

# ANL Assessment and evidences of China Mobile Anhui on GB1059H\_RAN Energy Efficiency Optimization

November 2025

# RAN Energy Efficiency Optimization Questionnaire

High-Value Scenario	Cognitive Activity	Service Capability	Weight	Questions	Option A	Option B	Option C	Option D
RAN Energy Efficiency Optimization	Intent	Intent Translation	15%	How does the System translate the RAN Energy saving intent to the RAN energy saving related control information? RAN energy saving intent includes RAN energy saving targets and performance targets (including but not limited to RAN UE Throughput Targets). Note1: Human defined policies can overwrite the automated selection of energy saving candidate objects	Based on RAN energy saving Intent defined by Human, the System automatically selects candidate energy-saving objects (e.g. NE/CELL) and generates the RAN energy saving related control information based on the RAN energy saving intent, without Human Intervention. The system can automatically explore the energy saving gains and performance impacts to support human continuous adjustment of intent targets to achieve optimal energy saving effect and performance.	The System can automatically generate RAN energy saving related control information through the execution of predefined Rules. Human manually select candidate energy-saving objects (e.g. NE/CELL) and confirm the RAN energy saving related control information based on the RAN energy saving intent.	RAN energy saving related control information are manually defined based on expertise	
		Intent Fulfilment evaluation	10%	How does the System evaluate RAN energy saving intent fulfilment?	The system automatically evaluates and generates an intent fulfilment report including targets fulfilment status, based on intent.	The system automatically evaluates and generates an intent fulfilment report (including targets fulfilment status) based on intent, but human confirms the evaluation result	Intent Fulfilment is manually evaluated	
	Awareness	RAN Energy Saving Information Collection	10%	How does the System collect RAN energy saving related information? RAN energy saving related information includes but not limited to energy efficiency measurements, e.g. Data Volume measurement and performance data, network configuration data e.g. energy saving state and environment data e.g. electronic map, site location.	The System continuously collects RAN energy saving related information, without human intervention	The System continuously collects RAN energy saving related information, but requires human intervention (e.g.: for data quality checks)	The System continuously collects RAN energy saving related information based on predefined rules.	RAN energy saving related information are collected based on expertise
	Analysis	RAN Energy Saving Issues Identification	10%	How does the System identify RAN energy saving issues? e.g. insufficient energy saving issue, high energy consumption, low energy efficiency and performance issues caused by energy savings actions	The System intelligently identifies energy saving issues, without human intervention.	The System intelligently identifies energy saving issues, but requires human intervention for issue confirmation	The System identifies energy saving issues based on predefined rules.	Energy saving issues are manually identified.
		RAN Traffic & Performance Prediction	10%	How does the System predict traffic load and network performance that can be used for RAN energy saving solutions? Traffic load includes but not limited to PRB utilization rate. Network performance includes but not limited to RAN UE throughput	The System intelligently predicts traffic load & network performance that can be used for energy saving solution at the minimum granularity that data is available from the source, without human intervention.	The System intelligently predicts traffic load & network performance that can be used for energy saving solution, without human intervention.	The System predicts traffic load & network performance that can be used for energy saving solution, based on predefined rules.	Traffic load & network performance trend need to be manually established based on human expertise or through the execution of manual written procedures.
		RAN Energy Saving Issues Demarcation & Root Cause Analysis	10%	How does the System demarcate energy saving & performance issues and analyze their root cause (e.g., performance issues caused by which energy saving actions)?	The System intelligently demarcates energy saving & performance issues and analyze their root cause, without human intervention	The System intelligently demarcates energy saving & performance issues and analyze their root cause, but requires human intervention to confirm the root causes	The System identifies energy saving issues, based on predefined rules The root cause is analyzed by expert	Energy saving & performance issues demarcation and root cause analysis are performed manually
		Solution Generation	15%	How does the System generate the recommended RAN energy saving solutions to solve the identified energy saving issues?	The System intelligently generates energy saving solutions, adjusted to adapt to RAN Traffic & Performance changes, without human intervention	The System intelligently generates energy saving solutions, without human confirmation	The System generates energy saving solutions based on predefined rules, and requires human intervention.	Energy saving solutions are manually proposed based on expertise.
	Decision	Solution Evaluation & Decision Making	10%	How does the System evaluate energy saving solutions and decide on the best solution to be implemented?	The System intelligently evaluates energy saving solution when the recommended solutions are generated, and selects the best solution, without human intervention	The System intelligently evaluates energy saving solution and selects the best solution, but requires human confirmation	The System evaluates energy saving solution and selects the best solution based on predefined rules	Energy saving solutions are evaluated and decided based on manual expertise.
	Execution	Solution Implementation	10%	How does the System implement solution that can resolve identified energy saving issues?	The System implements solution without human supervision	The System implements solution under human supervision	Solution implementation is entirely manual.	

## China Mobile Self-Evaluation 9A

Service Capability	Weight	Answer			Score
		Intra-RAT intra-frequency (20%)	Intra-RAT inter-frequency (40%)	Inter-system (40%)	
Intent Translation	10%	A	A	A	4
Intent Achievement Evaluation	10%	A	A	A	4
Collecting RAN Energy Saving Information	15%	A	A	A	4
RAN Energy Saving Problem Identification	20%	A	A	A	4
RAN Traffic and Performance Prediction	20%	A	A	A	4
RAN Energy Saving Problem Definition and Root Cause Analysis	10%	A	A	A	4
Solution generation	10%	A	A	A	4
Solution evaluation and decision-making	5%	A	A	A	4
Solution Implementation	10%	A	A	A	4
					<b>4</b>

## Question

How does the System translate the RAN Energy saving intent to the RAN energy saving related control information?  
 RAN energy saving intent includes RAN energy saving targets and performance targets (including but not limited to RAN UE Throughput Targets).Note1: Human defined policies can overwrite the automated selection of energy saving candidate objects

## Options

	✓ Option A	Option B	Option C	Option D
Options	<p>The system automatically selects a candidate energy-saving object (for example, NE or CELL) based on the manually defined energy-saving intention of the RAN, and generates related RAN energy-saving control information based on the energy-saving intention of the RAN without manual intervention.</p> <p>The system can automatically explore the energy saving gain and performance impact to support continuous manual adjustment of intent objectives and achieve the best energy saving effect and performance.</p>	<p>The system can automatically generate power saving-related control information by executing predefined rules.</p> <p>The candidate energy-saving objects (for example, NE and CELL) are manually selected, and the control information related to RAN energy saving is determined based on the RAN energy-saving intention.</p>	<p>The control information related to RAN energy saving is manually defined based on human professional experience.</p>	

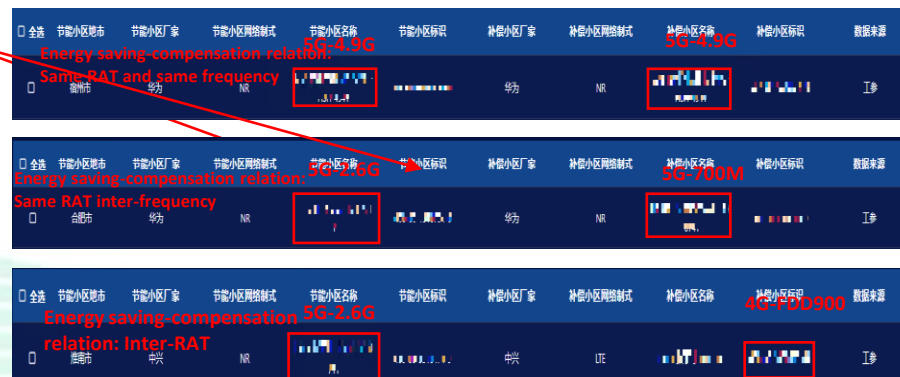
## Evidence

Based on the RAN Energy-Saving Module of the Operation and Maintenance Workbench, the large model is used to identify manually defined RAN energy-saving intentions (cell-level or regional-level energy-saving targets). It identifies RAN energy-saving cell relationships, outputting co-covered cells in the target area and determining the relationships between energy-saving cells and compensation cells—including co-coverage relationships under different standards such as same RAT with same frequency, same RAT with different frequencies, and inter-system cells. Then, based on manual adjustment intentions and information on energy-saving cell relationships, relevant energy-saving control schemes are generated.

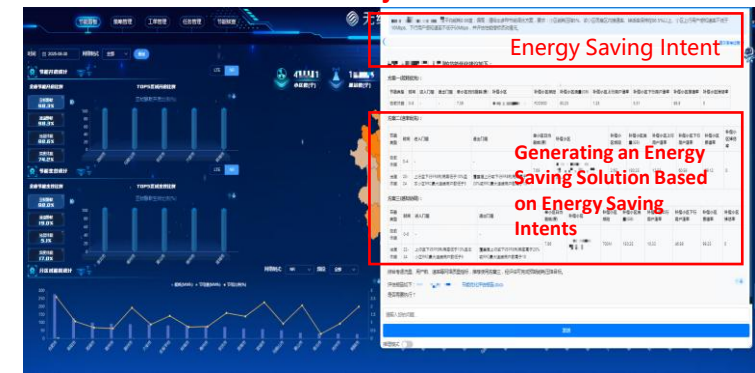
Query the information about the cells with the same coverage and the energy consumption and traffic through the large-model Prompt.



During the identification procedure, the system calculates the co-coverage relationship between the RAN energy-saving cells in the target area and the compensation cells.



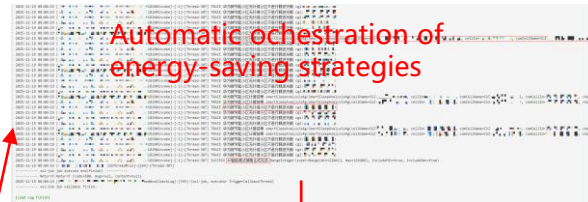
The large model identifies manually defined RAN energy-saving intentions (cell/area-level objectives) and generates relevant energy-saving control solutions based on manual adjustment intentions.



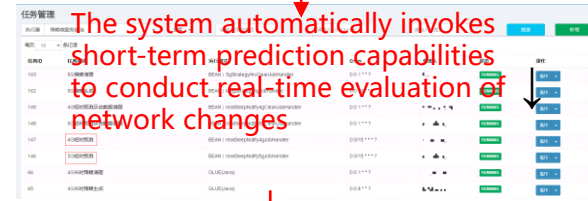
The system supports automatic collection and analysis of energy-saving data, automatic arrangement of energy-saving strategies, and automatic evaluation of energy-saving effects based on the automation capabilities of the Energy Navigation Module of the Wireless Operation and Maintenance Workbench, in accordance with energy-saving intentions. No need for manual intervention.



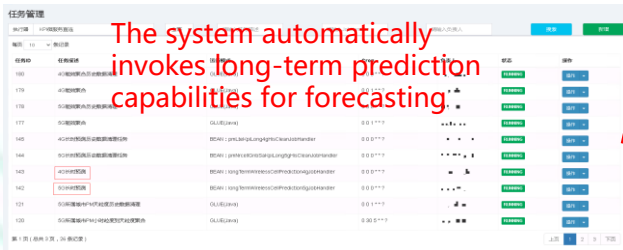
Automatic collection of various types of data, such as network performance, traffic, and energy consumption data



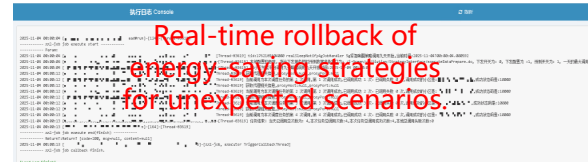
Automatic orchestration of energy-saving strategies



The system automatically invokes short-term prediction capabilities to conduct real-time evaluation of network changes



The system automatically invokes long-term prediction capabilities for forecasting



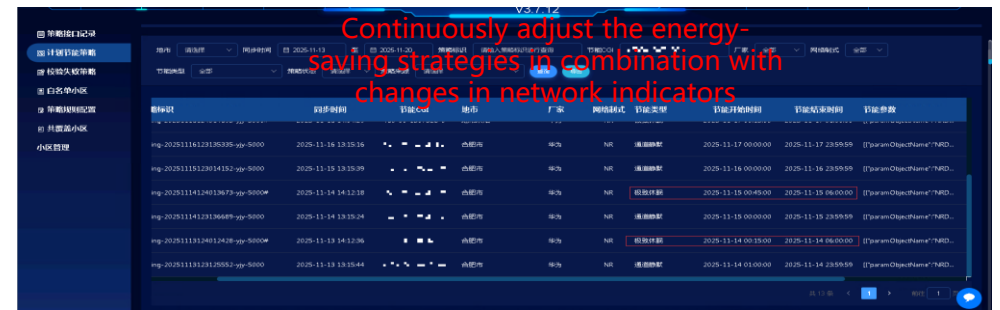
Real-time rollback of energy-saving strategies for unexpected scenarios



Automatic Generation of Energy-saving Strategies



Evaluation of energy-saving effects and performance



Continuously adjust the energy-saving strategies in combination with changes in network indicators

Question

How does the System evaluate RAN energy saving intent fulfilment?

Options

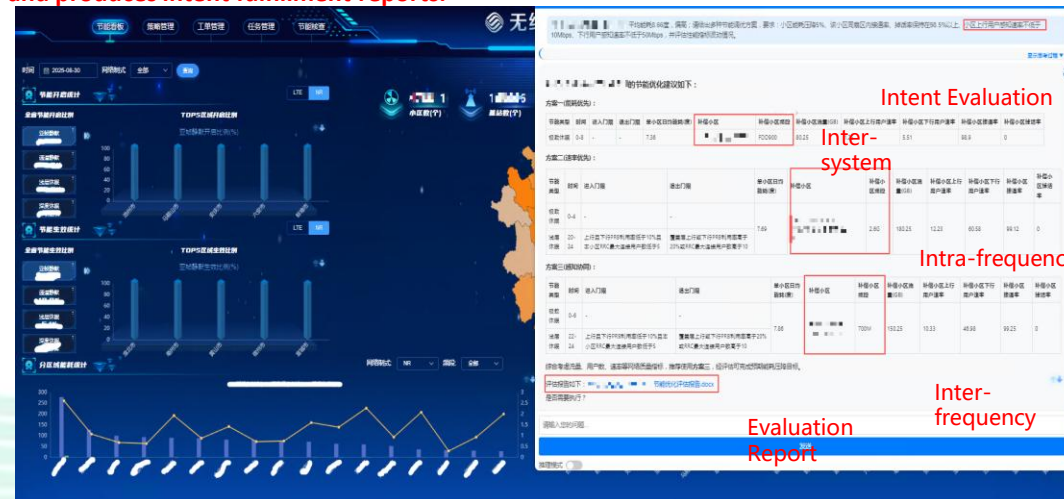
Option A	Option B	Option C	Option D
<p>✓ Option A</p> <p>The system automatically evaluates and generates an intent fulfillment report including targets fulfillment status, based on intent.</p>	<p>The system automatically evaluates and generates an intent fulfillment report (including targets fulfillment status) based on intent, but human confirms the evaluation result</p>	<p>Intent Fulfilment is manually evaluated</p>	

Evidence

The large model automatically retrieves network performance data, including network load metrics (user count, utilization, traffic, rate) and network performance indicators (connection rate, drop rate). Based on user intent, it identifies energy-saving objectives and requirements (e.g., uplink/downlink rate, network quality), conducts automatic energy-saving evaluations, generates intent fulfillment reports, and provides multiple solutions.



In natural language interaction, users set energy-saving goals, uplink/downlink rate and network quality requirements. After intent recognition, the large model generates same-frequency, hetero-frequency and inter-system energy-saving strategies, conducts evaluations, and produces intent fulfillment reports.



Energy-Saving Optimization Evaluation Report



## Question

How does the System collect RAN energy saving related information?

RAN energy saving related information includes but not limited to energy efficiency measurements, e.g. Data Volume measurement and performance data, network configuration data e.g. energy saving state and environment data e.g. electronic map, site location.

## Options

	✓ Option A	Option B	Option C	Option D
	The System continuously collects RAN energy saving related information, without human intervention	The System continuously collects RAN energy saving related information, but requires human intervention (e.g.: for data quality checks)	The System continuously collects RAN energy saving related information based on predefined rules.	Collecting RAN Energy Saving Information Based on Professional Knowledge

## Evidence

Based on the northbound specifications, the Energy-Saving Module of the Wireless Operation and Maintenance Workbench automatically collect performance data, rate data, energy-saving configuration data and other information of 4G/5G site or cells of different standards, which is displayed on the front-end system page.

```

c[front@localhost ~]# crontab -l
#配置信息采集
00 03 * * * /cm/5g/zte_cm_gnb_all.py >> /data/beixiang/zte/cm/5g/zte_cm_gnb.log
00 08 * * * /cm/5g/zte_cm_gnb.py >> /data/beixiang/zte/cm/5g/zte_cm_gnb.log
03 04 * * * /cm/4g/zte_cm_lte.py >> /data/beixiang/zte/cm/4g/zte_cm_lte.log
25 14 * * * /cm/5g/hw_cm_gnb.py >> /data/beixiang/hw/cm/5g/hw_cm_gnb.log
00 03 * * * /cm/4g/hw_cm_lte.py >> /data/beixiang/hw/cm/4g/hw_cm_lte.log
37 03 * * * /cm/4g/nokia_cm_lte.py >> /data/beixiang/nokia/cm/4g/nokia_cm_lte.log
40 03 * * * /cm/4g/ericsson_cm_lte.py >> /data/beixiang/ericsson/cm/4g/ericsson_cm_lte.log
35 03 * * * /cm/5g/ericsson_cm_gnb.py >> /data/beixiang/ericsson/cm/5g/ericsson_cm_gnb.log

#华为5G指标采集和解析
24 * * * * /hw_pm_5g.py 00 >> /data/jdpt/tianku190/beixiang-pm/hw_5g/pm-ix_00.log 2>&1
24 * * * * /hw_pm_5g.py 15 >> /data/jdpt/tianku190/beixiang-pm/hw_5g/pm-ix_15.log 2>&1
24 * * * * /hw_pm_5g.py 30 >> /data/jdpt/tianku190/beixiang-pm/hw_5g/pm-ix_30.log 2>&1
24 * * * * /hw_pm_5g.py 45 >> /data/jdpt/tianku190/beixiang-pm/hw_5g/pm-ix_45.log 2>&1

#中兴5G指标采集和解析
27 * * * * /zte_pm_5g.py 00 >> /data/jdpt/tianku190/beixiang-pm/zte_5g/pm-ix_00.log 2>&1
27 * * * * /zte_pm_5g.py 15 >> /data/jdpt/tianku190/beixiang-pm/zte_5g/pm-ix_15.log 2>&1
27 * * * * /zte_pm_5g.py 30 >> /data/jdpt/tianku190/beixiang-pm/zte_5g/pm-ix_30.log 2>&1
27 * * * * /zte_pm_5g.py 45 >> /data/jdpt/tianku190/beixiang-pm/zte_5g/pm-ix_45.log 2>&1

#爱立信5G北向PM采集
28 * * * * /ericsson_pm_5g.py 00 >> /data/jdpt/tianku190/beixiang-pm/ericsson_5g/pm-cj_log 2>&1
28 * * * * /ericsson_pm_5g.py 15 >> /data/jdpt/tianku190/beixiang-pm/ericsson_5g/pm-cj_log 2>&1
28 * * * * /ericsson_pm_5g.py 30 >> /data/jdpt/tianku190/beixiang-pm/ericsson_5g/pm-cj_log 2>&1
28 * * * * /ericsson_pm_5g.py 45 >> /data/jdpt/tianku190/beixiang-pm/ericsson_5g/pm-cj_log 2>&1

#爱立信5G北向PM解析
29 * * * * /ericsson_csv.py 00 >> /data/jdpt/tianku190/beixiang-pm/ericsson_5g/pm-ix_00.log 2>&1
29 * * * * /ericsson_csv.py 15 >> /data/jdpt/tianku190/beixiang-pm/ericsson_5g/pm-ix_15.log 2>&1
29 * * * * /ericsson_csv.py 30 >> /data/jdpt/tianku190/beixiang-pm/ericsson_5g/pm-ix_30.log 2>&1
29 * * * * /ericsson_csv.py 45 >> /data/jdpt/tianku190/beixiang-pm/ericsson_5g/pm-ix_45.log 2>&1

#华为4G指标采集和解析
01 * * * * /hw_hour_csv.py 00 >> /data/tianku190/beixiang-pm/hw_4g/pm-ix_00.log 2>&1
01 * * * * /hw_hour_csv.py 15 >> /data/tianku190/beixiang-pm/hw_4g/pm-ix_15.log 2>&1
01 * * * * /hw_hour_csv.py 30 >> /data/tianku190/beixiang-pm/hw_4g/pm-ix_30.log 2>&1
01 * * * * /hw_hour_csv.py 45 >> /data/tianku190/beixiang-pm/hw_4g/pm-ix_45.log 2>&1

#中兴4G指标采集和解析
42 * * * * /zte_hour_csv.py 00 >> /data/tianku190/beixiang-pm/zte_4g/pm-ix_00.log 2>&1
42 * * * * /zte_hour_csv.py 15 >> /data/tianku190/beixiang-pm/zte_4g/pm-ix_15.log 2>&1
42 * * * * /zte_hour_csv.py 30 >> /data/tianku190/beixiang-pm/zte_4g/pm-ix_30.log 2>&1
42 * * * * /zte_hour_csv.py 45 >> /data/tianku190/beixiang-pm/zte_4g/pm-ix_45.log 2>&1

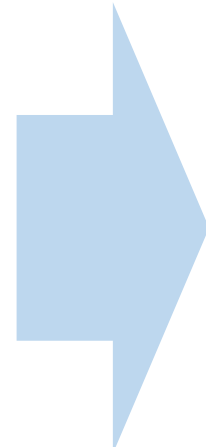
#爱立信4G北向PM采集和解析
11 * * * * /ericsson_d1.py 00 >> /data/tianku190/beixiang-pm/ericsson_4g/pm-ix_00.log 2>&1
11 * * * * /ericsson_d1.py 15 >> /data/tianku190/beixiang-pm/ericsson_4g/pm-ix_15.log 2>&1
11 * * * * /ericsson_d1.py 30 >> /data/tianku190/beixiang-pm/ericsson_4g/pm-ix_30.log 2>&1
11 * * * * /ericsson_d1.py 45 >> /data/tianku190/beixiang-pm/ericsson_4g/pm-ix_45.log 2>&1

#诺基亚4G北向PM采集和解析
12 * * * * /nokia_d1.py 00 >> /data/tianku190/beixiang-pm/nokia_4g/pm-ix_00.log 2>&1
12 * * * * /nokia_d1.py 15 >> /data/tianku190/beixiang-pm/nokia_4g/pm-ix_15.log 2>&1
12 * * * * /nokia_d1.py 30 >> /data/tianku190/beixiang-pm/nokia_4g/pm-ix_30.log 2>&1
12 * * * * /nokia_d1.py 45 >> /data/tianku190/beixiang-pm/nokia_4g/pm-ix_45.log 2>&1

#清理中间文件
19 0 * * * /clear-Itempm.sh >> /data/tianku190/beixiang-pm/clear-Itempm.log
    
```

ZTE, Huawei, Nokia and Ericsson 4G/5G site configuration data collection

ZTE, Huawei, Nokia and Ericsson 4G/5G Performance Management (PM) Indicator Collection



### Front-End Energy-Saving Configuration Information

名称	厂家	标准	配置项	配置值	生效时间	是否生效	是否配置	是否生效	是否生效
1540024.3	2.6G	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1540024.2	2.6G	否	节能策略	节能策略	2025-08-20 01:00:00	否	已配置	否	否
1540024.1	2.6G	否	节能策略	节能策略	2025-08-20 02:00:00	否	已配置	否	否
1570021.0	700M	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1540711.0	2.6G	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1570021.1	700M	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1540711.1	2.6G	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1540031.0	2.6G	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1540031.2	2.6G	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1540031.1	2.6G	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否

### Front-End Performance Data

名称	厂家	标准	配置项	配置值	生效时间	是否生效	是否配置	是否生效	是否生效
1540024.3	2.6G	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1540024.2	2.6G	否	节能策略	节能策略	2025-08-20 01:00:00	否	已配置	否	否
1540024.1	2.6G	否	节能策略	节能策略	2025-08-20 02:00:00	否	已配置	否	否
1570021.0	700M	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1540711.0	2.6G	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1570021.1	700M	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1540711.1	2.6G	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1540031.0	2.6G	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1540031.2	2.6G	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否
1540031.1	2.6G	否	节能策略	节能策略	2025-08-20 00:00:00	否	已配置	否	否

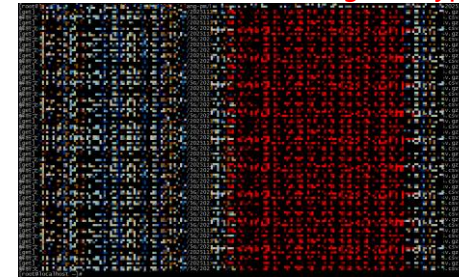
Database table "hw\_gnb\_hour\_kpi\_20251119" contains hourly KPI indicator for 5G base stations, which collects 172 items, including various indicators such as rate, traffic, number of users, connection rate, and drop rate.

The system is able to automatically collect the full performance indicators of 4G/5G base stations 24 hours a day, such as speed, traffic, number of users, connection rate, disconnection rate, etc. The base station configuration data does not require manual intervention.

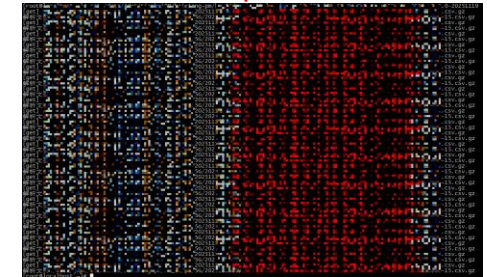
Various data fields

Total number of collected fields

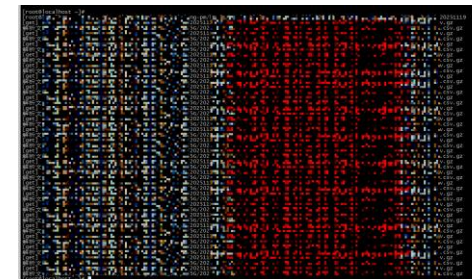
96 data files in a day (granularity: 15 min)  
(Taking one type of table as an example)



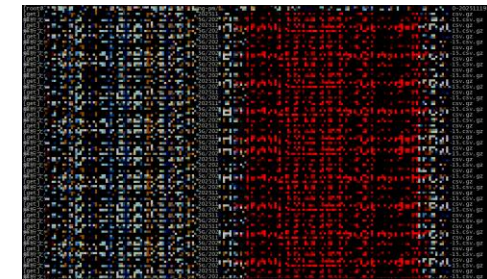
The data automatically collected in the first 15 minutes of each hour



The data automatically collected in the third 15 minutes of each hour



The data automatically collected in the second 15 minutes of each hour



The data automatically collected in the fourth 15 minutes of each hour



## Question

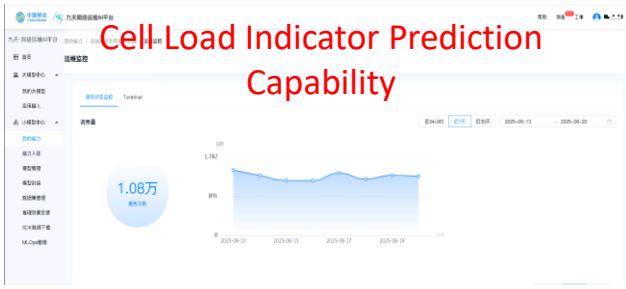
How does the System predict traffic load and network performance that can be used for RAN energy saving solutions?  
 Traffic load includes but not limited to PRB utilization rate.  
 Network performance includes but not limited to RAN UE throughput

## Options

Option A	Option B	Option C	Option D
<p>✓ <b>Option A</b></p> <p>The System intelligently predicts traffic load &amp; network performance that can be used for energy saving solution at the minimum granularity that data is available from the source, without human intervention.</p>	<p>The System intelligently predicts traffic load &amp; network performance that can be used for energy saving solution, without human intervention.</p>	<p>The System predicts traffic load &amp; network performance that can be used for energy saving solution, based on predefined rules.</p>	<p>Traffic load &amp; network performance trend need to be manually established based on human expertise or through the execution of manual written procedures.</p>

## Evidence

Cell Load Indicator Prediction (JiuTian Network Operations AI Platform):  
 This system builds long-term predictive models using historical cell load, traffic, and performance data to forecast next-day cell load/performance and auto-formulate energy-saving strategies. (In the capability's execution log, "predict\_date" follows "Request Success," with 15-minute granularity results.) It also supports energy-saving cell wake-up prediction—via short-term indicator forecasting and anomaly detection—to determine early wake-up needs for sudden traffic changes, outputting an energy-saving strategy list upon invocation.



```

    curl -X POST -H "Content-Type: application/json" -d '{"predict_date": "2025-08-09"}' http://10.10.10.10:8080/api/v1/cell-load/predict
    {"ret_code": 10000, "ret_message": "请求成功", "predict_date": "2025-08-09", "predict_data": [{"cell_id": "10101", "prb_utilization": 0.85, "throughput": 1000000}, {"cell_id": "10102", "prb_utilization": 0.75, "throughput": 800000}, {"cell_id": "10103", "prb_utilization": 0.9, "throughput": 1200000}, {"cell_id": "10104", "prb_utilization": 0.8, "throughput": 900000}, {"cell_id": "10105", "prb_utilization": 0.7, "throughput": 700000}, {"cell_id": "10106", "prb_utilization": 0.85, "throughput": 1100000}, {"cell_id": "10107", "prb_utilization": 0.75, "throughput": 850000}, {"cell_id": "10108", "prb_utilization": 0.9, "throughput": 1150000}, {"cell_id": "10109", "prb_utilization": 0.8, "throughput": 950000}, {"cell_id": "10110", "prb_utilization": 0.7, "throughput": 750000}]}
    
```

**Execution Log of Cell Load Indicator Prediction Capability**



```

    curl -X POST -H "Content-Type: application/json" -d '{"cell_id": "10101", "wake_time": "2025-07-31 02:15"}' http://10.10.10.10:8080/api/v1/cell-wake/predict
    {"ret_code": 10000, "ret_message": "请求成功", "cell_id": "10101", "wake_time": "2025-07-31 02:15"}
    
```



**Energy-Saving Strategy List**

策略ID	策略名称	策略类型	策略生效时间	策略失效时间	策略状态	策略备注
ES-001	无线基站节能策略	节能	2025-08-01 00:00:00	2025-08-31 23:59:59	生效	根据流量预测结果自动调整功率
ES-002	无线基站节能策略	节能	2025-08-01 00:00:00	2025-08-31 23:59:59	生效	根据流量预测结果自动调整功率

**Multi-Time-Slot Energy-Saving Strategy**

策略ID	策略名称	策略类型	策略生效时间	策略失效时间	策略状态	策略备注
ES-003	无线基站节能策略	节能	2025-06-24 06:00:00	2025-06-24 12:00:00	生效	根据流量预测结果自动调整功率
ES-004	无线基站节能策略	节能	2025-06-24 03:00:00	2025-06-24 06:15:00	生效	根据流量预测结果自动调整功率
ES-005	无线基站节能策略	节能	2025-06-24 00:00:00	2025-06-24 23:59:00	生效	根据流量预测结果自动调整功率
ES-006	无线基站节能策略	节能	2025-06-24 01:00:00	2025-06-24 03:00:00	生效	根据流量预测结果自动调整功率

The system is able to automatically collect the full performance indicators of 4G/5G base stations , such as speed, traffic, number of users, connection rate, disconnection rate, etc. Does not require manual intervention.

The system automatically realizes the prediction of indicators such as uplink/downlink PRB utilization, maximum number of RRC users, uplink/downlink rate, traffic, connection rate, and drop rate at a 15-minute granularity.

The system automatically achieves the prediction of indicators such as uplink/downlink PRB utilization, maximum number of RRC users, uplink/downlink rate, traffic, connection rate, and drop rate at an hourly granularity.

Record	gsmfunction	NRCELL	gsmSmeState	123RRC_ConMax	123RRC_WrlessSuccRate	123RRC_RlplpRate	123RRC_PrbkmsRate	123RRC_PrbkmsRate	123RRC_AvgRate	123RRC_AvgRate	123RRC_PrbkmsRate
58	705	14:15	14.956	12	99.268	128.687	1.115	9.14	3.516	74.698	
59	705	14:30	23.076	13	99.578	150.142	1.844	8.738	2.453	80.957	
60	705	14:45	14.713	9	99.528	47.688	1.301	6.4	2.456	61.138	
61	705	15:00	21.524	11	99.528	194.823	0.887	7.743	2.517	62.54	
62	705	15:15	15.795	12	100	328.573	0.752	8.616	2.17	74.349	
63	705	15:30	27.763	11	100	271.896	0.662	8.157	2.454	71.183	
64	705	15:45	25.971	11	99.441	284.293	1.022	9.413	11.731	61.139	
65	705	16:00	53.685	10	99.163	129.115	1.104	7.13	29.797	61.148	
66	705	16:15	12.536	10.5	99.725	170.081	0.829	7.53	2.45	62.422	
67	705	16:30	72.633	10.5	99.177	295.185	1.111	8.608	4.648	74.507	
68	705	16:45	29.102	13.5	99.759	369.648	1.452	15.017	2.861	61.139	
69	705	17:00	35.654	13	99.757	599.961	2.249	11.889	3.796	75.157	
70	705	17:15	21.122	12	99.787	161.131	1.049	7.483	4.55	66.059	
71	705	17:30	26.855	13.5	99.526	371.904	2.279	11.266	2.453	68.035	
72	705	17:45	47.226	14.5	99.426	463.784	2.146	11.207	4.261	61.151	
73	705	18:00	30.678	13.5	100	344.967	2.726	11.384	2.78	61.147	
74	705	18:15	34.282	13	100	703.918	1.794	17.695	2.289	61.126	
75	705	18:30	80.082	11.5	99.333	311.824	2.386	12.2	6.922	61.132	
76	705	18:45	20.894	11	99.772	269.188	1.24	11.622	3.33	61.151	
77	705	19:00	13.228	11	98.76	113.526	0.861	8.401	5.763	61.126	
78	705	19:15	57.124	9.5	99.752	186.716	2.45	9.801	6.828	61.123	
79	705	19:30	34.946	8.5	100	189.249	1.21	10.277	7.85	61.133	
80	705	19:45	94.195	10.5	99.584	218.416	3.086	9.186	26.333	61.153	
81	705	20:00	43.331	9.5	100	162.069	1.7191	8.805	17.191	61.132	
82	705	20:15	20.566	8.5	99.789	108.438	1.015	7.152	5.14	61.133	
83	705	20:30	26.803	10	99.662	326.115	0.734	9.887	6.057	61.136	
84	705	20:45	15.426	9.5	98.997	239.703	0.656	9.38	3.19	61.132	
85	705	21:00	17.684	10.5	100	253.942	0.964	8.941	4.644	68.8	
86	705	21:15	48.322	13.5	98.26	313.342	3.314	10.723	7.076	61.137	
87	705	21:30	91.851	11.5	99.812	263.83	2.8	9.585	13.261	61.114	
88	705	21:45	56.176	12	99.493	304.726	3.542	11.162	6.843	61.15	
89	705	22:00	23.808	11	99.489	358.547	0.818	10.291	8.589	61.13	
90	705	22:15	39.751	10.5	99.484	424.259	1.095	10.29	23.114	61.138	
91	705	22:30	74.059	12.5	99.895	507.193	1.752	12.951	13.489	61.116	
92	705	22:45	50.728	11	99.766	406.542	0.759	10.758	22.329	68.103	
93	705	23:00	36.957	11.5	99.361	376.205	0.864	9.316	13.441	69.685	
94	705	23:15	21.108	13	99.459	439.487	0.539	11.209	11.209	61.139	
95	705	23:30	...	...	...	...	...	...	...	...	

Record	start_time	gsmregion_name	gsmnci	gsmcall_name	gsmgbid	123RRC_ConMax	123RRC_ConMax	123RRC_AvgRate	123RRC_AvgRate	123RRC_PrbkmsRate	123RRC_PrbkmsRate
1	2025-11-00:00:00	马鞍山市	...	...	...	489.228	7,648.896	61.114	2.601	34.779	
2	2025-11-01:00:00	马鞍山市	...	...	...	17.556	374.457	61.14	2.456	7.108	
3	2025-11-02:00:00	马鞍山市	...	...	...	0	0	0	0	0	
4	2025-11-03:00:00	马鞍山市	...	...	...	0	0	0	0	0	
5	2025-11-04:00:00	马鞍山市	...	...	...	0	0	0	0	0	
6	2025-11-05:00:00	马鞍山市	...	...	...	1.07	5.145	106.889	3.05	1.357	
7	2025-11-06:00:00	马鞍山市	...	...	...	25.342	263.361	68.861	15.829	6.347	
8	2025-11-07:00:00	马鞍山市	...	...	...	61.502	735.686	69.278	9.796	7.294	
9	2025-11-08:00:00	马鞍山市	...	...	...	53.879	621.75	81.834	3.191	7.212	
10	2025-11-09:00:00	马鞍山市	...	...	...	52.725	644.166	66.627	2.965	8.283	
11	2025-11-10:00:00	马鞍山市	...	...	...	365.944	1,017.64	61.139	28.172	8.704	
12	2025-11-11:00:00	马鞍山市	...	...	...	59.94	648.717	63.286	5.917	7.835	
13	2025-11-12:00:00	马鞍山市	...	...	...	55.143	370.375	61.133	5.115	8.243	
14	2025-11-13:00:00	马鞍山市	...	...	...	93.247	1,091.536	63.768	9.915	9.833	
15	2025-11-14:00:00	马鞍山市	...	...	...	66.644	375.616	60.99	2.455	8.332	
16	2025-11-15:00:00	马鞍山市	...	...	...	75.371	812.273	67.305	2.367	8.183	
17	2025-11-16:00:00	马鞍山市	...	...	...	171.031	717.254	68.471	3.835	8.561	
18	2025-11-17:00:00	马鞍山市	...	...	...	109.335	1,005.02	70.611	3.39	9.2	
19	2025-11-18:00:00	马鞍山市	...	...	...	161.546	1,518.833	61.139	3.575	12.612	
20	2025-11-19:00:00	马鞍山市	...	...	...	238.206	708.209	61.133	6.037	8.815	
21	2025-11-20:00:00	马鞍山市	...	...	...	110.124	557.403	61.139	6.511	7.486	
22	2025-11-21:00:00	马鞍山市	...	...	...	153.286	731.917	61.134	8.374	8.698	
23	2025-11-22:00:00	马鞍山市	...	...	...	209.773	1,495.692	64.775	18.751	10.066	
24	2025-11-23:00:00	马鞍山市	...	...	...	84.579	695.476	65.154	8.474	8.196	



## Question

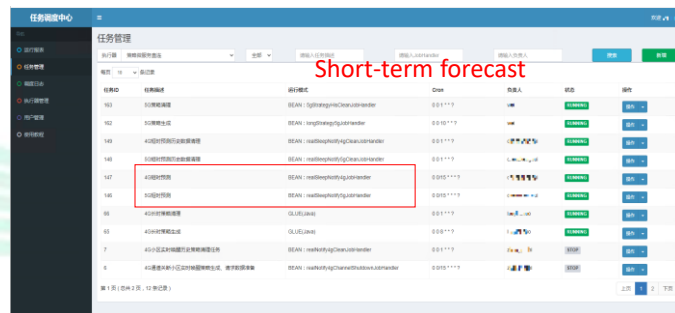
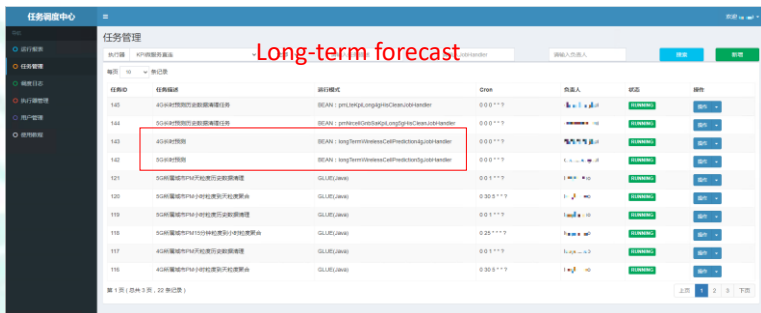
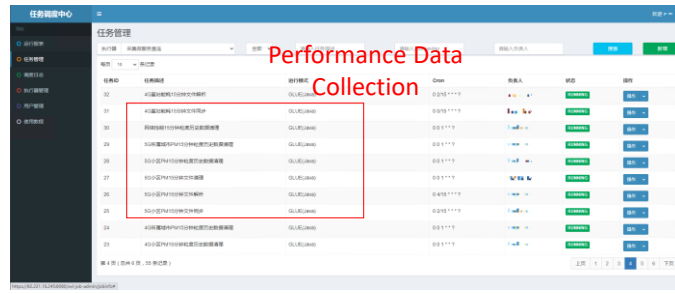
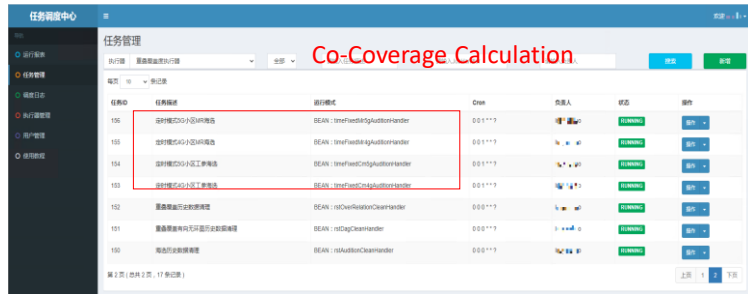
How does the System generate the recommended RAN energy saving solutions to solve the identified energy saving issues?

## Options

Option A	Option B	Option C	Option D
The System intelligently generates energy saving solutions, adjusted to adapt to RAN Traffic & Performance changes, without human intervention	The System intelligently generates energy saving solutions, without human confirmation	The System generates energy saving solutions based on predefined rules, and requires human intervention.	Energy saving solutions are manually proposed based on expertise.

## Evidence

Based on the AI intelligent service prediction algorithm, predict service indicators within a long period (the next day) and a short period (15 mins), identify cells with the same coverage in accordance with the engineering parameters, MR, and MDT of 4G/5G cells, predict the traffic and performance indicators of multiple cells in the energy saving and compensation areas, dynamically adjust the energy saving solution in accordance with the prediction results, and output an energy saving policy.



The system can automatically analyze, evaluate, and verify multiple energy-saving strategies for base stations, select the optimal solution, and deploy it—all without manual intervention.

The system automatically generates multiple energy-saving strategies

序号	日期	浅层休眠-PRB利用率	浅层休眠-RRC连接最大用户数	深度休眠-PRB利用率	深度休眠-RRC连接最大用户数	评估结果
1	2025-11-17	10	5	10	5	0.8
2	2025-11-17	10	10	10	10	0.6
3	2025-11-17	8	10	8	10	0.5

Automatically output cell-level energy-saving solutions

策略ID	策略名称	策略描述	策略生效时间	策略失效时间	策略状态	策略备注
40300-gp-200	2025-11-14 02:30	策略名称	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
41007-gp-200	2025-11-14 02:30	策略名称	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
41007-gp-200	2025-11-14 02:30	策略名称	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
40300-gp-200	2025-11-14 02:30	策略名称	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
40300-gp-200	2025-11-14 02:30	策略名称	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
40300-gp-200	2025-11-14 02:30	策略名称	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
40300-gp-200	2025-11-14 02:30	策略名称	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
41007-gp-200	2025-11-14 02:30	策略名称	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注

Automatically verify failed solutions and output the reasons

策略ID	策略名称	策略描述	策略生效时间	策略失效时间	策略状态	策略备注
2025-11-14 02:30	策略名称	策略描述	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
2025-11-14 02:30	策略名称	策略描述	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
2025-11-14 02:30	策略名称	策略描述	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
2025-11-14 02:30	策略名称	策略描述	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
2025-11-14 02:30	策略名称	策略描述	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
2025-11-14 02:30	策略名称	策略描述	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
2025-11-14 02:30	策略名称	策略描述	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注
2025-11-14 02:30	策略名称	策略描述	2025-11-14 02:30	2025-11-14 02:30	策略名称	策略备注

Dynamically deploy energy-saving strategies on a daily basis

策略ID	策略名称	策略描述	策略生效时间	策略失效时间	策略状态	策略备注
策略ID	策略名称	策略描述	策略生效时间	策略失效时间	策略状态	策略备注
策略ID	策略名称	策略描述	策略生效时间	策略失效时间	策略状态	策略备注
策略ID	策略名称	策略描述	策略生效时间	策略失效时间	策略状态	策略备注
策略ID	策略名称	策略描述	策略生效时间	策略失效时间	策略状态	策略备注
策略ID	策略名称	策略描述	策略生效时间	策略失效时间	策略状态	策略备注
策略ID	策略名称	策略描述	策略生效时间	策略失效时间	策略状态	策略备注
策略ID	策略名称	策略描述	策略生效时间	策略失效时间	策略状态	策略备注

## Question

How does the System evaluate energy saving solutions and decide on the best solution to be implemented?

## Options

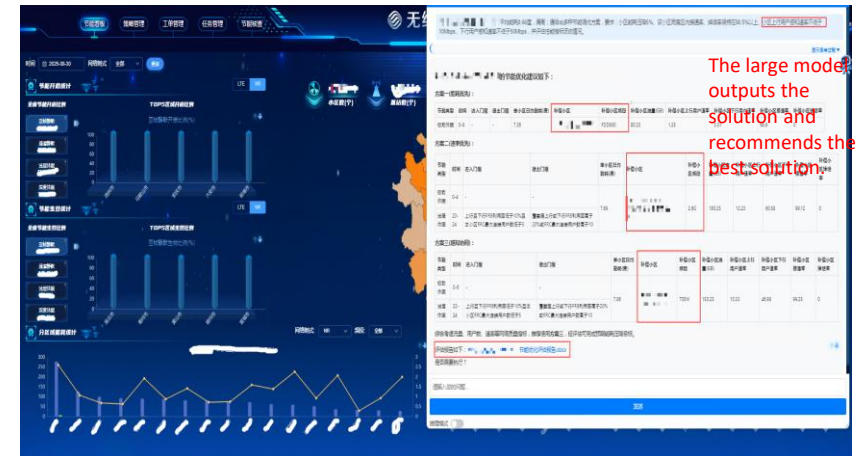
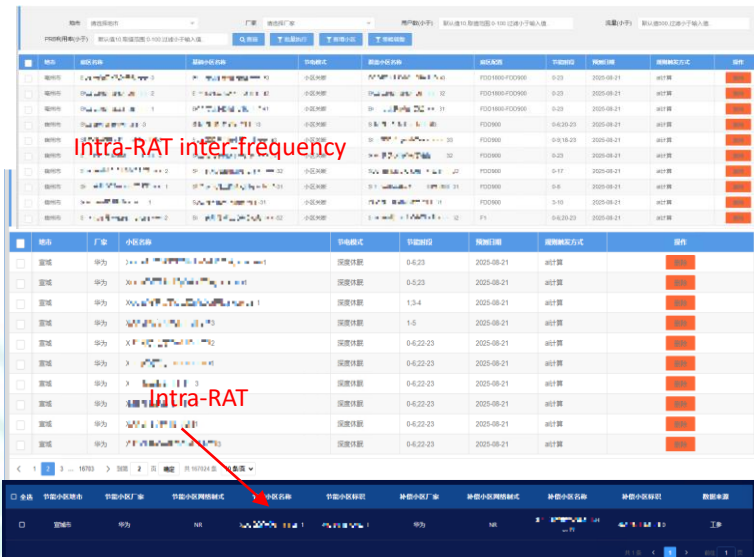
Option A	Option B	Option C	Option D
The System intelligently evaluates energy saving solution when the recommended solutions are generated, and selects the best solution, without human intervention	The System intelligently evaluates energy saving solution and selects the best solution, but requires human confirmation	The System evaluates energy saving solution and selects the best solution based on predefined rules	Energy saving solutions are evaluated and decided based on manual expertise.

## Evidence

In accordance with the network coverage, user behavior characteristics, and service characteristics in different scenarios, the system selects an allocation solution in accordance with the energy-saving policies in different scenarios, outputs intelligent matching enabling policies for functions such as symbol shutdown, channel shutdown, and carrier shutdown, and automatically executes and delivers the push work order management module. Supports large-model solution output and intelligent effect evaluation, provides three alternative solutions, and provides the best solution.

Energy Saving Policy Recommendation

Best Energy Saving Solution



The large model outputs the solution and recommends the best solution.

## Question

How does the System implement solution that can resolve identified energy saving issues?

## Options

Options	Option A	Option B	Option C	Option D
	The System implements solution without human supervision	The System implements solution under human supervision	Solution implementation is entirely manual.	

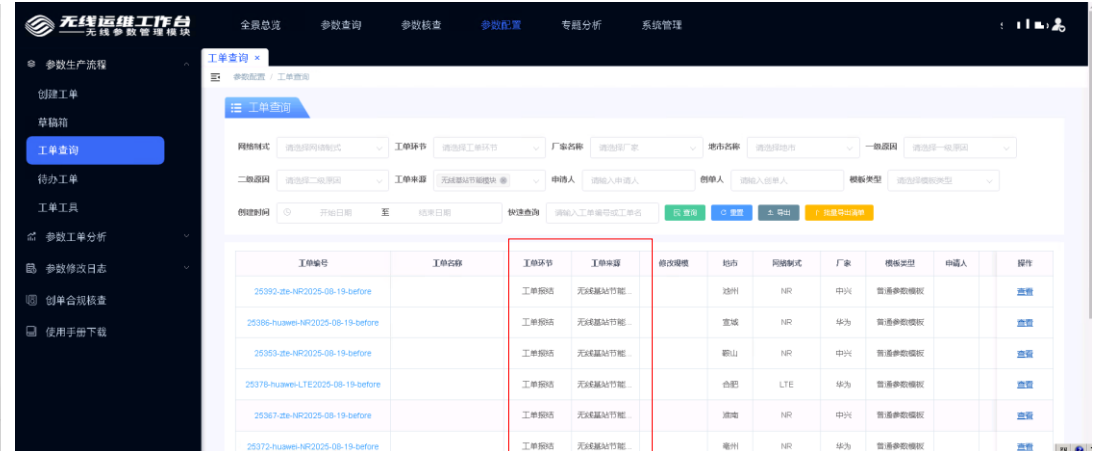
## Evidence

Based on the work order data generated by the work order management module, the system interconnects with the parameter platform, and automatically assembles and delivers instructions in batches. Supports the implementation of solutions for intra-RAT intra-frequency, intra-RAT inter-frequency, and inter-system cells.

Automatic batch delivery of energy-saving solutions



Execution Result of the Parameter Platform After the Energy Saving Solution Is Delivered





**Thank you for listening!**