днях з нашими депутатами. Тобто, я думаю, що у нас є можливість - і в вас, і в нас, - краще налагодити співпрацю. Ми зацікавлені в тому, тому що ми це робимо для людей – як раз оті всі болючі питання. Хоча у нас і є Інтернет, Facebook і все інше, але старенькі люди, літнє населення в селах – воно не «сидить	29.22

No	No request	Personalized questions, suggestions and comments	General. No
		в он-лайні», не можуть, воно не може знати цієї інформації. Вони отримують видання, вони читають наші газети.	
498	47	Питання, яке найчастіше ставлять люди, в зв'язку з можливою добудовою 3-го і 4-го енергоблоків і продовженням експлуатації 1-го енергоблоку. Людей цікавить, найперше, запаси води в нашому регіоні тому, що наш регіон маловодний. Якщо раніше спеціалісти атомної станції інформували, що із р. Горинь вода не забирається, то не так давно була надрукована в газеті «Перспектива» публікація з Турицьким – начальником гідроцеху, де він сказав, що певний період ми будемо забирати воду з р. Горинь, тому - він пояснює, - що не вистачає води. Я розумію, це коли паводок, можливо, в такі періоди, але йшлося..., коли він давав це інтерв'ю.	24.13
499	47	...Раніше спеціалісти атомної станції інформували, що із р. Горинь вода не забирається, то не так давно була надрукована в газеті «Перспектива» публікація з Турицьким – начальником гідроцеху, де він сказав, що певний період ми будемо забирати воду з р. Горинь, тому - він пояснює, - що не вистачає води. Я розумію, це коли паводок, можливо, в такі періоди...	24.16
500	47	Ми багато говоримо про обладнання, яке буде замінюватися, все це робиться, а от конструкції блоків, як то мовиться, "металл устал"? Люди переживають, чи витримають самі споруди енергоблоків - я вже не кажу про 3-й і 4-й, які знаходяться під впливом навколишнього середовища, екологічних чинників, - але, навіть, і про ті блоки, які функціонують. Тобто, можна змінити обладнання в середині блоків, а як самі стінки реактора, який моніторинг цього планово проводиться?	34.22

4. List of thematic areas

No of area	Name of area
1	EA organization
2	PC process organization
3	Legislative issues of the project, feasibility study and CCSUP EA expertise
4	Completeness of the EA materials
5	Goals of CCSUP
6	Completeness of CCSUP
7	ZNPP operation
8	RNPP operation
9	KhNPP operation
10	SUNPP operation
11	Investigations, experiments and equipment testing, planned prophylactic and capital repairs
12	Rad-wastes management
13	Spent nuclear fuel management
14	Nuclear safety
15	Radiation safety
16	Fire protection safety
17	General industrial safety
18	Physical protection
19	Emergency readiness
20	General issues on environmental impact assessment
21	Geological conditions and seismic impacts
22	Assessment of impacts on social environment
23	Assessment of impacts on atmospheric environment
24	Assessment of impacts on aquatic environment
25	Assessment of impacts on flora and fauna
26	Assessment of mutual impacts of power units and technogenic environment
27	Issues of NPPs impacts in transboundary context
28	Human resources coverage
29	Work with public, informing the population
30	Social-economic risk compensation
31	Financial-economic aspects of CCSUP implementation
32	Technical aspects and progress of CCSUP implementation
33	Other social-economic issues
34	Other nuclear energy issues
35	Other issues not connected to the CCSUP elaboration and implementation

5. Generalized questions, suggestions, comments and answers to them

(1) EA organization

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(2) PC process organization

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(3) Legislative issues of the project, feasibility study and CCSUP EA expertise

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(4) Completeness of the EA materials

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(5) Goals of CCSUP

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(6) Completeness of CCSUP

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(7) ZNPP operation

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(8) RNPP operation

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(9) KhNPP operation

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(10) SUNPP operation

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(11) Investigations, experiments and equipment testing, planned prophylactic and capital repairs

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(12) Rad-wastes management

General. No	Generalized questions, suggestions, comments	Answers
12.3	Is the use of Tashlyk water storage planned for accumulation or storage of SUNPP radioactive wastes?	No. Tashlyk water storage has never been designed, used and is not planned to be used as a facility for RW management, either for its accumulation or its storage or disposal. Besides, such use of an open basin would contradict the current legislation.

(13) Spent nuclear fuel management

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(14) Nuclear safety

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(15) Radiation safety

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(16) Fire protection safety

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(17) General industrial safety

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(18) Physical protection

General. No	Generalized questions, suggestions, comments	Answers
18.2	In some Ukrainian regions, a martial law was imposed in 2018, among others, in Zaporizhzhia Mykolaiv regions, where ZNPP and SUNPP are situated. What has been done at those and other NPPs to decrease the risk of their purposeful or accidental damage?	"In peaceful circumstances, physical protection of operating Ukrainian NPPs regulated by the Law of Ukraine "On Physical Protection of Nuclear Facilities, Nuclear Materials, Radioactive Waste, Other Sources of Ionizing Radiation" [34] and other legislative regulatory acts is aimed to protection of the interests of national security, prevention and cessation of sabotage, theft or any other illegal extraction of nuclear material, radioactive waste, other sources of ionizing radiation, as well as strengthening the regime of non-proliferation of nuclear weapons. The NPP physical protection systems created according to those requirements envisage, in particular, distributed responsibility of the officers, access of persons to work at nuclear facilities on results of a special verification, NPP security and defense, restricted information protection, advanced training of physical protection specialists, regular coaching and other organizational and technical solutions. In compliance with legislative requirements, available NPP physical protection systems are a compulsory condition to issue a license for their operation; the efficiency of those systems should be confirmed with results of regular state inspections.

(19) Emergency readiness

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(20) General issues on environmental impact assessment

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(21) Geological conditions and seismic impacts

General. No	Generalized questions, suggestions, comments	Answers
21.2	Does SUP cover measures concerning the seismicity increase of power units of operating NPPs of Ukraine?	Yes. Possible external output event of severe accident at NPPs in Ukraine is the earthquake that is included in the safety analysis reports. The list of technical solutions to improve the security which will be implemented within SUP, in particular, are associated with the revision of seismic risks and seismicity increase. SUP measures No18101, 28101, 38101 foresee the creation of seismic monitoring systems at each NPP.

(22) Assessment of impacts on social environment

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(23) Assessment of impacts on atmospheric environment

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(24) Assessment of impacts on aquatic environment

General. No	Generalized questions, suggestions, comments	Answers
24.13	Is there enough water for safe operation of operating NPPs in Ukraine, in particular, KhNPP?	Yes, it's enough water. In particular, the water resources and hydropower facilities available on the KhNPP site are sufficient for the operation of 4 power units. Detailed information is provided in the CCSUP EA reports [71,91], published and available at the SE NNEGC "Energoatom" official website.
24.15	It is proposed to ensure Goryn river bed clearing near KhNPP	Indeed, Goryn river bed clearing is an actual task, still it goes beyond SE NNEGC "Energoatom" competence. This issue will be readdressed to public and local self-government authorities within the "Questions and Answers Book". SE NNEGC "Energoatom" is ready to support the relevant initiative of local authorities.
24.16	Is water drawn from Goryn river for KhNPP needs?	Water withdrawal from Goryn river was assumed in the original KhNPP design yet and is carried out in compliance with the valid permits. At the same time, there exists a restriction on sanitary flow - withdrawal is suspended when the flow drops below 6 m ³ /sec.

(25) Assessment of impacts on flora and fauna

General. No	Generalized questions, suggestions, comments	Answers
25.2	It is proposed to forbid forest clearing within the NPP control area boundaries.	In compliance with the Law of Ukraine "On the Use of Nuclear Energy and Radiation Safety" [6], Art.45, "Use of lands and reservoirs located in a control area for national economic purposes is possible only with permission of a state nuclear and radiation safety regulatory authority with an operating organization's agreement..." Therefore, forest clearing within NPP control area has already been legislatively regulated, is controlled by SNRIU and is made foremost with the purpose of sanitary clearing or, upon agreement and approval of appropriate design amendments, for erection of facilities related with the NPP activities.

(26) Assessment of mutual impacts of power units and technogenic environment

General. No	Generalized questions, suggestions, comments	Answers
	<i>No requests</i>	

(27) Issues of NPPs impacts in transboundary context

General. No	Generalized questions, suggestions, comments	Answers
27.1	At the behest of the local environmentally oriented organizations, Ukraine was claimed of inconsistency of SE NNEGC "Energoatom" activity with Espoo Convention requirements. Which transboundary consultancies have been carried out at the moment, are there any claims to us left from other countries?	Sixth meeting of the Parties to the Espoo Convention in 2014 noted Ukraine's incompliance with the Convention requirements [4] while making a decision on RNPP Power Units 1 and 2 lifetime extension. In line with that, SE NNEGC "Energoatom" planned to carry out Environmental Impact Assessment (EIA) for those units before 2020 in relation with their regular safety reassessment. On 29.01.2018, SE NNEGC "Energoatom" disclosed "Notification on Activities Subject to Environmental Impact Assessment" concerning RNPP Units 1-4 operation in the Unified EIA Registry http://eia.menr.gov.ua/places/view/76 . For the end of 2018, the EIA has been proceeded, notices from Austrian, Belorussian, Polish, Hungarian, Slovak and Rumanian parties on their preparedness to take part in transboundary consultancies on its outcomes have been received.

(28) Human resources coverage

General. No	Generalized questions, suggestions, comments	Answers
28.7	Because of law remuneration level, staff outflow from Ukrainian NPPs abroad is observed. What does SE NNEGC "Energoatom" do to decrease the staff turnover and to hold it at NPPs?	The relevant measures are envisaged with the Industry Agreement between the Ministry of Energy and Coal Industry of Ukraine and the Trade Union of Nuclear Energy Industry Employees of Ukraine and with SE NNEGC "Energoatom" Collective Labour Agreement, which is annually revised and approved by the labour collective conference. In particular, the average wage level raise by 31,2% was ensured during 2018, which greatly exceeds the value envisaged in the Industry Agreement, Clause 2.8, regarding the average wage level raise with consideration of macroeconomic indices determined by the Government not below the actual inflation level (the actual inflation level during January-December 2018 constituted 109.8%).

(29) Work with public, informing the population

General. No	Generalized questions, suggestions, comments	Answers
29.20	From the experience of previous public meetings regarding CCSUP implementation, what questions make the highest interest for the people?	At the previous public meetings regarding CCSUP implementation, the biggest number of questions was related to arrangement of work with the public and information of population (55 different questions without consideration of their duplication at different meetings), as well as to the social and economic public risk compensation, financial and economic aspects of CCSUP implementation and other social and economic matters (73 different questions without consideration of their duplication at different meetings).
29.21	At the behest of the local environmentally oriented organizations, Ukraine was claimed of inconsistency of SE NNEGC "Energoatom" activity with Aarhus Convention requirements.	The statement is not true to the fact. There are no confirmed facts of Energoatom's activity inconsistent with Aarhus Convention [3] requirements and provisions.
29.22	During the last 10 years, a weakening interaction of KhNPP with regional print media is noticed, in particular, with "The Polissia Labourer" newspaper. Is strengthening of such cooperation planned?	It goes about financial support reduction of the regional mass media by SE NNEGC "Energoatom". The main reason for that is financial resource deficiency for the reasons independent from SE NNEGC "Energoatom" - the tariff for SE NNEGC "Energoatom" has been artificially decreased in favor of other generation types during a considerable period of time. Lately, its bringing in full compliance is impossible for the social, political and economic problems in the country. Another reason is a restriction to use funds in the areas considered

General. No	Generalized questions, suggestions, comments	Answers
		charity. SE NNEGC "Energoatom" as a state-owned company has no right for charity activities envisaged in the Law of Ukraine "On Charity Activity and Charitable Organizations" [72] only for private law legal entities. A real improvement of situation is expected after transition from a stiff public regulation on behalf of NEPURC to a new market model of setting the tariff.

(30) Social-economic risk compensation

General. No	Generalized questions, suggestions, comments	Answers
30.8	The administrative-territorial units situated within the NPPs' control areas systematically lack the law-envisaged funding for the population's social and economic risk reimbursement during the latest years.	SS NNEGC "Energoatom" pays in time and full scope the law-envisaged levy for the population's social and economic risk reimbursement in the value of 1% sales of electric power produced by the NPPs. The allotment of these proceeds, their timely allocation and the target use control goes beyond the competence of the Company and its public governing authority, the Ministry of Energy of Ukraine. Applications to the central public authorities in regard to compliance with the procedure, time terms and scope of such funding receipt shall be made by the local public authorities and the local government authorities.

(31) Financial-economic aspects of CCSUP implementation

General. No	Generalized questions, suggestions, comments	Answers
31.28	What is the actual CCSUP implementation cost (for the end of 2018)?	According to Resolution of the Cabinet of Ministers of Ukraine № 924 of 07.11.2018 [101], "The tentative scope of funding the Program makes 26,893 million UAH totally (without VAT) with the own funds of the State Enterprise NNEGC "Energoatom" and 600 million EUR granted as loans by the European Bank for Reconstruction and Development and Euratom. The amount of expenditures required for the program implementation from Energoatom's own funds is specified every year during approval of the tariffs for supply of electric and heat energy produced by NPPs."
31.29	What expenditures for CCSUP implementation are planned in 2019?	In line with SE NNEGC "Energoatom" investment program for 2019 agreed by NEPURC Resolution №1904 dated 12.12.2018 [102], the total expenditures for CCSUP implementation in 2019 will make 10,837 million UAH (without VAT), including 8,203 million UAH of the loan funds.
31.30	Is the loan amount increase discussion planned with the	No, the loan amount increase is not planned at the moment.

General. No	Generalized questions, suggestions, comments	Answers
	Lenders because of CCSUP total cost increase?	
31.31	Safety upgrade of operating power units of nuclear power plants is a very important task. Is it possible to refuse of engaging loan funds for CCSUP implementation and fulfil it with the own funds?	No, the own funds of SE NNEGC "Energoatom" are not sufficient to implement such a massive program as CCSUP. A considerable raise of tariff for NPP-supplied electricity would be required to refuse of the loan funds, which would have resulted in considerable consumer tariff raise unacceptable in the contemporary economic realities of Ukraine. Among others, the lack of own funds and the missing loan funds till 2015 were the main reason for CCSUP completion date extension from 2017 to 2020 [101]. As the conditions of EBRD and Euratom loan funds granting and return are quite beneficial and loan attraction is an international practice for implementation of similar massive programs, such loan attraction looks quite justified for CCSUP implementation, too.

(32) Technical aspects and progress of CCSUP implementation

General. No	Generalized questions, suggestions, comments	Answers
32.10	Which most expensive CCSUP measures are planned for implementation in 2019?	Generally, all CCSUP measures are rather expensive. Among those planned for implementation in 2019, the most expensive measures include the NPP modernization of containment forced pressure relief systems, modernization of turbine hall and reactor building safety related normal operation systems, replacement of autonomous air conditioners, replacement of radiation monitoring system, modernization of safety control systems with UKTS replacement, replacement of electric motors 6 kV and 0.4 kV, modernization of 0.4 kV switchgear.
32.11	What is the way to perform CCSUP implementation control and monitoring at the national and international level?	CCSUP implementation control and monitoring is of a multi-level nature: <ul style="list-style-type: none"> - at the plant level - by administrative management of every NPP; - at the level of the national NPP operator - by engineering and financial economic entities of SE NNEGC "Energoatom" Directorate; - at the national level - by the Ministry of Energy and Coal Industry (state administrative body), SNRIU (state regulatory body for nuclear and radiation safety), NEPURC (state regulatory body in the area of energy and public utilities); - at the international level - by the Lenders (EBRD and Euratom);- at the level of public - by local and international non-governmental organisations, public

General. No	Generalized questions, suggestions, comments	Answers
		<p>organisations, mass media and individual interested citizens.</p> <p>Each of the mentioned level envisages relevant forms and dates of periodic reporting; at the public level, information materials are regularly published, briefings for mass media and annual meetings with the public are held. For each CCSUP measure, the whole cycle is monitored, starting with development of the concept, tendering for procurement of goods and services and finishing with SNRIU's acceptance of the Measure Completion Report. In particular, the current status of CCSUP implementation is subject to control and monitoring.</p>
32.12	Which main key measures have not been implemented at RNPP for the end of 2018?	<p>As of the end of 2018, 58 main CCSUP measures yet to be completed at RNPP of 270 planned ones, the majority whereof (17) - at Unit 4. The CCSUP measures list was determined and distributed by priority according to the extent of their impact on the units' safety increase. The full set of CCSUP documents (consolidated CCSUP measures, their lists by unit types, each CCSUP measure card), as well as their implementation status by unit are published on the official web site of SE NNEGC "Energoatom" http://energoatom.kiev.ua/ua/actvts-16/integrated_security_program-161/p/komplekt_dokumentiv_z_kzppb-4913 , http://energoatom.kiev.ua/ua/actvts-16/integrated_security_program-161/p/vikonanna_kompleksnoi_zvedenoi_programi_pidvisenna_bezpeki_energoblokiv_atomnih_elektrostantsij_ukraini_u_iv_mu_kvartali_2018_roku-44638 .</p>

(33) Other social-economic issues

General. No	Generalized questions, suggestions, comments	Answers
33.28	Are further prospects of NPP satellite towns and adjacent areas being currently analyzed for the period after the operating power units' lifetime is expired? Yet today, plans for creation of new working places and reprofiling of released NPP staff are required.	<p>This question exceeds the frames of CCSUP and CCSUP ESAP. Based on the current vision, international experience, actual technical condition of the operating Ukrainian NPPs and the relevant regulatory decisions of the public authorities regarding their lifetime, it takes at least 20 years till the moment of their final shutdown. Within that period, replacing capacities should be built up, most likely on the same sites (due to available infrastructure, labour and natural resources). Besides, for the need of decommissioning the shut units, additional working places would appear. Therefore, such detail plans seem premature. At the same time, funds for future NPP units' decommissioning and their waste (SNF and</p>

General. No	Generalized questions, suggestions, comments	Answers
		RW) management have been accrued already now, though insufficiently.
33.29	Is repair of the dilapidated bridge over Goryn river in Netishyn planned?	This issue exceeds the frames of CCSUP and ESAP and will be readdressed to Netishyn local government authority within the "Questions and Answers Book". As of today, for the purposes of social and economic public risk compensation envisaged by the law [6], 1% of electricity cost produced at each NPP is allocated for development of the social infrastructure of the 30-km area around that NPP. Those funds are distributed among administrative units of the area, including the NPP satellite town, according to the procedure set forth with the law. A list of social infrastructure facilities requiring capital investments is determined by local government authorities, which dispose of the appropriate part of those funds.
33.30	Is modernization of pumped sewer station (PSS) in Netishyn planned?	Yes, pumped sewer construction from PSS-1 to sewage works of Netishyn is envisaged within SE NNEGC "Energoatom" investment program for 2019. Total costs will be- 10 017.00 thousands of hryvnias.
33.31	Is heat supply extension of Netishyn planned?	The issue of heat volume increase KhNPP supplies to Netishyn town is solved - it is sufficient to develop the town approximately for 10 thousand inhabitants more. At the same time, distribution net development in the town itself goes beyond responsibility of SE NNEGC "Energoatom".

(34) Other nuclear energy issues

General. No	Generalized questions, suggestions, comments	Answers
34.19	NPPs electricity tariff is much lower than the tariff for the population for electricity use. Where does the difference come to?	The current model of tariff formation involves setting tariffs for electricity consumers regardless of the source of generation. Total revenues from electricity sales are distributed according to the established mechanism between generating capacities and transmission and distribution networks at different tariffs for each enterprise, in particular, for different types of generation. Unfortunately, in recent years, the NERC has indeed observed a strict tariff constraint for SE NNEGC Energoatom with the minimum needs above the cost of operating an NPP. A real improvement of the situation for nuclear electricity generation is expected after the transition from the strict state regulation by NERC to a new market model of tariff setting.

General. No	Generalized questions, suggestions, comments	Answers
34.22	Is the extended operation of the power units of the operating NPPs of Ukraine justified in terms of the service life of their elements, systems and structures that are not subject to replacement, in particular, the service life of the reactor vessel and welds?	Yes. The justification for extended operation of each power unit covers all elements, systems and structures, including those that are not subject to replacement. In particular, this concerns the remaining service life of the reactor vessel and the welds. In full, this activity goes beyond the CCSUP, although some measures are included into CCSUP, in particular measures 12301, 22301, 32301. Detailed information for each power unit for which a decision has been made to extend its operation is available at the official sites of SE NNEGC Energoatom and of NPPs.
34.28	Are the experts of Odessa National Polytechnic University, which is a leading one in Ukrainian NPPs personnel preparation, engaged in NPP operation support?	Indeed, Odessa National Polytechnic University (ONPU) together with Kyiv Polytechnic University named after I.Sikorskyi and Kyiv National University named after T.Shevchenko is one of the leading higher education establishments in Ukrainian NPPs personnel preparation. Their experts have been actively engaged in NPP's operation support and other activity in the sphere of nuclear energy utilization and RW management. In particular, ONPU experts take an active part in the issues of NPP control and safety systems, fuel use, SNF and RW management, etc.
34.29	Which single installed capacity is considered as optimized for future nuclear power units of Ukrainian NPPS?	This question exceeds the frames of CCSUP and CCSUP ESAP. Based on the current vision and international experience, the optimized single capacity for electric grids similar to the national one is within the range of 500-1200 MW (el.). One has to note here that specific capital and operational costs for nuclear power units significantly decrease as the single installed capacity raises.
34.30	What is the situation with erection of KhNPP Units 3,4?	This issue exceeds the frames of CCSUP and ESAP. Detailed information on the project of KhNPP Units 3,4 erection has been published on official sites of SE NNEGC "Energoatom" and SS KhNPP under the links: http://energoatom.kiev.ua/ua/actvts-16/stroitelstvo-138/buildon-143 , http://www.xaec.org.ua/store/pages/ukr/khnppprospect/la test
34.31	Our meeting takes place at the same time with IAEA Conference on nuclear science and technology at the level of ministers, where Ukrainian representatives take part, too. What is expected from this Conference, are the issues	This conference comprises some other scope of issues different from the safe NPP operation, among others, the issues of nuclear and radiation medicine, industrial application of radiation technologies, the issues of climate change and strengthening a female role in the atomic industry.

General. No	Generalized questions, suggestions, comments	Answers
	of implementing NPP safety upgrade programs in the world and, in particular, in Ukraine reviewed there?	

(35) Other issues not connected to the CCSUP elaboration and implementation

General. No	Generalized questions, suggestions, comments	Answers
35.16	It is proposed to calculate the tariff for utility consumers of heat in NPP satellite towns on the basis of the heated premises' volume, not area.	This issue exceeds the frames of CCSUP and ESAP, it does not belong to SE NNEGC "Energoatom" competence and will be readdressed to the public authorities and local self-governing authorities, as well as to NEPURC, within the "Questions and Answers Book".
35.17	What justifies construction of solar power plants (SPP) and other alternative sources planned by SE NNEGC "Energoatom"? Doesn't construction of new nuclear power units look more expedient?	The Company's construction and operation of own alternative sources (SPPs, wind PPs, hydroelectric PPs and Pump Storage PP) are justified by a number of reasons, among those: - opportunity to balance own nuclear capacities, which would decrease the penalty risks; - provide for an additional emergency electricity supply channel for own needs, which would increase the safety of the operating facilities; - opportunity to ensure an additional electricity supply source to other consumers for a case of forced NPP shutdown for acts of nature; - diversification of generation types being used, which is exercised by the majority of large power generating companies in the world.
35.18	What is the Twinning Program like, how important is it for Ukraine, in particular, for nuclear energy development in terms of the Project "Energy Bridge Ukraine - EC" implementation?	This issue exceeds the frames of CCSUP and ESAP. The Twinning tool was developed by the European Commission and implemented in 1998 in the context of the enlargement of the European Union. For Ukraine, Twinning became available after the signing of the EU-Ukraine Action Plan in 2005. The main task of Twinning is to help beneficiary countries build modern effective central and local government bodies, improve their structure, human resource development and management capacity. A distinctive feature of Twinning projects is a direct exchange of specific experience in a particular state-regulated sphere in order to implement EU norms and standards, transfer of "know-how" and the best practice between the state bodies of EU member countries and their beneficiary partners, acquiring a unique national experience. Among others, projects in energy efficiency and alternative energy development have been currently implemented in frames of Twinning

General. No	Generalized questions, suggestions, comments	Answers
		program. For the moment, the meeting participants are not aware of direct relation between the "Energy Bridge Ukraine - EC" Project and the Twinning program.

6. List of references

- 1 The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, ratified by the Law of Ukraine No 1688-III of 20.04.2000 http://zakon2.rada.gov.ua/laws/show/995_335
- 2 Nuclear Safety Convention, ratified by the Law of Ukraine No 736/97-BP of 17.12.1997; http://zakon1.rada.gov.ua/laws/show/995_023
- 3 Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention), ratified by the Law of Ukraine N 832-XIV of 06.07.1999 http://zakon4.rada.gov.ua/laws/show/994_015
- 4 Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention), ratified by the Law of Ukraine No 534-XIV of 19.04.1999 http://zakon1.rada.gov.ua/laws/show/995_272
- 5 The Law of Ukraine "On Environment Protection", No 1264-XII of 25.06.1991 <http://zakon4.rada.gov.ua/laws/show/1264-12>
- 6 The Law of Ukraine "On the Use of Nuclear Power and Radiation Safety", No39/ 95-BP of 08.02.1995 <http://zakon2.rada.gov.ua/laws/show/39/95-bp>
- 7 The Law of Ukraine "On Radioactive Waste Management", No 255/ 95-BP of 30.06.1995 <http://zakon4.rada.gov.ua/laws/show/255/95-bp>
- 8 The Law of Ukraine "On Licensed Activity in the Field of Nuclear Power Use" No1370-XIV of 11.01.2000 <http://zakon1.rada.gov.ua/laws/show/1370-14>
- 9 The Law of Ukraine "On Protection of a Person From the Impact of Ionizing Radiation", No15/ 98-BP of 14.01.1998 <http://zakon2.rada.gov.ua/laws/show/15/98-bp>
- 10 The Law of Ukraine "On Environmental Expert Assessment", No45/ 95-BP of 09.02.1995 (The law has expired on the basis of the Law No. 2059-VIII dated 23.05.2017)
- 11 The Law of Ukraine "On procedure of Decision-Making on Location, Design, Construction of Nuclear Installations and Radioactive Waste Management Facilities of National Significance", No 2861-IV of 08.09.2005 <http://zakon3.rada.gov.ua/laws/show/2861-15>
- 12 ДГН 6.6.1.-6.5.001-98 Radiation Safety Norms of Ukraine (НРБУ-97), approved by the decree of Chief State Sanitary Doctor of Ukraine No 62 of 01.12.1997 <https://zakon.rada.gov.ua/rada/show/v0062282-97>
- 13 ДСП 6.177-2005-09-02 Basic sanitary rules to ensure radiation safety of Ukraine, approved by the Order of the Ministry of Health of Ukraine No54 of 02.02.2005 <http://zakon1.rada.gov.ua/laws/show/z0552-05>
- 14 ДГН 6.6.1.-6.5.061-2000 Radiating Safety Norms of Ukraine. Amendments: Radiation protection from the sources of a potential exposure (НРБУ-97/Д-2000), approved by the resolution of the Chief State Sanitary Doctor of Ukraine No 116 of 12.07 .2000 <https://zakon.rada.gov.ua/rada/show/v0116488-00>
- 15 SCN (DBN) A.2.2-3-2004 The composition, development, coordination and approval of project documentation for construction. State Construction Service of Ukraine, 2004 (Eliminated on the basis of DBN A.2.2-3: 2014 from 06.04.2014 <https://zakon.rada.gov.ua/rada/show/v0163858-14>)
- 16 ДБН А.2.2-1-2003 Composition and the content of materials of Environmental Impact Assessment (IAE) during design and construction of enterprises, buildings and facilities,

- approved by the Order of Derzhbud of Ukraine (State Construction Agency) No 214 of 15.12.2003
- 17 СПАС-88, ПНАЕ Health regulations for design and operation of nuclear power plants
 - 18 НП 306.2.141-2008 General provisions of nuclear power plants safety, approved by the SNRIU Order No162 of 19.11.2007 <http://zakon1.rada.gov.ua/laws/show/z0056-08>
 - 19 НП 306.2.144-2008 The requirements of security when choosing a placement site of power plant. SNRCU 2008. <https://zakon1.rada.gov.ua/laws/show/z0467-08>
 - 20 IAEA document №50 -C -S. Safety Manual. Safety of nuclear power plants - Siting Nuclear Power Plant.
 - 21 CoM Order "On Approval of the Energy Strategy of Ukraine for the Period Up To 2030 No 1071-p of 24.07.2013 (has expired on the basis of the CM Decree No. 605-p dated 18.08.2017)
 - 22 Order of the Cabinet of Ministers of Ukraine "Concerning the preparatory measures to build new power units of KhNPP"№ 281-p dd 21.07.2005.
 - 23 Order of Ministry of Energy "Concerning the preparatory measures for the construction of power units № 3and 4 of KhNPP" № 425 dd 22.08.2005.
 - 24 Order of the Cabinet of Ministers of Ukraine "Concerning the approval of a plan for 2006-2010 for implementation of the Energy Strategy of Ukraine until 2030" № 436-p dd 27.07.2006.
 - 25 Order of the Cabinet of Ministers of Ukraine "Concerning the priority measures for the construction of power units No 3 and No 4 of Khmelniysky NPP" № 118 dd 18.02.2009.
 - 26 IAEA document No 50-SG-S1. Safety Manual. Incorporation of earthquakes and the phenomenon resulting from it while siting the nuclear power plants, Vienna. IAEA, 1994.
 - 27 SNIP 2.04.02-84 Water supply. External networks and constructions (expired on the basis of the Order of Minregionbud dated 04.08.2013, No. 133)
 - 28 Order of board of Ministry of fuel and energy of Ukraine "Approval of decision on the choosing the type of reactor facility for construction of power units No 3 and No 4 of Khmelniysky NPP" №4.1 dd 13.10.2008.
 - 29 НП 306.5.02/3.017-99. Requirements to the quality provision program at all phases of lifecycle of nuclear facilities (expired on the basis of the Order of Minpyrody dated 29.02.2012 No. 109)
 - 30 НП 306.5.02/2.069-2003. Safety requirements and conditions (licensing conditions) while designing the nuclear facility or storage of radioactive wastes (expired on the basis of the Order of SNRIU No 14 from 02.05.2014)
 - 31 ДСТУ ISO 10005:2007. Quality management systems. Quality systems management.
 - 32 Law of Ukraine "Concerning the fire protection" № 3745 dd 17.12.1993. (lost the validity on the basis Code N0 5403-VI (5403-17) of 02.10.2012) <http://zakon2.rada.gov.ua/laws/show/3745-12>
 - 33 The Law of Ukraine "On Labour Protection", No 2694-XII of 14.10.1992 <http://zakon4.rada.gov.ua/laws/show/2694-12>
 - 34 The Law of Ukraine "On Physical Protection of Nuclear Facilities, Nuclear Materials, Radioactive Waste, Other Sources of Ionizing Radiation", No2064-III of 19.10.2000 <http://zakon2.rada.gov.ua/laws/show/2064-14>
 - 35 The Law of Ukraine "On Regulation of Issues Related to Nuclear Safety", No 1868-IV of 24.06.2004 <http://zakon4.rada.gov.ua/laws/show/1868-15>

- 36 НД 306.2.02/1.004-98. General clauses of safety provision while decommissioning NPPs and investigative nuclear facilities. Ministry of ecology and safety, 1998.
- 37 The concept of nuclear power plants decommissioning, approved by the Ministry of Energy and Coal Industry of Ukraine on 12.05.2004 (the new version was approved by the Ministry of Fuel and Energy Order No. 798 of 10.12.20015)
- 38 0.ПРО.5797.ПН-08 Decommissioning concept for power units VVER-1000 of "Khmelnitsky NPP", Kiev "Energoatom", 2008.
- 39 ГН 6.6.1.1-130-2006 Permissible levels of radionuclides ¹³⁷Cs and ⁹⁰Sr in the food and drinking water. Hygienic standard. <https://zakon.rada.gov.ua/laws/show/z0845-06>
- 40 COY HAEK 004:2011 Ecological assessment of nuclear power units. General requirements to the composition and content of assessment materials, SE NNEGC Energoatom, Kyiv, 2011 http://energoatom.kiev.ua/ua/actvts-16/nuclear-88/radiation_safety-89/ecology-91/p/standart_dp_naek_energoatom_ekologichna_ocinka_energoblokiv_aes-4946
- 41 Consolidated safety upgrade measures for operating power units with reactors of VVER and RBMK types. CM-88 and CM-90
- 42 Safety upgrade program for NPPs with nuclear facilities VVER-1000, 440, 1994.
- 43 Priority safety upgrade works program for NPPs with nuclear facilities VVER-1000, VVER-440, 1994.
- 44 Safety upgrade measures consolidation for operating power units of NPPs of Ukraine with reactors of VVER-1000 (320) type, 1999.
- 45 Priority safety upgrade measures program for power units of NPPs of Ukraine, 1999.
- 46 Complex program for modernization and safety upgrade for power units of nuclear power plants, approved by the Decree of the Cabinet of Ministers of Ukraine dd 29.08.2002. №504-p.
- 47 Safety upgrade concept for operating power units of nuclear power plants, approved by the Order of the Cabinet of Ministers of Ukraine dd 13.12.2005. № 515-p.
- 48 Program for modernization and safety upgrade of NPPs with nuclear facilities VVER -1000 (B-320), part 2 (KhNPP-2) and part 3 (RNPP-4) for 2004-2009.
- 49 ПМ-Д.0.05.174-08. Program for radioactive wastes treatment. "Energoatom", Kiev. SE NNEGC "Energoatom", 2008 (in 2016 it was replaced by the document PM-D.0.18.174-16)
- 50 The Law of Ukraine "On National Target Ecological Program of Radioactive Waste Management", No 516-VI of 17.09.2008 <http://zakon4.rada.gov.ua/laws/show/516-17>
- 51 Environmental and Social Policy, EBRD, 2008
- 52 The Law of Ukraine "On Civil Responsibility for Nuclear Damage and Its Financial Security" No 2893-III of 13.12.2001 <http://zakon2.rada.gov.ua/laws/show/2893-14>
- 53 CoM Resolution "Issues of creation, accumulation and use of financial reserves for nuclear facilities decommissioning" No 594 of 27.04.2006 <http://zakon4.rada.gov.ua/laws/show/594-2006-n>
- 54 Decree of the Cabinet of Ministers of Ukraine "Concerning the approval of Order of setting the normative of fine for the natural environmental pollution and collection of this fine" №303 dd 01.03.1999 (has expired on the basis of the resolution of the CMU dated December 27, 2010, No. 1236)
- 55 Order of President of Ukraine № 585/2011 "Concerning the decision of the National Security and Defense Council dd 8th April 2011 "Concerning the safety upgrade of the operating nuclear power plants of Ukraine"

- 56 The CoM Resolution "On Approval of the Procedure to Hold Public Hearings in Nuclear Power Use and Radiation Safety", No1122 of 18.07.1998 <http://zakon0.rada.gov.ua/laws/show/1122-98-n>
- 57 CoM Resolution "On Approval of the Procedure to Involve the Public into Discussion of the Issues Regarding Decision-Making, Which May Have Impact on the Environment", No 771 of 29.06.2011 <http://zakon4.rada.gov.ua/laws/show/771-2011-n>
- 58 SCN (DBN) B.1.2-4-2006 "Engineering-technical measures of civil protection (civil defense)", 2006.
- 59 Non-technical Summary of Environmental and Social Action Plan, SE NNEGC "Energoatom", Kyiv, 2015 http://energoatom.kiev.ua/ua/actvts-16/integrated_security_program-161/p/netehnicne_rezume_planu_ekologicnih_ta_social_nih_zahodiv-4909
- 60 Environmental and Social Action Plan. Complex Consolidated Safety Upgrade Program of Power Units of Nuclear Power Plants of Ukraine http://energoatom.kiev.ua/ua/actvts-16/integrated_security_program-161/p/plan_ekologicnih_ta_social_nih_zahodiv_kompleksna_zvedena_programa_pidvisenn_a_bezpeki_energoblokiv_atomnih_elektrostantsij_ukraini.-4893
- 61 CoM Order "On Approval of Complex (Consolidated) Safety Upgrade Program of Power Units of Ukrainian Nuclear Power Plants" No 1270 of 07.12.2011 (with changes, the last one was approved by CoM Order No 356 of 21.08.2014) <http://zakon4.rada.gov.ua/laws/show/1270-2011-n>
- 62 CoM of Ukraine Resolution "On Amendments to Complex (consolidated) Safety Upgrade Program of Power Units of Nuclear Power Plants of Ukraine " No 776 of 30.09.2015. <http://zakon5.rada.gov.ua/laws/show/776-2015-n>
- 63 The Law of Ukraine "On ratification of Guarantee agreement (Ukraine: Complex (Consolidated) Safety Upgrade Program of Power Units of Nuclear Power Plants) between Ukraine and European Bank For Reconstruction And Development" No1267-VII of 15.05.2014 <http://zakon5.rada.gov.ua/laws/show/1267-18>
- 64 The Law of Ukraine "On ratification of Guarantee agreement Between Ukraine as Guarantor and the European Atomic Energy Community as Lender in relation to the EUR 300,000,000 (three hundred million Euros) loan facility agreement dated 7 August 2013 between the State Enterprise National Nuclear Energy Generating Company "Energoatom" and the European Atomic Energy Community for the implementation of the Complex (Consolidated) Safety Upgrade Program of Power Units of Nuclear Power Plants" No1268-VII of 15.05.2014 <http://zakon2.rada.gov.ua/laws/show/1268-18>
- 65 CoM Order "On Approval of the Energy Strategy of Ukraine for the Period Up To 2030 No 1071-p of 24.07.2013 (has expired on the basis of the CM Decree No. 605-p dated 18.08.2017)
- 66 The Law of Ukraine "On Cabinet of Minister of Ukraine" No 794-VII of 27.02.2014. <http://zakon5.rada.gov.ua/laws/show/794-18>
- 67 CoM of Ukraine resolution "On regulations approval for Cabinet of Minister of Ukraine" No 950 of 18.07.2007. <http://zakon3.rada.gov.ua/laws/show/950-2007-n>
- 68 Branch agreement between Ministry of energy and coal industry of Ukraine and Trade-union of nuclear energy and industry workers for 2015-2016, of 30.01.2012. (with changes and additions of 25.11.2014)
- 69 The Law of Ukraine "On Spent Nuclear Fuel Management about Siting, Design, And Construction of Centralized Storage of Spent Nuclear Fuel of VVER Type Reactors of National

- Nuclear Power Plants" No 4384-VI of 09.02.2012 p.
<http://zakon5.rada.gov.ua/laws/show/4384-17>
- 70 Minenergovugillya of Ukraine Order "On Functions of Nuclear Facility Operator Assignment about Centralized Storage of Spent Nuclear Fuel of VVER Type Reactors of National Nuclear Power Plants" No 284 of 04.04.2014. <http://document.ua/pro-pokladennja-funkcii-ekspluatuyuchoyi-organizaciyi-jadern-doc190168.html>
- 71 Environmental Assessment (EA) Report. Main report. Complex (consolidated) Safety Upgrade Program of Power Units of Nuclear Power Plants: Environmental Assessment, SE Energoatom, Kyiv, 2012
- 72 The Law of Ukraine "On charitable activity and charitable organizations" No 5073-VI of 05.07.2012. <http://zakon5.rada.gov.ua/laws/show/5073-17>
- 73 Collective agreement of SE NNEGC Energoatom for 2015, approved by the resolution of the labour group conference of 12.03.2015
- 74 Information and analytical survey of the materials "Khmelnystka NPP. Feasibility study of power units 3, 4 construction", Kyiv, SE "NNEGC "Energoatom", 2011.
- 75 The Law of Ukraine "On siting, design and construction of power units No 3 and 4 of Khmelnytsky nuclear power plant" No 5217-VI of 06.09.2012 (expired on the basis of the Law of Ukraine No. 697-VIII dated 16.09.2015)
- 76 Scoping of next Environmental Assessment of the "Complex (Consolidated) Safety Upgrade Program of power units of Nuclear Power Plants of Ukraine"
http://energoatom.kiev.ua/en/actvts-16/integrated_security_program-161/p/report_on_scoping_the_next_ccsup_environmental_assessment-4008
- 77 Loan agreement (Ukraine: Complex (Consolidated) Safety Upgrade Program of Power Units of Nuclear Power Plants) between SE NNEGC «Energoatom» and EBRD of 25.03.2013
- 78 Loan Facility Agreement in connection to the Complex (consolidated) Safety Upgrade Program of Power Units of Nuclear Power Plants between SE NNEGC «Energoatom» and Euratom of 07.08.2013
- 79 Non-technical summary: Implementation of Complex (consolidated) Safety Upgrade Program of Power Units of Nuclear Power Plants and CCSUP Environmental and Social Action Plan: 2015,
http://energoatom.kiev.ua/ua/actvts-16/integrated_security_program-161/p/netehnicne_rezume_realizacii_kompleksnoi_zvedenoj_programi_pidvisenna_bezpeki_energobloktiv_atomnih_elektrostantsij_ta_planu_ekologicnih_ta_socialnih_zahodiv_kzpb-4636
- 80 Stakeholder Engagement Plan, SE NNEGC "Energoatom", Kyiv, 2015
http://energoatom.kiev.ua/ua/actvts-16/integrated_security_program-161/p/plan_zaluchennja_zatckavlenih_storn-821
- 81 Public Discussion of CCSUP Implementation was Held at Ukrainian NPPs
http://energoatom.kiev.ua/ua/actvts-16/integrated_security_program-161/p/na_ukranskijh_aes_vdbulis_publichn_obgovorennja_pitan_realzats_kzpb-574
- 82 Corrected investment program of SE NNEGC "Energoatom" on 2016 (agreed by NKREKP)
http://energoatom.kiev.ua/ua/actvts-16/investment-164/p/skorigovana_investicijna_programa_naek_energoatom_na_2016_rik_shvalena_nkrek-p-4042
- 83 Medium-term investment program of SE NNEGC "Energoatom" on 2016 – 2020.
<http://energoatom.kiev.ua/ua/actvts-16/investment->

- [164/p/seredn_ostrokova_investicijna_programa_naek_energoatom_na_2016_2020_rr.-4661](#)
- 84 The Law of Ukraine "On Electricity", No 575/97-BP of 16.10.1997
<http://zakon4.rada.gov.ua/laws/show/575/97-bp>
- 85 NERCP Resolution "Methodology for the Formation, Calculation and Setting of Tariffs for Electric and Heat Generated at Nuclear Power Plants" No. 990 of 01.08.2017
<http://zakon0.rada.gov.ua/laws/show/v0990874-17> (before - NKRE Resolution "Concerning the approval of the Order of tariff calculation for electricity and heat energy which produced at HP, TPP and NPP", No 896 of 12.10.2005, expired on 01.08.2017)
- 86 NKRE Resolution "Concerning the approval of the Procedure of revision and approval the tariff for licensees on electricity and heat energy production" No 898 of 12.10.2005 (expired on 01.08.2017)
- 87 SE NNEGC "Energoatom" has held a briefing on public consultations concerning the scope of the next CCSUP Environmental Assessment http://energoatom.kiev.ua/ua/actvts-16/integrated_security_program-161/p/energoatom_proviv_brifing_sodo_konsul_tacij_z_gromads_kistu_stosovno_obsagiv_c_ergovoi_ekologichnoi_ocinki_kzpb-2332
- 88 Implementation of the Complex (Consolidated) Safety Upgrade Program of Power Units of Ukrainian Nuclear Power Plants during the II Quarter, 2016
http://energoatom.kiev.ua/files/file/ntr_ccsup_2016_2_en.pdf
- 89 SE NNEGC "Energoatom" has held a briefing on public consultations concerning the scope of the next CCSUP Environmental Assessment http://energoatom.kiev.ua/ua/actvts-16/integrated_security_program-161/p/energoatom_proviv_brifing_sodo_konsul_tacij_z_gromads_kistu_stosovno_obsagiv_c_ergovoi_ekologichnoi_ocinki_kzpb-2332
- 90 ПМ-Д.0.18.606-14 Program of works with spent nuclear fuel after reaching of final term of storage in the SFDSF of Zaporizhzhya NPP, Kyiv, SE NNEGC "Energoatom", 2014.
- 91 Report of ecological assessment of Complex (Consolidated) Safety Upgrade Program of Power Units of Ukrainian Nuclear Power Plants during 2012–2016 (final), SE "NNEGC "Energoatom", 2017,
http://www.energoatom.kiev.ua/files/file/ea_report_ccsup_2016_final_june2017.pdf
- 92 Complex (Consolidated) Safety Upgrade Program of Power Units of Ukrainian Nuclear Power Plants-Report summary for a wide audience, Kiev, SE "NNEGC "Energoatom", 2011,
http://energoatom.kiev.ua/ua/actvts/integrated_security_program/38711-proekt_zvtu_pro_ekologchnu_otcnku_rezyume_zvtu_rozrahovane_na_shiroku_auditoryu/
- 93 Non-technical summary: Implementation of Complex (consolidated) Safety Upgrade Program of Power Units of Nuclear Power Plants and CCSUP Environmental and Social Action Plan, Kiev, SE "NNEGC "Energoatom", 2015 http://energoatom.kiev.ua/ua/actvts-16/integrated_security_program-161/p/netehnicne_rezume_realizacii_kompleksnoi_zvedenoj_programi_pidvisenna_bezpeki_energoblokiv_atomnih_elektrostantsij_ta_planu_ekologichnih_ta_social_nih_zahodiv_kzpb-4636
- 94 Non-technical summary: Implementation of CCSUP Environmental and Social Action Plan (as of end of 2016), Kiev, SE "NNEGC "Energoatom", 2017, http://energoatom.kiev.ua/en/actvts-16/integrated_security_program-161/p/nontechnical_summary_implementation_of_ccsup_environmental_and_social_action_plan_at_the_end_of_2016-3937

- 95 Non-technical summary: Implementation of CCSUP, CCSUP Environmental and Social Action Plan and CCSUO Stakeholders Engagement Plan (as of 31.09.2017), Kiev, SE "NNEGC "Energoatom", 2017 http://energoatom.kiev.ua/en/actvts-16/integrated_security_program-161/p/non_technical_summary_implementation_of_ccsup_ccsup_environmental_and_social_action_plan_and_ccsup_stakeholder_engagement_plan_as_of_30.09.2017-3712
- 96 Environmental and Social Action Plan. Complex Consolidated Safety Upgrade Program of Power Units of Nuclear Power Plants of Ukraine http://energoatom.kiev.ua/ua/actvts-16/integrated_security_program-161/p/plan_ekologicnih_ta_social_nih_zahodiv_kompleksna_zvedena_programa_pidvisenn_a_bezpeki_energoblokiv_atomnih_elektrostantsij_ukraini.-4893
- 97 Collective agreement of SE NNEGC Energoatom for 2015, approved by the resolution of the labour group conference of 12.03.2015
- 98 COY HAEK 023:2014 Radiation Safety Assurance. Procedure to set the sizes of sanitary protection zone of NPPs, SE NNEGC Energoatom, Kyiv, 2014
- 99 Order of President of Ukraine "On corporatization of enterprises" No 210/93 of 15.05.1993
- 100 Resolution of the CM of Ukraine "On Approval of the Energy Strategy of Ukraine for the Period till 2035 "Safety, Energy Efficiency, Competitive Ability" No 605-p of 18.08.201, <https://zakon.rada.gov.ua/laws/show/605-2017-%D1%80>
- 101 CoM Order "On making changes to Complex (Consolidated) Safety Upgrade Program of Power Units of Ukrainian Nuclear Power Plants" No 924 of 07.11.2018 <https://zakon.rada.gov.ua/laws/show/924-2018-%D0%BF>
- 102 Investment program of SE NNEGC "Energoatom" on 2019, approved by the NERCAP resolution No 1904 of 12.12.2018 <http://www.nerc.gov.ua/index.php?id=37381>